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FINAL RESOURCE CONSERVATION AND RECOVERY ACT FACILITY INVESTIGATION REPORT SOLID WASTE MANAGEMENT UNIT 11 (SWMU 11) OLD STORAGE BUILDING B-225 NSA CRANE IN
09/01/2015
TETRA TECH

Final
Resource Conservation and Recovery Act Facility Investigation Report

Solid Waste Management Unit 11 - Old Storage Building, B-225

Naval Support Activity Crane
Crane, Indiana

Naval Facilities Engineering Command
MidLANT

Contract Number N62470-08-D-1001
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FINAL

RESOURCE CONSERVATION AND RECOVERY ACT FACILITY INVESTIGATION REPORT FOR SWMU 11– OLD STORAGE BUILDING, B-225

NAVAL SUPPORT ACTIVITY CRANE
CRANE, INDIANA

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

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REVISION LIST

The following list provides the revisions that were made to the May 2014 document to finalize the RFI Report:

Section	Revision	Description
Cover and Signature Page	September 2015	The cover page and title page were updated to indicate NAVFAC Mid-Lant and updated to reflect the final document dated September 2015.
Table of Contents and Acronyms and Abbreviations	September 2015	The table of contents (pages v to x) was updated to include a revisions list (page iii and backside page iv), add Appendix I, and update header to September 2015. Pages xi to xv (Acronyms) were also updated to September 2015.
Executive Summary	September 2015	The human health risk assessment and conclusions and recommendations and Table ES-1 were revised based on IDEM comments. The entire Executive Summary and Table ES-1 were reprinted.
Section 1.0 Introduction	September 2015	Page 1-3 was updated to correct the dimensions of the Building 225 slab size.
Section 7.0 Human Health Risk Assessment	September 2015	Pages 7-49 to 7-51 were revised based on responses to IDEM comments and the header was updated to September 2015 for these pages. Table 7-27 was also updated.
Section 9.0 Conclusions and Recommendations	September 2015	The conclusions and recommendations were revised based on responses to IDEM comments. The header was updated to September 2015.
Appendix I Responses to Comments	---	This appendix was added to include the responses to IDEM comments dated October 1, 2014 on the draft final RFI Report and IDEM approval on the responses dated August 27, 2015.

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ACRONYMS

ABS_{GI}	Absorption Efficiency in the Gastrointestinal Tract
ACH	Air Exchange per Hour
ADAF	Age-dependent Adjustment Factor
Ah	Aryl Hydrocarbon
ATSDR	Agency for Toxic Substances and Disease Registry
BAF	Bioaccumulation Factor
BERA	Baseline Ecological Risk Assessment
bgs	Below Ground Surface
BHC	Benzene Hexachloride
BRAC	Base Realignment and Closure
BSAF	Biota-Sediment Accumulation Factor
^{o}C	Degrees Celsius
Cal EPA	California Environmental Protection Agency
CCME	Canadian Council of Ministers of the Environment
CCV	Continuing Calibration Verification
CDD	Chlorinated Dibenzo-p-dioxin
CDF	Chlorinated Dibenzofuran
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CLEAN	Comprehensive Long-term Environmental Action Navy
CLP	Contract Laboratory Program
CMS	Corrective Measures Study
COC	Chemical of Concern
COPC	Chemical of Potential Concern
CSF	Cancer Slope Factor
CSM	Conceptual Site Model
CTE	Central Tendency Exposure
CTO	Contract Task Order
DAF	Dilution Attenuation Factor
DCE	Dichloroethene
DI	Deionized
DL	Detection Limit
DO	Dissolved Oxygen
DoD	Department of Defense
DON	Department of Navy

DPT	Direct Push Technology
DQI	Data Quality Indicator
DQR	Data Quality Review
EC_{50}	Half-maximal Effective Concentration
Eco SSL	Ecological Soil Screening Level
EEQ	Ecological Effects Quotient
EMR	Environmental Monitoring Report
EPC	Exposure Point Concentration
ERA	Ecological Risk Assessment
ESI	Environmental Solutions and Innovations, Inc.
ESL	Ecological Screening Level
EU	Exposure Unit
^{o}F	Degrees Fahrenheit
FOL	Field Operations Leader
FTMR	Field Task Modification Request
GPS	Global Positioning System
HASP	Health and Safety Plan
HCB	Hexachlorobenzene
HEAST	Health Effects Assessment Summary Tables
HHRA	Human Health Risk Assessment
HI	Hazard Index
HpCDD	Heptachlorodibenzo-p-dioxin
HpCDF	Heptachlorodibenzofuran
HQ	Hazard Quotient
HxCDD	Hexachlorodibenzo-p-dioxin
HxCDF	Hexachlorodibenzofuran
IA	Installation Assessment
IAS	Initial Assessment Study
ICAL	Initial Calibration
ICS	Interference Check Standard
IDEM	Indiana Department of Environmental Management
ILCR	Incremental Lifetime Cancer Risk
IRIS	Integrated Risk Information System
IS	Internal Standard
IUR	Inhalation Unit Risk
IUPPS	Indiana Underground Plant Protection Services
K_d	Soil-Water Distribution Coefficient

K_{oc}	Organic Carbon Partition Coefficient
K_{ow}	Octanol/Water Partition Coefficient
K_p	Dermal Permeability Value
K_i	Overall Mass Transfer Coefficient
K_iG	Gas-Phase Mass Transfer Coefficient
K_iL	Liquid-Phase Mass Transfer Coefficient
LANL	Los Alamos National Laboratory
LEL	Lowest Effects Level
LOAEL	Lowest Observed Adverse Effects Level
LOQ	Limit of Quantitation
LUC	Land Use Control
MCL	Maximum Contaminant Level
mg/L	Milligram per Liter
mg/kg	Milligram per Kilogram
mL	Milliliter
MRL	Minimal Risk Level
MS	Matrix Spike
MSD	Matrix Spike Duplicate
msl	Mean Sea Level
NAD83	North American Datum of 1983
NAVD88	North American Vertical Datum of 1988
NAVFAC	Naval Facilities Engineering Command
ng/kg	Nanogram per Kilogram
NCEA	National Center for Environmental Assessment
NEESA	Naval Energy and Environmental Support Activity
NOAA	National Oceanic and Atmospheric Administration
NOAEL	No Observed Adverse Effects Level
NSA	Naval Support Activity
OCDD	Octachlorodibenzo-p-dioxin
OCDF	Octachlorodibenzofuran
OMOE	Ontario Ministry of Environment and Energy
ORNL	Oak Ridge National Laboratory
ORP	Oxidation-Reduction Potential
OSWER	Office of Solid Waste and Emergency Response
PAH	Polycyclic Aromatic Hydrocarbon
PARCCS	Precision, Accuracy, Representativeness, Completeness, Comparability, and Sensitivity
PCB	Polychlorinated Biphenyl

PCDD	Polychlorinated Dibenzo-p-dioxin
PCDF	Polychlorinated Dibenzofuran
PCE	Tetrachloroethene
PCP	Pentachlorophenol
PEC	Probable Effects Concentration
PeCDD	Pentachlorodibenzo-p-dioxin
PeCDF	Pentachlorodibenzofuran
PEF	Particulate Emission Factor
PEL	Probable Effects Level
PID	Photoionization Detector
PM	Project Manager
PPE	Personal Protective Equipment
PPRTV	Provisional Peer Reviewed Toxicity Value
PQO	Project Quality Objective
PSL	Project Screening Level
PVC	Polyvinyl Chloride
QA	Quality Assurance
QC	Quality Control
QSM	Quality Systems Manual
%R	Percent Recovery
RAGS	Risk Assessment Guidance for Superfund
RBA	Relative Bioavailability
RCRA	Resource Conservation and Recovery Act
RfC	Reference Concentration
RfD	Reference Dose
RFI	Resource Conservation and Recovery Act Facility Investigation
RISC	Risk Integrated System of Closure
RME	Reasonable Maximum Exposure
RPD	Relative Percent Difference
ROS	Regression on Order Statistics
RSL	Regional Screening Level
RRF	Relative Retention Factors
R-RSL	Residential Regional Screening Level
SAP	Sampling and Analysis Plan
SEL	Severe Effects Level
SOP	Standard Operating Procedure
SPCS	State Plane Coordinate System

SQG	Soil Quality Guideline
SSL	Soil Screening Level
SVOC	Semivolatile Organic Compound
SWMU	Solid Waste Management Unit
TCDD	Tetrachlorodibenzo-p-dioxin
TCDF	Tetrachlorodibenzofuran
TCE	Trichloroethene
TEQ	Toxicity Equivalent Concentration
TEC	Threshold Effect Concentration
TEF	Toxicity Equivalent Factor
TEL	Threshold Effects Level
TOC	Total Organic Carbon
T-RSL	Tapwater Regional Screening Level
TRV	Toxicity Reference Value
UCL	Upper Confidence Limit
UTL	Upper Tolerance Limit
µg/kg	Microgram per Kilogram
µg/L	Microgram per Liter
USCS	Unified Soil Classification System
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
UST	Underground Storage Tank
VC	Vinyl Chloride
VDEQ	Virginia Department of Environmental Quality
VF	Volatilization Factor
VISL	Vapor Intrusion Screening Levels
VOC	Volatile Organic Compound

EXECUTIVE SUMMARY

Tetra Tech, Inc. (Tetra Tech) prepared this Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Report for Solid Waste Management Unit (SWMU) 11 - Old Storage Building, B-225 at Naval Support Activity (NSA) Crane, located in Crane, Indiana. This report summarizes RFI activities, including sampling and analysis results and human health and ecological risks posed by chemicals detected in soil, sediment and groundwater at the site.

SITE DESCRIPTION AND HISTORY

The site is located near the western boundary of NSA Crane, approximately midway between the northern and southern boundaries of the facility. The site was formerly occupied by Building 225 which was used for storage of chemicals, paints, dyes, solvents, and various other items. The building was destroyed by fire on July 13, 1976.

The site covers approximately 1 acre. It currently contains the former Building 225 concrete floor slab (approximately 60 feet wide and 200 feet long) the former loading dock, a railroad siding spur parallel to the loading dock, and a drainage ditch between the railroad spur and the active railroad tracks to the west.

Contamination at SWMU 11 is the result of the release of stored chemicals and combustion products during the 1976 fire and the large quantities of water that were used to fight the fire. The water likely flushed chemicals directly onto the surface soil where it had migrated to subsurface soil and groundwater. Additionally, water runoff from fire fighting activities entered the drainage ditch on the west side of the site, flowed through a drainage pipe under the railroad tracks and then into a drainage channel approximately 200 feet west of the site. Additional areas that may have been affected by the release of chemicals during the fire include areas downwind of Building 225 and the Building 2981 Concrete Storage Tank Area where water from firefighting activities was temporally stored prior to proper disposal.

RFI SAMPLING AND ANALYSIS

Surface soil, subsurface soil, sediment and groundwater samples were collected during the RFI. Surface and subsurface soil samples were analyzed for volatile organic compounds (VOCs); semivolatile organic compounds (SVOCs), including polycyclic aromatic hydrocarbons (PAHs); polychlorinated biphenyls (PCBs); pesticides; dioxins/furans; metals; and cyanide. Sediment samples were analyzed for SVOCs (including PAHs), PCBs, dioxins/furans, metals, cyanide, and total organic carbon. Groundwater was

analyzed for VOCs. During the RFI activities, a total of 28 surface soil, 83 subsurface soil, 10 sediment, and 11 groundwater samples were collected.

NATURE AND EXTENT OF CONTAMINATION

While PAHs, pesticides, dioxin/furans and metals were detected in the surface soil at concentrations greater than human health or ecological project screening levels (PSLs), the most notable SWMU 11 contamination is the subsurface soil and the groundwater chlorinated VOC contamination. The subsurface soil contamination consists primarily of cis-1,2-dichloroethene (DCE), tetrachloroethene (PCE), trichloroethene (TCE), and the degradation product vinyl chloride (VC). The contamination was identified in the immediate vicinity of the Building 225 concrete slab and appears to have migrated to the west towards the railroad tracks and south of Building 2720. Low concentrations of chlorinated VOCs (cis-1,2-DCE and PCE) were detected in the surface soil below the Building 225 foundation; however, much greater concentrations are present in the subsurface soil demonstrating the downward migration tendency of this chemical class (i.e., halogenated aliphatics) in the environment.

The groundwater samples collected from the SWMU 11 monitoring wells show benzene and chlorinated VOC groundwater contamination. Only PCE and TCE were detected at concentrations greater than Federal Maximum Contaminant Levels (MCLs) for drinking water. Groundwater contamination was identified underneath the northern half of Building 225 slab and has migrated to the west/south west beyond the railroad tracks. The ground elevation decreases to the west and groundwater would be expected to be expressed as seeps before reaching the NSA Crane boundary. Decreases of chlorinated VOC concentrations would occur before the groundwater would be expressed as seeps. Additional decreases in chlorinated solvent concentrations would occur via volatilization once the groundwater seeps are exposed to air. Based on the analytical results from a deeper bedrock well installed underneath the Building 225 concrete slab, contamination has not migrated into the deeper groundwater. The subsurface soil concentrations for several of the chlorinated VOCs exceed their respected migration to groundwater values by at least an order of magnitude, indicating a potential continuing source of contamination to the groundwater. However, the presence of the degradation products cis-1,2-DCE and vinyl chloride shows that natural degradation is occurring.

HUMAN HEALTH RISK ASSESSMENT

An HHRA was conducted to estimate non-carcinogenic and carcinogenic risks [hazard index (HI) and incremental lifetime cancer risk (ILCR), respectively] for potential human receptors posed by the chemicals of potential concern (COPCs) in soil, sediment and groundwater at the site. A summary of risks for all receptors under current and future land use scenarios are presented on Table ES-1. Human health risk

under current land use was found to be acceptable. However, potential unacceptable human health risks for hypothetical future residents were identified associated with direct contact exposure to VOCs in groundwater (cis-1,2-DCE, benzene, TCE and VC) as a result of using groundwater as a potable water supply.

Although no chemicals of concern (COCs) were identified for vapor intrusion from groundwater based on estimated indoor air concentrations using the Johnson-Ettinger model, TCE concentrations in groundwater under the Building 225 floor slab were greater than Indiana Department of Environmental Management (IDEM) Vapor Exposure groundwater screening levels. Therefore, potential future unacceptable risks were identified for the groundwater to indoor air pathway (i.e., vapor intrusion) for a future residential and commercial/industrial scenario.

Evaluation of the migration from soil to groundwater showed that benzene, cis-1,2-DCE, PCE, TCE, and VC in subsurface soil could represent a source of groundwater contamination. Arsenic and iron were also retained as COCs for the soil to groundwater pathway at SWMU 11 because of exceedance of soil to groundwater migration screening levels and groundwater data are not available to confirm whether migration has occurred.

ECOLOGICAL RISK ASSESSMENT

The ERA evaluated surface soil and sediment to determine the potential for adverse ecological impacts due to site-related contamination. No unacceptable risks for ecological receptors were identified, as summarized on Table ES-1.

CONCLUSIONS AND RECOMMENDATIONS

A summary of the receptor-specific human health risks and hazards, ecological risks, critical exposure pathways and COCs, and recommendations for SWMU 11 is presented in Table ES-1. In addition to COCs identified based on the risk assessments, PCE is also identified as a COC for groundwater because detected concentrations of PCE in groundwater exceeded the MCL. Based on the results of the RFI activities, this report recommends that the site proceed to a Corrective Measures Study (CMS) to address future unacceptable human health risks from ingestion of groundwater contaminated with chlorinated organics and the vapor intrusion pathway as identified in the HHRA. The CMS should focus on monitored natural attenuation of chlorinated organics in groundwater with land use controls to address potential future unacceptable risks. An active groundwater treatment action is not necessary because there are no current potential or likely future exposures to contaminated groundwater based on current site use. Concentrations of VOCs and metals (arsenic and iron) in soil exceed IDEM soil screening levels

for protection of groundwater; however, metals in groundwater were not analyzed in SWMU 11 monitoring wells. Therefore, the CMS should also provide for sampling to verify whether arsenic and iron are present in SWMU 11 groundwater at concentrations greater than MCLs or facility background.

TABLE ES-1

SUMMARY OF RECEPTOR-SPECIFIC HUMAN RISKS AND HAZARDS, ECOLOGICAL RISKS, AND RECOMMENDATIONS
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Receptor Population	Overall Carcinogenic Risk (Human)	Overall Hazard Index (Human)	Overall Risk (Ecological)	Critical Pathways and Chemicals of Concern	Recommendations
SWMU 11 SURFACE SOIL - BUILDING 225 AREA					
Current/Future Maintenance Worker (Adult)	1E-07	0.006	N/A	N/A	NFA
Current/Future Industrial Worker	1E-06	0.06	N/A	N/A	NFA
Current/Future Trespasser (Adolescent)	2E-07	0.01	N/A	N/A	NFA
Current/Future Construction Worker	8E-08	0.5	N/A	N/A	NFA
Future Child Recreational User	1E-06	0.06	N/A	N/A	NFA
Future Adult Recreational User	3E-07	0.007	N/A	N/A	NFA
Lifelong Recreational User	1E-06	N/A	N/A	N/A	NFA
Future Child Resident	1E-05	0.8	N/A	N/A	NFA
Future Adult Resident	2E-06	0.09	N/A	N/A	NFA
Lifelong Resident	1E-05	N/A	N/A	N/A	NFA
Terrestrial Plants	N/A	N/A	Acceptable	N/A	NFA
Terrestrial Invertebrates	N/A	N/A	Acceptable	N/A	NFA
Mammals and Birds	N/A	N/A	Acceptable	N/A	NFA
SWMU 11 SURFACE SOIL - BUILDING 2981 CONCRETE TANK AREA					
Current/Future Maintenance Worker (Adult)	9E-08	0.005	N/A	N/A	NFA
Current/Future Industrial Worker	9E-07	0.06	N/A	N/A	NFA
Current/Future Trespasser (Adolescent)	2E-07	0.01	N/A	N/A	NFA
Current/Future Construction Worker	6E-08	0.4	N/A	N/A	NFA
Future Child Recreational User	1E-06	0.05	N/A	N/A	NFA
Future Adult Recreational User	2E-07	0.006	N/A	N/A	NFA
Lifelong Recreational User	1E-06	N/A	N/A	N/A	NFA
Future Child Resident	1E-05	0.7	N/A	N/A	NFA
Future Adult Resident	2E-06	0.08	N/A	N/A	NFA
Lifelong Resident	1E-05	N/A	N/A	N/A	NFA
Terrestrial Plants	N/A	N/A	Acceptable	N/A	NFA
Terrestrial Invertebrates	N/A	N/A	Acceptable	N/A	NFA
Mammals and Birds	N/A	N/A	Acceptable	N/A	NFA

TABLE ES-1

SUMMARY OF RECEPTOR-SPECIFIC HUMAN RISKS AND HAZARDS, ECOLOGICAL RISKS, AND RECOMMENDATIONS
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Receptor Population	Overall Carcinogenic Risk (Human)	Overall Hazard Index (Human)	Overall Risk (Ecological)	Critical Pathways and Chemicals of Concern	Recommendations
SWMU 11 - SUBSURFACE SOIL					
Current/Future Maintenance Worker	2E-06	0.02	N/A	N/A	NFA
Current/Future Industrial Worker	2E-05	0.2	N/A	N/A	NFA
Current/Future Trespasser (Adolescent)	4E-06	0.03	N/A	N/A	NFA
Current/Future Construction Worker	1E-05	0.6	N/A	N/A	NFA
Future Child Recreational User	2E-05	0.2	N/A	N/A	NFA
Future Adult Recreational User	4E-06	0.02	N/A	N/A	NFA
Lifelong Recreational User	2E-05	N/A	N/A	N/A	NFA
Future Child Resident	2E-04 (3E-05)(2)	3(1) (2)(1,2)	N/A	Incidental ingestion and dermal contact with VC, arsenic, and chromium	NFA(3)
Future Adult Resident	5E-05	0.4	N/A	N/A	NFA
Lifelong Resident	3E-04 (4E-05)(2)	N/A	N/A	Incidental ingestion and dermal contact with VC, arsenic, and chromium	NFA(3)
Terrestrial Plants	N/A	N/A	N/A	N/A	N/A
Terrestrial Invertebrates	N/A	N/A	N/A	N/A	N/A
Mammals and Birds	N/A	N/A	N/A	N/A	N/A
SWMU 11 SEDIMENT					
Current/Future Trespasser (Adolescent)	4E-06	0.03	N/A	N/A	NFA
Future Child Recreational User	2E-05	0.1	N/A	N/A	NFA
Future Adult Recreational User	4E-06	0.02	N/A	N/A	NFA
Lifelong Recreational User	3E-05	N/A	N/A	N/A	NFA
Sediment Invertebrates	N/A	N/A	Acceptable	N/A	NFA
Mammals and Birds	N/A	N/A	Acceptable	N/A	NFA

TABLE ES-1

SUMMARY OF RECEPTOR-SPECIFIC HUMAN RISKS AND HAZARDS, ECOLOGICAL RISKS, AND RECOMMENDATIONS
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Receptor Population	Overall Carcinogenic Risk (Human)	Overall Hazard Index (Human)	Overall Risk (Ecological)	Critical Pathways and Chemicals of Concern	Recommendations
SWMU 11 GROUNDWATER					
Current/Future Construction Worker)	7E-08	0.2	N/A	N/A	NFA
Future Child Resident	1E-04	22	N/A	Incidental ingestion, dermal contact, and inhalation of TCE and cis-1,2-DCE and PCE based on MCL exceedance	Proceed to CMS
Future Adult Resident	9E-05	12	N/A	Incidental ingestion, dermal contact, and inhalation of TCE and cis-1,2-DCE and PCE based on MCL exceedance	Proceed to CMS
Lifelong Resident	2E-04	N/A	N/A	Incidental ingestion, dermal contact, and inhalation of benzene, TCE, and VC and PCE based on MCL exceedance	Proceed to CMS
SWMU 11 VAPOR INTRUSION					
Future Child Resident	1E-06	0.2	N/A	Inhalation of indoor air of TCE based on groundwater exceedance of screening levels	Proceed to CMS[4]
Future Adult Resident	5E-07	0.2	N/A		
Future Lifelong Resident	2E-06	N/A	N/A		
Future Commercial/Industrial Worker	N/A	N/A	N/A		
SWMU 11 SOIL TO GROUNDWATER PATHWAY					
Future Drinking Water Protection	N/A	N/A	N/A	Subsurface soil migration to groundwater; benzene, cis-1,2-DCE, PCE, TCE, and VC	Proceed to CMS[5]
Future Drinking Water Protection	N/A	N/A	N/A	Subsurface soil migration to groundwater; arsenic and iron	Proceed to CMS[6]

cis-1,2-DCE - cis-1,2-Dichloroethene
CMS - Corrective Measures Study
MCL - Maximum Contaminant Level
NFA - No Further Action
PCE - Tetrachloroethene
TCE - Trichloroethene.
VC - Vinyl chloride
N/A - Not Applicable. Risk were not calculated for the specified receptor/exposure pathway or the calculated risks were acceptable.

Hazard Indices (i.e., child + adult) are not summed for 'Lifelong' receptors because according to United States Environmental Protection Agency (USEPA) risk assessment guidance, it is not correct to sum noncancer risks for child and adult receptors.

1 - Target organs hazard index is less than 1.
2 - Chromium was evaluated in the human health risk assessment as hexavalent chromium. Value in parenthesis is cancer risk or hazard index if chromium is evaluated as trivalent chromium.
3 - NFA recommendation based on risks and HIs using trivalent chromium. The conceptual site model (CSM) does not support the presence of chromium in the hexavalent state.
4 - Recommendation based on site groundwater with concentrations greater than Indiana Department of Environmental Management (IDEM) Vapor Exposure Screening Levels for groundwater under future land use scenario (as per IDEM comments date 10/1/2014).
5 - Recommendation based on possibility that these chemicals are a continuing source of groundwater contamination.
6 - Recommendation to sample groundwater for arsenic and iron as part of CMS activities because of exceedances of the soil to groundwater migration screening levels for these chemicals in subsurface soil and groundwater data are not available to confirm whether migration occurred.

1.0 INTRODUCTION

This Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) for the Defense Reutilization and Marketing Office Old Storage Building 225 Area at Naval Support Activity (NSA) Crane, located in Crane, Indiana was conducted by Tetra Tech as a contractor to the United States Department of the Navy (DON) under Contract Task Order (CTO) F27E of Comprehensive Long-Term Environmental Action Navy (CLEAN), Contract No. N62470-08-D-1001. The Old Storage Building 225 is also known as Solid Waste Management Unit (SWMU) 11.

Former Building 225 was used for storage of chemicals, paints, dyes, solvent, and various other items from 1947 (the earliest known date of operation) to July 13, 1976, when it was destroyed by fire. Following the fire, the only remaining structures at SWMU 11 were the concrete building foundation and floor, the loading dock, and a railroad siding spur.

The RFI at SWMU 11 was conducted to determine the nature and extent of contamination at the site and to evaluate potential human health and ecological risks associated with exposure to contaminants in environmental media at the site.

1.1 PURPOSE

The purpose of this RFI Report is to describe the site investigation activities conducted at SWMU 11, present the results and interpretation for the investigation, and provide recommendations for the path forward for SWMU 11. The RFI included collection of soil, sediment, and groundwater samples from SWMU 11 during five separate phases beginning in April 2011 and ending in January 2013. These data provided representative coverage of the site and were used to perform a baseline human health risk assessment (HHRA) and ecological risk assessment (ERA). The results of the RFI were used to determine whether a Corrective Measures Study (CMS) is necessary for the site.

1.2 REPORT ORGANIZATION

The RFI Report is organized into the following nine sections:

- Section 1.0, Introduction, includes the purpose, site background, site description, site history, previous investigations, and report organization.

- Section 2.0, Field Investigation, discusses activities and procedures associated with RFI data collection.

- Section 3.0, Data Usability Assessment, presents an evaluation of the usability of the sampling data collected.

- Section 4.0, Physical Characteristics of the Study Area of SWMU 11, discusses the physical characteristics of the SWMU 11 area.

- Section 5.0, Nature and Extent of Contamination, discusses the types and extent of contamination detected at SWMU 11.

- Section 6.0, Contaminant Fate and Transport Analysis, presents an evaluation of fate and transport information for the chemicals detected and includes a discussion of the conceptual site model (CSM).

- Section 7.0, Human Health Risk Assessment, identifies human health chemicals of potential concern (COPCs) and evaluates potential risks to human receptors exposed to COPCs in environmental media at SWMU 11.

- Section 8.0, Ecological Risk Assessment, identifies ecological COPCs and evaluates potential risks to ecological receptors exposed to COPCs in environmental media at SWMU 11.

- Section 9.0, Conclusions and Recommendations, summarizes the results of the RFI and presents recommendations regarding the path forward at SWMU 11.

Supporting documentation for this RFI is included as Appendices A through H.

1.3 SITE BACKGROUND

The NSA Crane facility (Figure 1-1) is located in a rural, sparsely populated region of south-central Indiana, approximately 75 miles southwest of Indianapolis, 60 miles northwest of Louisville, Kentucky, and immediately east of Burns City and Crane Village, Indiana. NSA Crane encompasses approximately 62,463 acres or approximately 98 square miles of the northern portion of Martin County and smaller portions of Greene, Davies, and Lawrence Counties.

SWMU 11 – Old Storage Building 225 is located in an industrial area near the western boundary of NSA Crane approximately midway between the northern and southern boundaries of the facility (Figure 1-1). It is located on the northwestern side of Highway 101 approximately 0.5 mile north of the intersection of Highway 101 and Highway 45. The nearest on-base residence to SWMU 11 is located approximately

3 miles northeast of the site in Forest City, located within NSA Crane. Off-base, the nearest residence is located just over 1 mile southwest of the site, beyond the western boundary of the facility in the Town of Burns City. Figure 1-2 is an aerial photograph showing the location of SWMU 11 and the surrounding area.

SWMU 11 is bounded to the east by Highway 101, to the west by active railroad tracks, to the south by an asphalt parking lot and to the north by a small grass-covered area between the railroad tracks and Highway 101. As shown on Figure 1-2, several buildings are also located to the east, south, and west of SWMU 11.

SWMU 11 generally consists of the former Building 225 concrete floor (slab), two asphalt-paved areas adjacent the northeastern and southwestern sides of the slab, and a small grass area between the concrete slab and Highway 101. The slab is approximately 60 feet wide (southeast-to-northwest) and 200 feet long (southwest to northeast). Adjacent to the slab to the northwest is the former Building 225 loading dock, a railroad siding spur parallel to the loading dock, and a drainage ditch between the railroad spur and active railroad tracks (Figure 1-3).

The drainage ditch flows northeast to a culvert that conveys flow under the multiple railroad tracks to a drainage channel in a wooded area approximately 200 feet to the west. The drainage channel is a natural stream that eventually flows into the upper reaches of Broom Branch approximately 1,000 feet northwest of the site. Surface water from portions of Highway 101 also drain into this drainage culvert. The locations of the drainage culvert and drainage channel are shown on Figure 1-3. Soils within the drainage ditch and sediments within the drainage channel were evaluated are part of the RFI.

A fuel oil underground storage tank (UST) was located approximately 40 feet southwest of former Building 225. The UST was 24 feet long and 5.5 feet in diameter. It was installed by partially excavating the existing ground and then placing soil over the top of the UST to create a mound approximately 3 feet to 5 feet high above the adjoining ground. No records were located regarding removal of this UST; however, there was no visible evidence of the UST during the RFI activities. The location of the former UST is shown on Figure 1-3.

Building 225 was used for storage of approximately 50,000 gallons of paints, approximately 500 pounds of sodium fluorescein dye, approximately 5,000 gallons of solvents (acetone, toluene, and methyl ethyl ketone), over 70,000 pounds of pentachlorophenol (PCP), and various other items including inert materials such as inks, staples, and wax paraffin.

Building 225 was destroyed by a fire on July 13, 1976 that was attributed to deterioration of containers that allowed contents to seep out onto cardboard containers and wooden pallets, causing spontaneous ignition. The NSA Crane Fire Department pumped more than 600,000 gallons of water onto the blaze, which burned out of control for several hours. The fire was contained to the Building 225 area, and no other buildings were threatened. Building 225 and its contents were destroyed by the fire. Following the fire, the remaining debris and residue from the Building 225 site were removed and disposed of off-site.

Other areas that may have been adversely impacted by the fire have been identified. Four areas southwest and northeast of former Building 225 may have been contaminated by smoke particulates carried from the 1976 fire. These four areas are referred to as downwind areas and are shown on Figure 1-4. An additional area that may have been adversely affected by the 1976 fire is the Building 2981 concrete tank area shown on Figure 1-5. This area consists of a former concrete tank that is believed to have received firefighting water that had accumulated in the drainage ditch adjacent to the Building 225 loading dock. The water was pumped from the drainage ditch and then transported to the Building 2981 concrete tank for later disposal because the water had the potential to be contaminated.

The concrete building slab, loading dock, and railroad siding spur have remained in place since Building 225 was destroyed by fire. Photographs of the fire, the destroyed Building 225, the firefighting water that collected in the drainage ditch, the drainage channel, and related site photographs are shown on Figure 1-6.

There are no known historical or cultural concerns, such as Native American burial grounds or historic landmarks, on or in the vicinity of the site.

1.4 PREVIOUS ENVIRONMENTAL INVESTIGATIONS AND ACTIONS

The only previous environmental investigations related to SWMU 11 were the September 1976 “Green Water” Report and a follow-up document, “Report on the Fire Investigation, Building 225” conducted by the Navy (Navy, 1976a and 1976b). The “Green Water” Report detailed the events resulting from runoff of the water used to put out the fire. The water runoff was colored a brilliant fluorescent green because of the fluorescein dye stored in Building 225. Much of the fire water runoff collected in the drainage ditch, flowed through the culvert to the drainage channel northwest of the site, discharged into Broom Branch approximately 1 mile northwest of the site, and then discharged into First Creek, which exits the NSA Crane property to the northwest.

It was reported that at the time of the fire, Broom Branch had little flow other than runoff from the water used in fighting the fire. PCP, paints, sodium fluorescein, solvents, and other items stored in the building

may have entered the drainage ditch and soils in the immediate area of Building 225 during firefighting efforts. On the day of the fire, three temporary dams were placed in Broom Branch to contain the "green water." Dam #1 was placed in the drainage ditch between Building 225 and the railroad tracks. Dams #2 and #3 were placed in Broom Branch between the railroad tracks and the point where Broom Branch flows into First Creek; Dam #3 was nearest the Broom Branch and First Creek confluence. A fourth Dam was placed between Dam #2 and Dam #3; however, the date when Dam #4 was constructed is not known. The "Green Water' Report figure showing the four dam locations was not drawn to scale and precise locations of the dams were not provided.

On July 14, 1976, water samples were collected from the areas ponded by the Broom Branch temporary dams and analyzed for the presence of toxic materials. According to the "Green Water" Report, only zinc, copper, lead, sodium fluorescein, and PCP detected. The report concluded that the metals were confined to the area of the site and that the dye was "reasonably non-toxic," leaving PCP as the primary contaminant of concern. On July 14, 1976, PCP concentrations in Broom Branch approximately 1 mile from the site were reported at greater than 30 milligrams per liter (mg/L). PCP was not detected at further downstream locations.

Beginning on July 19, 1976, the ponded water contained behind Dam #2 was released in a controlled manner into Broom Branch downstream of Dam #2. At the same time, the outflow from Lake Greenwood was manipulated to control the flow in First Creek so that no green water would be visible leaving the NSA Crane property. PCP concentrations in the water leaving NSA Crane did not exceed 20 micrograms per liter (µg/L).

The "Green Water" Report stated that several thousands of gallons of water were pumped from the site to a concrete reservoir to be properly disposed of at a later date. The Building 2981 concrete tank, located approximately 1 mile southwest of the site (Figure 1-1), was determined to be the most likely location of the concrete reservoir described in the report because it is the only concrete reservoir known to exist at the time of the fire and had a large capacity. The final disposition of the water collected and stored in the concrete reservoir is not known. The Building 2981 tank has since been replaced with a smaller concrete test structure in the same place.

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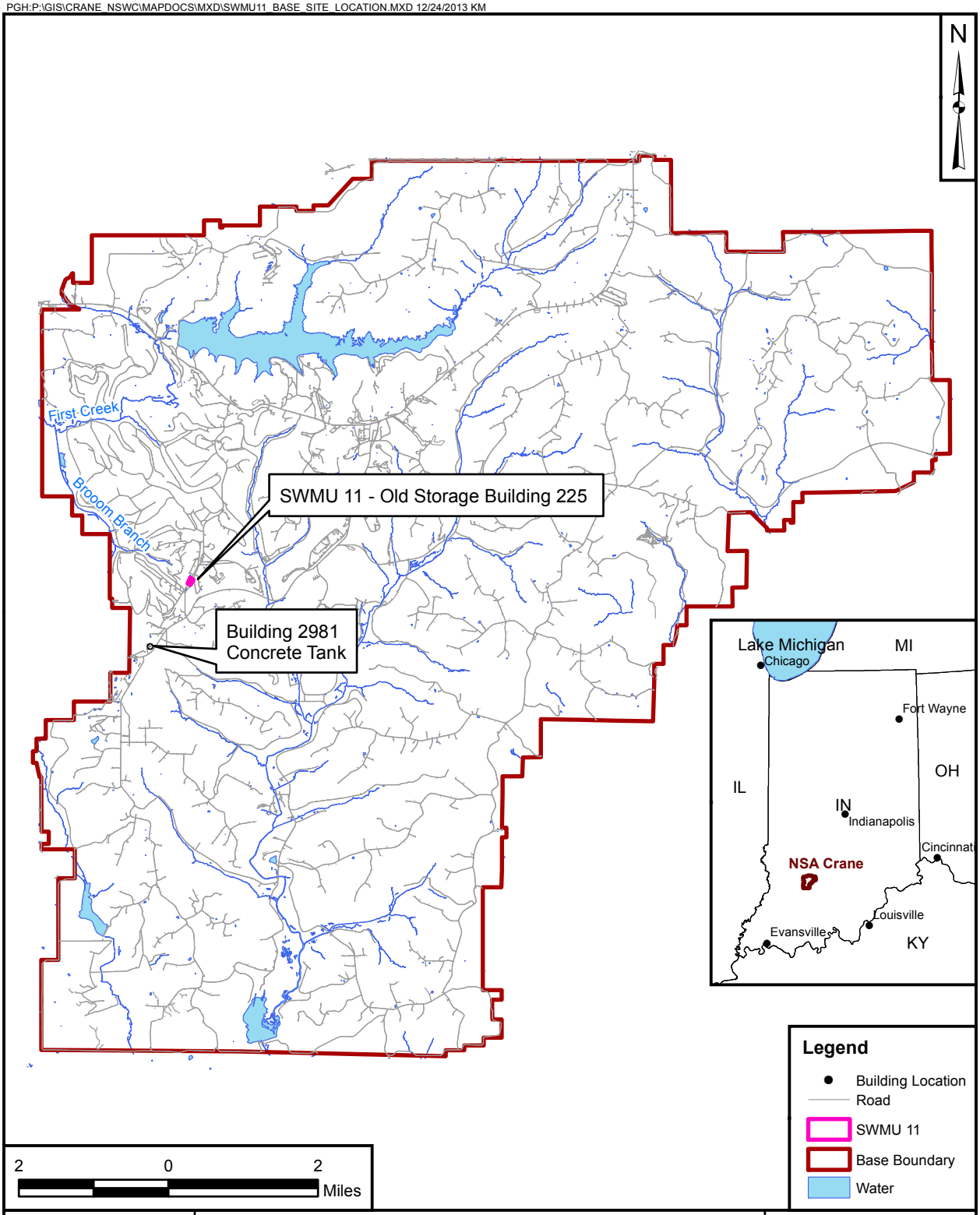

DRAWN BY S. STROZ	DATE 02/08/10	TETRA TECH	CONTRACT NUMBER CTO F27E
CHECKED BY J. BUEL	DATE 12/24/13	BASE AND SITE LOCATION MAP SWMU 11 - OLD STORAGE BUILDING 225 NSA CRANE CRANE, INDIANA	APPROVED BY J. BUEL — DATE 12/31/13
REVISED BY K. MOORE	DATE 12/24/13		APPROVED BY ___ — DATE ___
SCALE AS NOTED			FIGURE NO. 1-1 — REV 0

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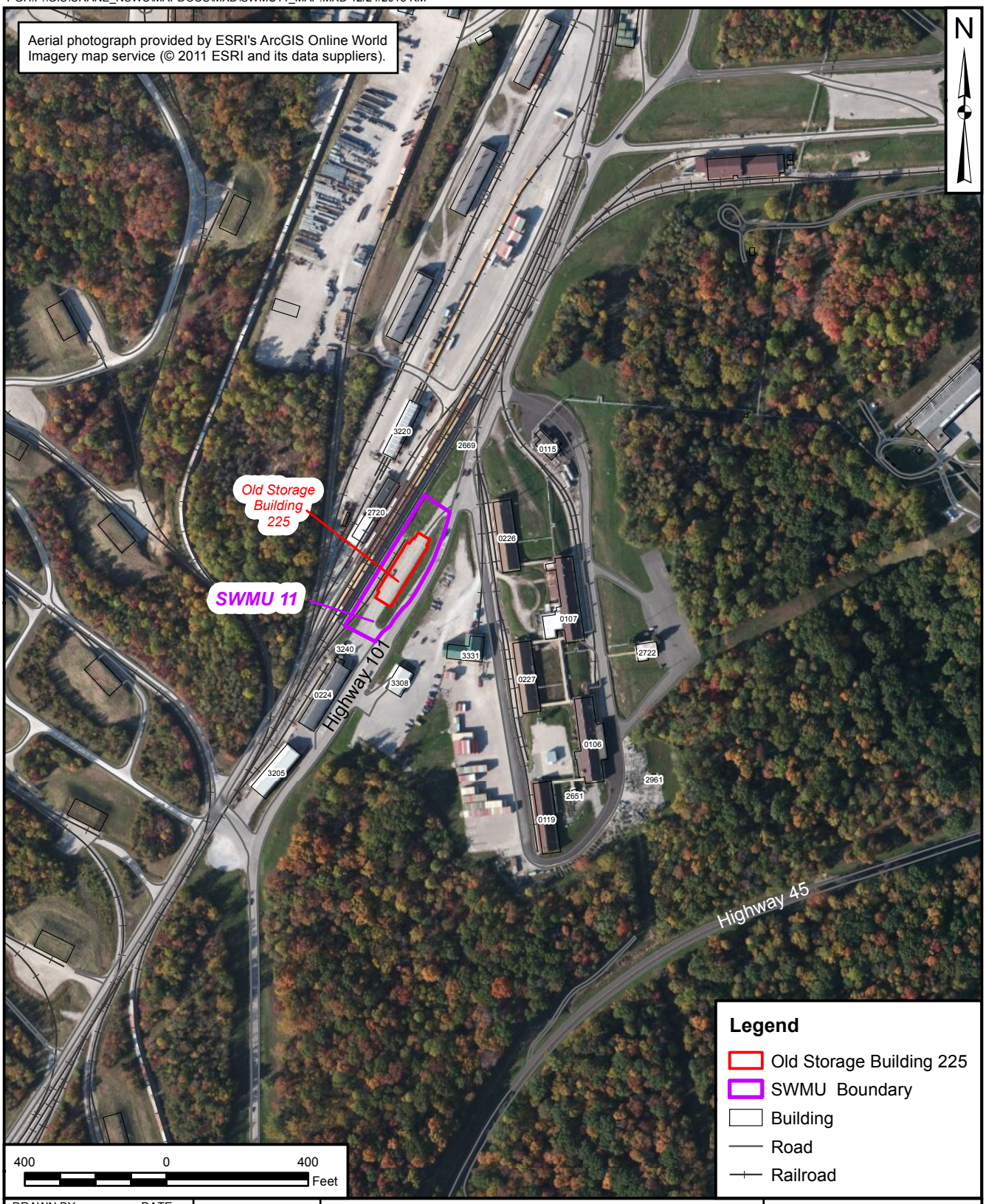

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S. STROZ	02/08/10
CHECKED BY	DATE
J. BUEL	12/24/13
REVISED BY	DATE
K. MOORE	12/24/13
SCALE	
AS NOTED	

NAVFAC

SITE LAYOUT - 2005 AERIAL PHOTOGRAPH

SWMU 11 - OLD STORAGE BUILDING 225

NSA CRANE

CRANE, INDIANA

CONTRACT NUMBER	
CTO F27E	
APPROVED BY	DATE
J. BUEL	12/24/13
APPROVED BY	DATE
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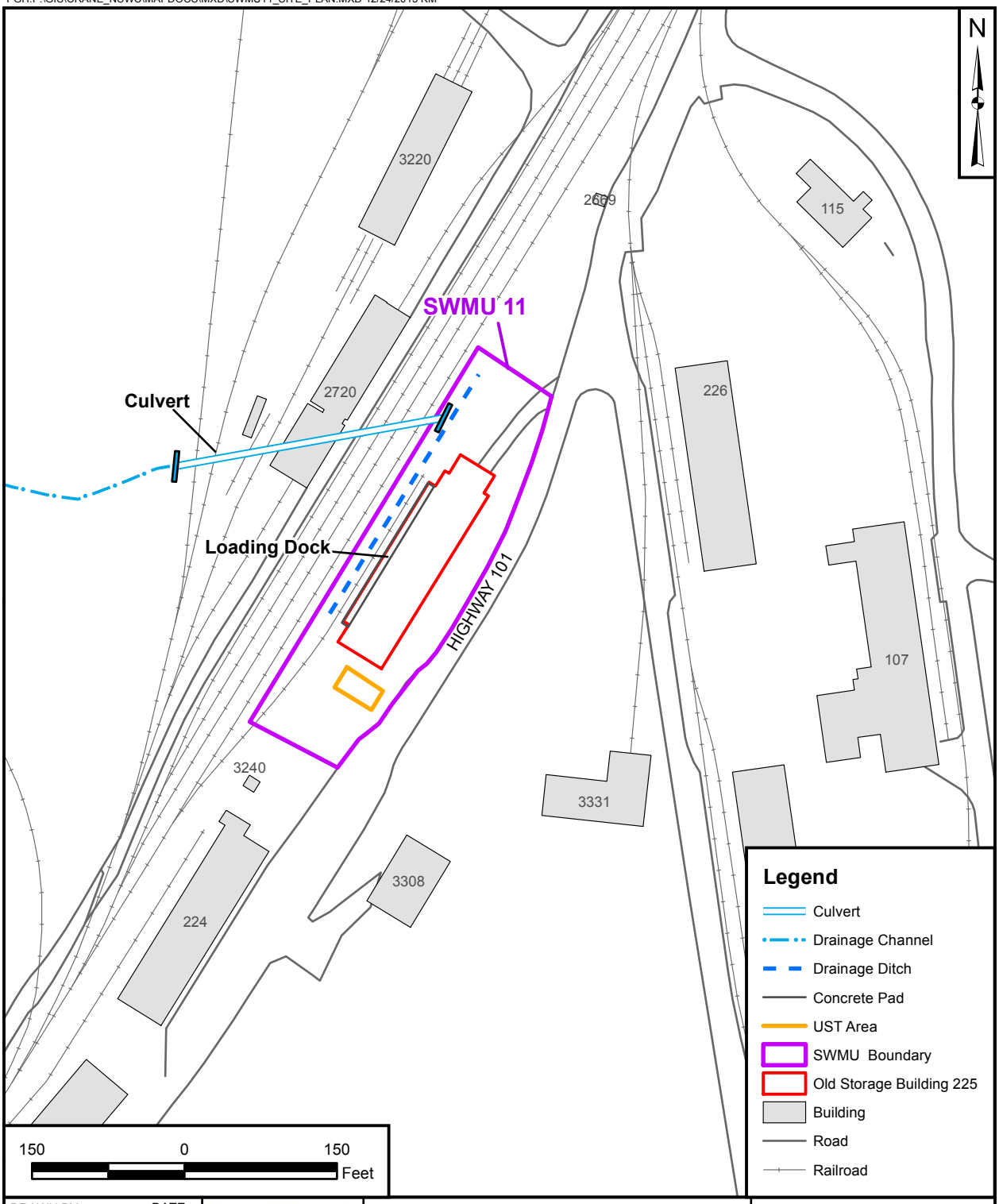

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J. BUEL	12/24/13			J. BUEL	12/24/13
REVISED BY	DATE			APPROVED BY	DATE
K. MOORE	12/24/13			—	—
SCALE				FIGURE NO.	REV
AS NOTED				1-3	0

SITE PLAN

SWMU 11 - OLD STORAGE BUILDING 225

NSA CRANE

CRANE, INDIANA

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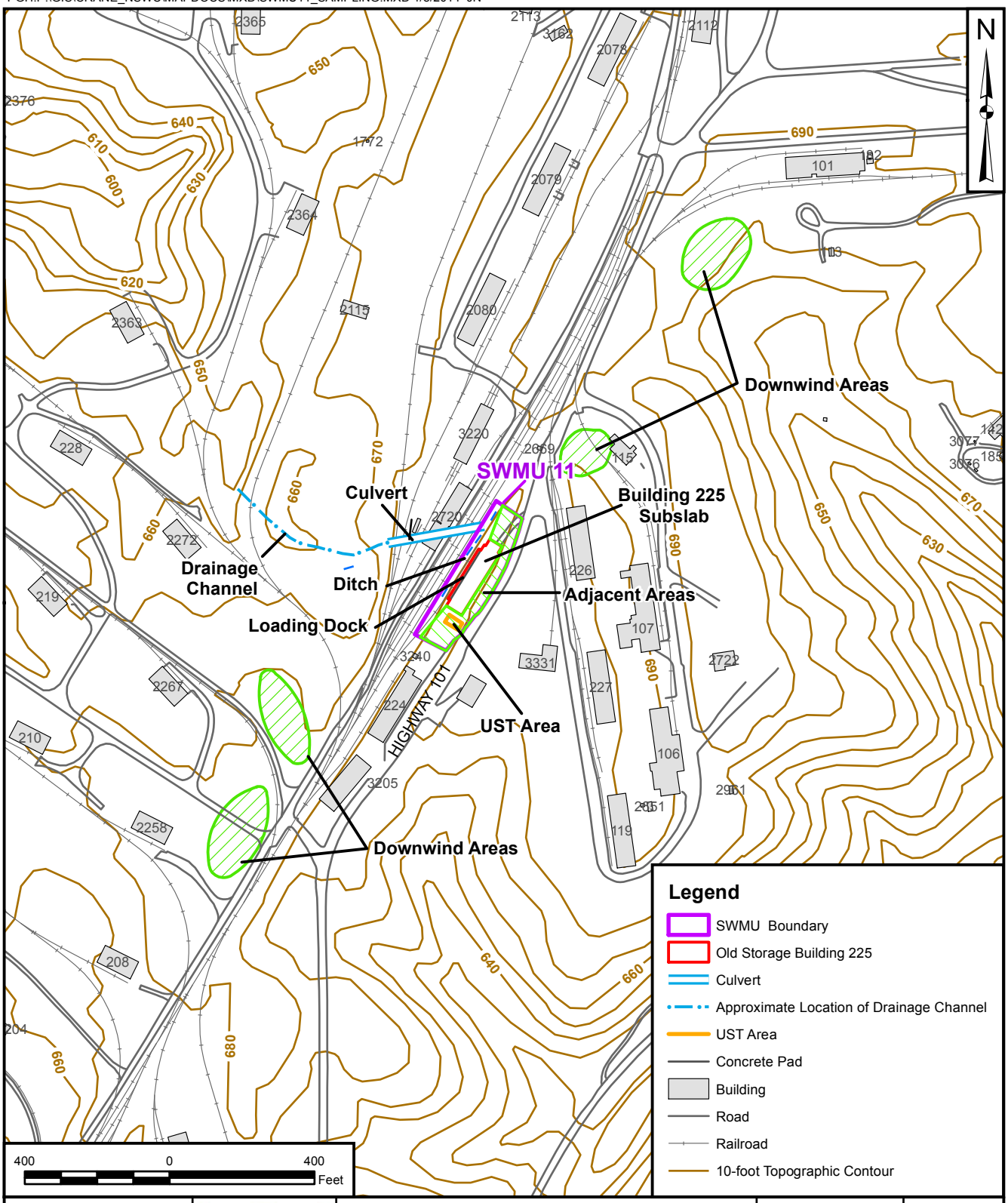

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J. BUEL	1/8/2014	J. BUEL	1/8/2014
REVISED BY	DATE	APPROVED BY	DATE
J. NOVAK	1/8/2014	—	—
SCALE AS NOTED		FIGURE NO. 1-4	REV 0

SITE LAYOUT ELEVATION CONTOUR MAP
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

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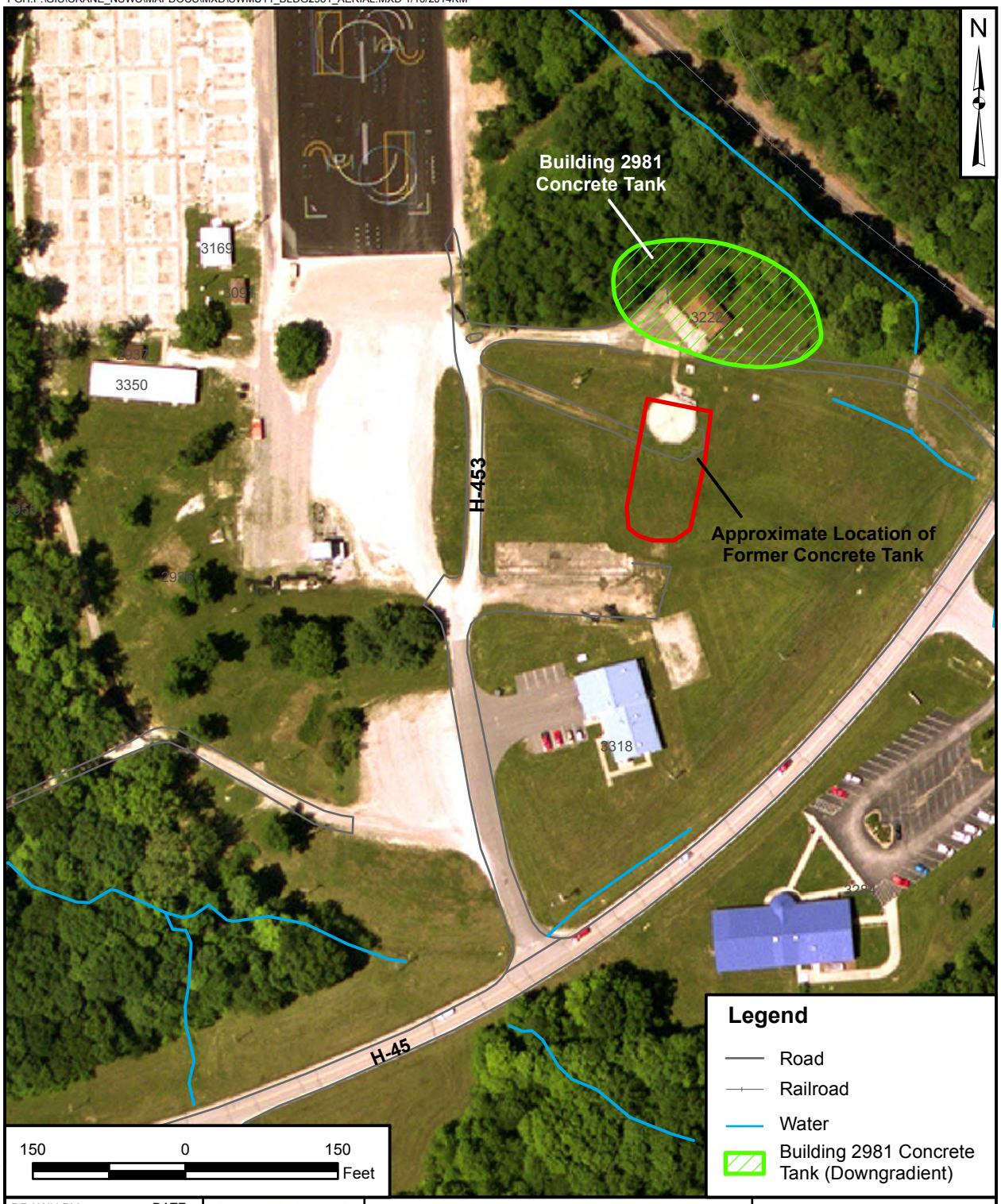

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J. BUEL	01/10/14	SWMU 11 - OLD STORAGE BUILDING 225		J. BUEL	1/8/14
REVISED BY	DATE	NSA CRANE		APPROVED BY	DATE
K. MOORE	01/10/14	CRANE, INDIANA		—	—
SCALE				FIGURE NO.	REV
AS NOTED				1-5	0

FIGURE 1-6 SITE PHOTOGRAPHS

Date:	View:	Photographer:
07/13/1976	North	not known

Building 225 fire

Date:	View:	Photographer:
unknown	Aerial	unknown

Aerial view of Building 225 after fire. Note fire fighting water collected in drainage ditch.

Date:	View:	Photographer:
04/01/11	South	L. Foster

View of Building 225 Concrete foundation, loading dock and rail road spur to right of foundation.

Date:	View:	Photographer:
04/01/11	Northeast	L. Foster

View of Building 225 Concrete foundation, loading dock and rail road spur to left of foundation

FIGURE 1-6 SITE PHOTOGRAPHS

Date:	View:	Photographer:
04/01/11	South	L. Foster

Drainage Culvert draining water from drainage ditch, background between rail road tracks. SWMU 11 railroad spur in background.

Date:	View:	Photographer:
11/17/11	east	K. Smith

Drainage Channel west of Building 225

Date:	View:	Photographer:
04/01/11	East	L. Foster

Location of Former Building 2981 and Concrete Tank that temporally stored firefighting water runoff.

Date:	View:	Photographer:
04/01/11	North	L. Foster

Area downgradient of Former Building 2981 and location of soil samples 11SB29 to 11SB32.

FIGURE 1-6 SITE PHOTOGRAPHS

Date:	View:	Photographer:
10/15/11	south	G. Ten Eyck

Location for Monitoring Well 11MWT001. Building 225 Concrete foundation background.

Date:	View:	Photographer:
10/15/11	northwest	G. Ten Eyck

Marked location for Soil Boring SB39, foreground and Monitoring Well 11MWT002, background.

Date:	View:	Photographer:
10/15/11	northeast	G. Ten Eyck

Location for Monitoring Well 11MWT003 fifty feet beyond green bucket. Building 225 Concrete foundation background.

Date:	View:	Photographer:
10/05/11	east	G. Ten Eyck

Location for Monitoring Well 11MWT004. Building 2720 in background.

2.0 FIELD INVESTIGATION

This section summarizes sampling activities, procedures, and documentation conducted during RFI field activities at SWMU 11.

2.1 OVERVIEW

RFI field investigations for SWMU 11 were performed in April, November, and December 2011, October and November 2012 and, January 2013. These investigations included collection of surface soil, subsurface soil, sediment, and/or groundwater samples. Table 2-1 lists the samples collected along with the date of collection and analysis that were conducted on each sample.

Based on evaluation of initial RFI data collected in April 2011, it was determined that the analytical data were not sufficient to define the nature and extent of contamination to support an HHRA or ERA. Therefore, a Field Task Modification Request (FTMR) (Tetra Tech, 2011b) was prepared that defined additional sampling and analysis to delineate the extent of soil, sediment, and groundwater contamination exceeding Project Screening Levels (PSLs). These additional samples were collected in November and December 2011. The FTMR is presented in Appendix A.

November and December 2011 results showed that the extent of subsurface soil and groundwater contamination was still not defined. Therefore, a second FTMR (Tetra Tech, 2012) was prepared to present the plan to collect additional data to address the data gaps (Appendix A). This additional sampling was completed over three field events conducted in October and November 2012, and January 2013.

All investigations were completed per the standard operating procedures (SOPs) and methodologies presented in the Sampling and Analysis Plan (Tetra Tech, 2011a) and associated FTMRs. Appendices A through D of this RFI Report includes copies of the FTMRs, boring logs, field sample log sheets, and all other field forms, records, and field logbooks associated with the field investigations.

2.1.1 April 2011 Investigation

In April 2011, surface soil and subsurface soil samples were collected from 32 locations as presented on Figures 2-1, 2-2 and 2-3. Sediment samples were collected from four locations in the drainage channel that drains into Broom Branch (Figure 2-4). Samples were sent to a fixed-base laboratory and analyzed for the parameters identified on Table 2-1.

Groundwater samples were not collected during the April 2011 investigation because direct push technology (DPT) drilling equipment used to collect soil samples terminated at bedrock. Bedrock (as inferred from sampler refusal) was encountered at depths ranging from 7 feet to 10 feet below ground surface (bgs). Groundwater was not encountered in the soil above bedrock.

Based on the site history, seven areas at SWMU 11 were determined to have a greater potential for contamination compared to other areas on the site. These locations were the focus of the initial sampling event. These areas, along with the number of sample locations in each area and sample analyses for the April 2011 event, were as follows:

- **Building 225 Concrete Sub-Slab Area.** Four soil borings (11SB01 to 11SB04) were advanced through the concrete slab of former Building 225. Surface and subsurface soil samples were collected from these borings and analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) including low-level polycyclic aromatic hydrocarbons (PAHs), pesticides, polychlorinated biphenyls (PCBs), metals, and cyanide. One surface soil sample was also analyzed for dioxins/furans.

- **Drainage Ditch.** Five surface soil samples (11SB05 to 11SB10) were collected within the intermittent drainage ditch and analyzed for SVOCs including low-level PAHs, pesticides, PCBs, metals, and cyanide. One surface soil sample was also analyzed for dioxins/furans.

- **Adjacent Area.** Eight surface soil samples (11SB11 to 11SB18) were collected from areas adjacent to the slab and analyzed for SVOCs (including low-level PAHs), pesticides, PCBs, metals, and cyanide. Two samples were also analyzed for dioxins/furans.

- **Downwind Area.** Six surface soil samples (11SB19 to 11SB24) were collected at locations downwind of Building 225 and analyzed for dioxins/furans only. Two of the samples were collected from the grassy areas northeast of former Building 225 and across Highway 101, and four samples were collected from the grassy areas southwest of former Building 225.

- **UST Area.** Four subsurface samples (11SB25 to 11SB28) were collected from the former UST area and analyzed for VOCs and SVOCs including low-level PAHs.

- **Downgradient Area of Building 2981 Concrete Tank.** Four surface soil samples (11SB29 to 11SB32) were collected from the area downgradient of the Building 2981 concrete tank and analyzed for SVOCs including low-level PAHs, pesticides, PCBs, metals, and cyanide.

- **Drainage Channel** Eight sediment samples were collected from four locations (11SD01 to 11SD04) in the drainage channel and analyzed for SVOCs including low level PAHs, pesticides, PCBs, metals, cyanide, and total organic carbon (TOC). Two sediment samples from one location were also analyzed for dioxins/furans.

The surface soil samples were collected at depths 0 to 2 feet bgs and the subsurface soil samples were collected at varying depths between 2 feet bgs and bedrock. The surface soil samples collected below the Building 225 concrete floor were identified as soil when the material beneath the concrete floor was greater than 50-percent soil. The thickness of the concrete ranged from 5- inches to 6- inches, as listed on Table 2-1. Eight sediment samples were collected at four locations in the drainage channel. At each drainage channel location, samples were collected from 0 to 6 inches bgs and from 6 to 12 inches bgs.

The April 2011 analytical results showed that one surface soil sample and three subsurface soil samples collected in the central area of the slab had tetrachloroethene (PCE), trichloroethene (TCE), and vinyl chloride (VC) concentrations exceeding the PSLs. Concentrations of PCE, TCE, and VC detected in soil borings 11SB01, 11SB02, and 11SB03 at depths of 4 to 6 feet bgs exceeded the PSLs. The depths to bedrock in these borings ranged from 8.3 (11SB04) to 10 (11SB02) feet bgs. PCE and TCE are dense non-aqueous-phase liquids that can migrate vertically and can affect groundwater. The absence of data to bound the horizontal and vertical extent of the subsurface soil contamination was identified as a data gap.

Dioxin/furan concentrations in the two sediment samples collected from the drainage channel (11SD02) and analyzed for dioxins/furans exceeded one or more dioxins/furans PSLs. Based on the April 2011 analytical results, there was concern that dioxin/furan sediment contamination identified at 11SD02 could possibly extend further downstream from location 11SD02. The absence of dioxin/furan data downstream of 11SD02 was identified as a data gap.

In addition, the absence of groundwater data due to the inability to collect groundwater samples during this event was identified as a data gap.

2.1.2 <u>November 2011 Investigation</u>

The November 2011 sampling event was performed to address the data gaps identified in the April 2011 analytical data. Subsurface soil and sediment samples were collected, and groundwater wells were installed. These samples were collected in accordance with the September 15, 2011 Technical

Memorandum. This Memorandum contained the results of the April 2011 fieldwork and contained the first FTMR for the collection additional samples. Appendix A includes a copy of this Technical Memorandum.

During November 2011 RFI activities, subsurface soil samples were collected from 18 soil borings (11SB33 to 11SB50) in the area of the Building 225 concrete floor to delineate the extent of subsurface soil PCE, TCE, and VC contamination. Two subsurface samples were collected at each soil boring, including the 1-foot interval above bedrock, and were analyzed for VOCs. Depths to bedrock in these borings ranged from 4 (11SB37) to 9.2 (11SB43) feet bgs. November 2011 boring locations are shown on Figure 2-1.

Two additional sediment samples (11SD05 and 11SD06) were collected from two locations downstream of the 11SD02 location to better define the extent of dioxins/furans contamination. The sediment samples were collected between 0 to 6 inches bgs and were analyzed for dioxins/furans. The locations are shown on Figure 2-4.

Four groundwater wells were installed at SWMU 11 to determine if VOCs were present in groundwater. The wells were installed in bedrock to depths ranging from 25 (11MWT03) to 35 (11MWT04) feet bgs to intercept the first groundwater zone. Monitoring well, 18CMWT001, associated with investigation of SWMU 18 (Tetra Tech, 2013a) was installed at the same time (SWMU 18 is adjacent to SWMU 11). Monitoring well 18CMWT001 is approximately 340 feet south of the center of the SWMU 11 concrete pad and is used as part of the SWMU 11 assessment because of its location being upgradient of SWMU 11. All five monitoring wells would be sampled in December 2011, as discussed in Section 2.1.2. The monitoring well locations are shown on Figure 2-4.

Several additional subsurface soil samples collected in November 2011 had PCE, TCE and VC at concentrations greater than PSLs at depths ranging from 4 to 9 feet bgs. The absence of data to bound the extent of the subsurface soil contamination was identified as a data gap. Results of the additional sediment samples indicated that the extent of dioxin/furans contamination was defined.

2.1.2 December 2011 Investigation

In December 2011, groundwater samples were collected from the five monitoring wells (11MWT01 to 11MWT04 and 18CMWT001) installed in November 2011 and shown on Figure 2-4. Groundwater sampling was performed to determine if VOC contamination, identified in the soil during the April and November 2011 sampling events, is present in groundwater at SWMU 11.

All groundwater samples were analyzed for VOCs, as identified on Table 2-1. The groundwater sample from 18CMWT001 was also analyzed for select metals to support the SWMU 18 investigation; however, the results are presented in this report.

PCE, TCE and cis-1,2-dichloroethene (DCE) were detected in monitoring well 11MWT02, located on the Building 225 concrete floor, and benzene and chloroform were detected in 11MWT03, located south of the concrete floor, during this groundwater sampling event. The absence of data to bound the horizontal and vertical extent of groundwater contamination was considered a data gap. A second FTMR dated September 25, 2012 was developed for the collection of additional samples to delineate contamination (Appendix A).

2.1.3 October 2012 Investigation

October 2012 soil sampling was conducted to address the data gaps identified in the November 2011 analytical data. Subsurface soil samples were collected from nine additional soil borings (11SB51 to 11SB59) advanced through the Building 225 concrete floor, in the drainage ditch immediately west of the concrete floor, and in the area immediately north and east of the concrete floor to delineate the extent of subsurface soil PCE, TCE, and VC contamination. Two subsurface samples were collected at each soil boring, including the 1-foot interval above bedrock. Only one subsurface soil sample, from 2 feet to 4 feet bgs, was collected from boring 11SB59 because bedrock was encountered at 4 feet bgs. The samples were analyzed for VOCs. Depths to bedrock in these borings ranged from 4 (11SB59) to 8.2 (11SB56) feet bgs. These locations are shown on Figure 2-1.

October 2012 subsurface soil samples collected from the drainage ditch (11SB51, 11SB52, and 11SB53) immediately west of the concrete floor had concentrations of PCE, TCE, and VC in excess of PSLs. The depths of the exceedances ranged from 2 to 6 feet bgs. The absence of subsurface soil data further west of the drainage ditch was identified as a data gap.

2.1.4 November 2012 Investigation

The November 2012 soil sampling was performed to delineate and bound the extent of subsurface soil contamination identified during the October 2012 sampling event and VOC groundwater contamination identified in December 2011. Subsurface soil samples were collected and two new groundwater wells were installed to address the associated data gaps.

Subsurface soil samples were collected from six soil borings and analyzed for VOCs. One boring (11SB60) was advanced near the southern end of the drainage ditch, and the remaining five borings

(11SB60 to 11SB65) were located west of the drainage ditch between two sets of rail road tracks. The sample locations are shown on Figure 2-1. Two subsurface samples were collected at each soil boring including the 1-foot interval above bedrock. Depths to bedrock in these borings ranged from 5.2 (11SB60) to 13 feet bgs in the remaining soil borings. The ground surface elevation of the rail-road tracks is approximately 6 feet above the elevation of the drainage ditch.

Two additional groundwater wells (11MWT05 and 11MWT06) were installed at SWMU 11 to further delineate the horizontal and vertical extent of VOCs present in groundwater at SWMU 11. Well 11MWT05, located approximately 160 feet west of monitoring well 11MWT02, was installed in bedrock to a depth of 50 feet bgs to intercept the first groundwater zone encountered. Groundwater well, 11MWT06 located approximately 70 feet south of monitoring well 11MWT02 and on the Building 225 concrete slab, was installed in bedrock to a depth of 72 feet bgs to intercept the next groundwater zone (the occurrence of the groundwater zone in bedrock is discussed in Section 4.4.2). Groundwater samples were collected from 11MWT001, 11MWT002, 11MWT003, 11MWT005, 11MWT006, and 18CMWT001 and analyzed for VOCs. An insufficient volume of groundwater was present in 11MWT004 during the November 2012; therefore, no groundwater sample could be collected at this location. Monitoring well locations are shown on Figure 2-4.

November 2012 subsurface soils had concentrations of PCE and TCE exceeding PSLs in three of the samples collected from borings (11SB62, 11SB63 and 11SB64) on the railroad tracks. The depths of exceedances ranged from 9 to 12 feet bgs. The absence of subsurface soil data beyond the railroad tracks was considered a data gap.

2.1.5 January 2013 Investigation

January 2013 soil sampling was performed to delineate the data gap identified during the November 2012 sampling event. Subsurface soil samples were collected from five soil borings (11SB66 to 11SB70) located east and southeast of Building 2720 (west of the November 2012 soil borings) to delineate the extent of subsurface soil contamination. Two subsurface samples were collected at each soil boring including, the 1-foot interval above bedrock. Depth to bedrock in these borings ranged from 15.7 (11SB70) to 17.2 (11SB69) feet bgs. Soil boring locations are shown on Figure 2-1.

Although the soil samples from these locations had exceedances of PSLs, it was concluded based on the concentration detected in these samples that sufficient soil and groundwater data had been collected to conduct the human health and ecological risks assessments and corrective measures evaluations, and to make risk management decisions for the site.

2.2 MOBILIZATION/DEMOBILIZATION

All team members reviewed the approved Sampling and Analysis Plan (SAP), FTMRs, and Health and Safety Plan (HASP) prior to the start of project activities and attended an orientation given by the Field Operations Leader (FOL) to ensure that personnel were familiar with the scope of field activities. The FOL coordinated with base personnel and Indiana Underground Plant Protection Services (IUPPS) to obtain utility clearances for the area under investigation. Health and safety documentation is contained in the project file.

2.3 INVESTIGATION METHODOLOGIES AND PROCEDURES

2.3.1 Soil Borings

During RFI activities, 70 soil borings were drilled using a hand auger or DPT drilling methods. Soil borings were advanced to total depths ranging from 2 to 17.2 feet bgs. Copies of all soil boring logs are provided in Appendix B.

To collect subsurface soil samples, the DPT sampler was advanced continuously in 5-foot intervals or less if a full 5-foot interval was not needed. After the desired depth was reached, the DPT sampler was retracted from the hole and the 5-foot continuous sample was removed from the outer coring tube. The sample was contained within an inner acetate liner that was cut through its entire length, allowing access to the soil for evaluation and collection.

Soil samples were collected for chemical analyses and for lithologic logging. All samples obtained from the boreholes were screened with a photoionization detector (PID) immediately upon opening. All PID readings were recorded on boring logs or soil sample log sheets (Appendices B and C, respectively). Soil sample collection information is provided in Section 2.4.

2.3.2 Monitoring Well Drilling

During the RFI, seven groundwater monitoring wells were installed using hollow-stem auger and air rotary drilling methods in accordance with SOP-18 (Drilling and Geologic Logging of Boreholes in Bedrock). The well boreholes for the monitoring wells were drilled using hollow-stem augering techniques to drill through the overburden material, and air percussion hammer techniques to drill in bedrock. In the overburden, 4.25-inch hollow-stem augers were advanced to the top of bedrock. Split-spoon samples were collected continuously during auger advancement for soil characterization and screening for VOCs with a PID. Prior to advancing the boreholes into bedrock, temporary casing was installed to the top of

bedrock, except well 11MWT006. The boreholes were advanced using 5.5-inch diameter air percussion hammer techniques to the completion depth.

For the installation of monitoring well 11MWT06, 7-inch-diameter permanent steel casing was installed from 1 to 13 feet bgs and 4-inch-diameter permanent steel casing was installed from 1 to 37 feet bgs. The permanent casing was grouted in place with cement-bentonite grout. Drilling continued below 4-inch casing with a 3.5-inch diameter air rotary drill bit to a total depth of 72 feet bgs.

2.3.3 Well Installation

Seven permanent monitoring wells were installed upon completion of bedrock drilling in accordance with SOP-12 (Monitoring Well Installation). The wells were constructed using 2-inch-diameter Schedule 40 polyvinyl chloride (PVC) riser pipe and a 10-foot-long Schedule 40 PVC 0.020-inch slotted well screen. Well screens were installed at depths ranging from 14 to 72 feet bgs in accordance with SOP-12. Well Installation, presented in the SAP. Sand filter packs were installed in the annulus around the well screens from up to 1 foot below the bottom of the well screen to 1/5 to 2 feet above the top of the well screen. A 2-foot thick bentonite seal was installed above the filter pack, and the remaining annulus was sealed with cement-bentonite grout to close the ground surface.

Stainless steel protective surface casings with locking caps and locks were set in 4-foot by 4-foot by 6-inch-thick concrete pads to protect the well casings at wells 11MWT01, 11MWT03 and 11MWT04. Four steel bollard posts were placed around the corners of each concrete pad and filled with concrete. Monitoring wells 11MWT02 and 11MWT06, which were installed through the former Building 225 concrete slab, and 11MWT005, which was installed in the gravel lot south of Building 2720, were completed using a flush-mounted well protector by cutting a 2-foot by 2-foot vault in the concrete. A steel protective flush-mounted casing was then placed over the riser at each well and concreted in place. Monitoring well construction diagrams are included in Appendix D. All wells were surveyed by an Indiana-licensed surveyor. The date of installation, total depth, ground surface elevation, top of well casing elevations, and screen depth/elevation, of each of the monitoring wells are presented in Table 2-2.

The monitoring wells were developed to remove fine sediment from within and around the well screens. The wells were developed no sooner than 48 hours after installation (i.e., grouting), in accordance with SOP-12. The wells were developed by repeatedly pumping or bailing dry over several days. All purge water removed from the wells during the development process was stored in a portable holding tank and discharged into a designated man-hole for treatment at the NSA Crane water treatment facility. Monitoring well development logs can be found in Appendix C

The monitoring wells were surveyed by an Indiana-licensed surveyor (Section 2.11).

2.3.4 Borehole and Sample Logging

A boring log was generated for each soil and well boring in accordance with SOP-08 (Borehole and Soil Sample Logging) presented in the SAP. Copies of the boring logs are included in Appendix B and contain the following information as appropriate:

- Boring identification
- Name of the person logging the boring
- Name of drilling contractor
- Sample number and type
- Sample depth
- Sample recovery and sample interval
- Soil density or cohesiveness
- Soil color
- Unified Soil Classification System (USCS) material descriptions
- Drilling problems or deviations from the project-specific approved SAP
- Date of drilling
- Screening instrument readings

In addition, depths of changes in lithology, sample moisture observations, drilling methods, and total depth of each borehole were included on each log, as well as any other pertinent observations.

2.3.5 Borehole Abandonment

All soil borings at SWMU 11 not completed as monitoring wells were backfilled with drill cuttings and bentonite chips that were hydrated in accordance with the manufacturer's specifications. The ground surface at each soil boring location was restored to its original condition.

2.4 SOIL SAMPLES

During the RFI sampling events, 28 surface soil and 83 subsurface soil samples were collected. All surface soil samples were collected in 2-foot intervals beginning at the ground surface or beginning with the soil surface immediately below the concrete or asphalt layer. The upper boundary of the soil layer was as the depth at which the majority of the material was soil.

All subsurface soil samples were collected using DPT or split spoon samplers in accordance with SOP-11 (Subsurface Soil and Groundwater Sampling Using Direct-Push Technology) presented in the SAP. Upon retrieving and opening the DPT plastic sleeve or split spoon, small portions of soil from each interval in each boring were selected and placed in sealed Ziploc® plastic bags for hydrocarbon contamination screening with a PID. The soil placed in the plastic bags was selected based on visual observations such as soil staining, petroleum odors, or changes in soil lithology. The results of this PID screening were recorded on the soil boring logs included in Appendix B. After the sample interval was selected, the samples were collected for the required analysis and placed into the appropriate containers.

Samples for VOC analysis were collected first using 5-gram EnCore™ samplers to minimize sample disturbance and potential volatilization. The remaining soil core material was then collected for analysis of the remaining analyses, as identified in Table 2-1, and placed into the required containers. All pertinent field data including sampling methods, depths, descriptions, and locations were recorded on soil boring logs (Appendix B) and soil sample log sheets (Appendix C). Figures 2-1, 2-2, 2-3, and 2-4 show all RFI soil sampling locations.

2.5 SEDIMENT SAMPLES

During RFI sampling activities, 10 sediment samples were collected from the drainage channel northwest of the site in accordance with SOP-09 (Sediment Sampling) presented in the SAP. Samples were submitted to the laboratory for the analyses identified on Table 2-1.

Sediment samples were collected using a disposable trowel to dig and homogenize the sediment in an 18-inch-diameter circular area that was 6 inches deep for the first sample interval. After the first 6 inches of sediment were removed for the shallow sample, sediment between 6 to 12 inches deep was homogenized in the same area for the deeper sample interval. Once homogenized, the sediment was placed in the required containers for each sample interval. All pertinent field data including sampling methods, depths, descriptions, and locations were recorded on sediment sample log sheets (Appendix C). Drainage ditch sediment sample locations are shown on Figure 2-4.

2.6 GROUNDWATER SAMPLES

Five monitoring wells were installed in October 2011 and two monitoring wells were installed in November 2012 in support of the SWMU 11 RFI. A total of 11 groundwater samples were collected from these wells, including four samples in December 2011 and seven samples in November 2012, and analyzed for VOCs. A groundwater sample was not collected from 11MWT04 in November 2012 due to an insufficient

volume of groundwater. The samples were collected in accordance with SOP-15 (Low-Flow Purging and Stabilization) and SOP-16 (Monitoring Well Sampling) presented in the SAP.

Purging and stabilization of the monitoring wells prior to sampling was accomplished using low-flow techniques with a bladder pump. Groundwater quality parameters including pH, specific conductance, temperature, dissolved oxygen (DO), salinity, and oxidation-reduction potential (ORP) were measured during purging using a multi-parameter water quality meter and flow-through cell. Turbidity readings were measured using a turbidity meter. Water levels and pumping rates were also measured during purging. Copies of the monitoring well low-flow purge data sheets and groundwater sample log sheets are provided in Appendix C.

Sample containers were filled by allowing the pump discharge to flow gently down the inside of the 40-milliliter (mL) container with minimal turbulence. All pertinent field data including sampling methods, purge information, pump intake depths, and locations were recorded on low-flow purge data sheets and groundwater sample log sheets (Appendix C).

2.7 WATER LEVEL MEASUREMENTS

Five rounds of water level measurements were obtained from the monitoring wells in accordance with SOP-14 presented in the SAP. The most recent round of water level measures was completed in November 2012. The measurements were recorded to the nearest 0.01 foot as identified on the groundwater sample log sheets in Appendix C. Depths to water and groundwater elevations are provided in Table 2-2.

2.8 FIELD SAMPLE DOCUMENTATION

Sample documentation resulting from this RFI such as boring logs, monitoring well development sheets, groundwater sample log sheets, chain-of-custody records, equipment calibration log sheets, field logbooks, and health and safety documentation are included in Appendices B through D.

2.9 SAMPLE HANDLING, PACKAGING, AND SHIPPING

Sampling containers were sealed in Ziploc® plastic bags, and glass containers were wrapped in plastic bubble wrap. The sample containers were then packed in ice in a large plastic garbage bag within a cooler. A temperature blank was placed in each cooler prior to shipment. The chain-of-custody form was sealed in a Ziploc® bag and taped to the inside of the cooler lid. A signed and dated custody seal was applied to each end of the cooler and then covered with strapping tape to provide a tamper-evident seal. Tetra Tech maintained custody of the samples until they were relinquished to FedEx®. All samples were

shipped to the laboratory overnight and were received within sample holding times and at acceptable temperatures.

2.10 QUALITY CONTROL SAMPLES

Quality assurance (QA) and quality control (QC) samples were generated and collected during sampling activities to monitor both field and laboratory procedures presented in the approved SAP. QA/QC samples included field duplicates, equipment rinsate blanks, trip blanks, and temperature blanks, as follows:

- Field Duplicates - Field duplicates were collected at a minimum rate of 1 in 20 per medium or a minimum of one per medium and were used to assess the overall precision of the sampling and analysis program.

- Equipment Rinsate Blanks - Equipment rinsate blanks were obtained under representative field conditions by collecting the rinse water generated by running analyte-free water through or over sample collection equipment after decontamination and before use. Equipment rinsate blanks were analyzed for the same target analytes as the associated environmental samples.

- Trip blanks - Trip blanks, consisting of analyte-free water taken from and returned to the laboratory, indicated whether contamination of VOC samples had occurred during transit or storage. One trip blank was to be placed in each cooler that contained samples for VOC analyses; however, some trip blanks were not collected as discussed in Section 3.0.

- Temperature blanks - Temperature blanks were used to determine if samples were adequately cooled during shipment and consisted of analyte-free water supplied by the fixed-base laboratory with one blank placed in each cooler. The temperature of each blank was checked upon receipt at the laboratory.

2.11 FIELD INSTRUMENT MEASUREMENTS

Field measurements taken and recorded during groundwater sampling operations included temperature, pH, specific conductance, ORP, DO, and turbidity. An electronic water-level meter was used to measure water levels during purging and during each round of water level measurements. Ambient air measurements included monitoring of organic vapors in the breathing zone during intrusive field investigation activities and monitoring of organic vapors emanating from site sources such as soil samples. The instruments used during field activities included the following:

- Water level meter
- Multi-parameter water quality meter
- Bladder pump
- PID

2.11.1 Equipment Calibration

Instruments used in the field were calibrated daily prior to use according to manufacturers' requirements and in accordance with applicable SOPs. Copies of equipment calibration logs are included in Appendix D.

2.11.2 Field Investigation Preventive Maintenance Procedures/Schedule

Field instruments for this project included a PID for soil screening, and a water level meter, multi-parameter water quality meter, and bladder pump for groundwater sampling. Specific preventive maintenance procedures recommended by the equipment manufacturers were followed in the field. An appropriate daily maintenance check was made on each piece of equipment. Critical spare parts including batteries and a DO probe were kept on site to reduce downtime. No field instrumentation was taken out of service during RFI activities.

2.12 SURVEYING

Soil and sediment sample locations from the April and November 2011 sampling events were recorded using a Trimble GeoXH global positioning system (GPS) unit that was used in accordance with SOP-01 (Global Positioning System) presented in the SAP. The GPS data were collected using the Indiana State Plane Coordinate System (SPCS), North American Datum of 1983 (NAD83) Indiana West (feet) coordinate grid.

The groundwater monitoring wells and soil borings from the October and November 2012 and January 2013 sampling events (11SB51 through 11SB70) were surveyed by an Indiana-licensed surveyor to obtain both horizontal location and vertical elevations. NSA Crane-established survey control points were used. Horizontal coordinates were surveyed to the nearest 0.1 foot and referenced to the Indiana SPCS (West Zone), NAD83 and elevations were surveyed to the nearest 0.01 foot and referenced to North American Vertical Datum 1988 (NAVD88). Elevations for monitoring wells 11MWT01, 11MWT03, 11MWT04, and 18CMWT001 were determined for the tops of the well casings, tops of steel protection casing, and northwestern corners of the concrete well pads. Elevations for monitoring wells 11MWT02,

11MWT05, and 11MWT06 were determined for the tops of the well casings and the tops of the concrete well pads next to the steel flush mounted casings.

2.13 DECONTAMINATION

The non-dedicated, non-disposable equipment involved in field sampling activities was decontaminated before beginning work, during drilling and sampling activities, and at the completion of each round of RFI activities in accordance with SOP-06. This equipment included DPT down-hole tools, stainless steel augers, stainless steel mixing bowls, and the hollow-stem and air rotary drilling. The following decontamination steps were taken:

- Potable water and phosphate-free detergent wash (scrub if necessary)
- Potable water rinse
- Deionized (DI) water rinse
- Air dry (if possible)
- Wrap in aluminum foil (if not to be used immediately)

An isopropanol rinse was not necessary because no oily residue was evident on the sampling equipment.

Field analytical equipment such as pH, conductivity, and temperature probes were rinsed first with analyte-free water then with the sample prior to making measurements.

2.14 FIELD CORRECTIVE ACTION

Corrective action includes the process of identifying, recommending, approving, and implementing measures to counter unacceptable procedures or "out of QC" performance that can affect data quality, and the process of modifying procedures to address unexpected/unusual field conditions encountered.

No nonconformances or suspected deficiencies occurred during the RFI field investigation; therefore, no corrective actions were necessary.

2.15 DEVIATIONS FROM THE SWMU 11 UFP-SAP OR FTMRS

Deviations from the SWMU 11 UFP-SAP or two FTMRs are summarized below:

- Planned groundwater samples TW01-TW03 were not collected in April 2011 because groundwater was not present above bedrock at these locations. Instead, permanent groundwater monitoring wells

MW01-MW04 were installed in December 2011 and sampled for VOCs due to exceedances of risk-based screening criteria for VOCs in subsurface soil samples collected in April 2011.

- The location of a field duplicate from subsurface soil for VOC analysis was planned for collection from soil boring location 11SB33 but was changed to 11SB36 in the field because the PID screening did not have a reading at 11SB33.

- Two subsurface soil samples were planned for collection from soil boring location 11SB59; however, only one subsurface soil sample was collected due to refusal at 4 feet bgs.

- Groundwater was not collected from monitoring well 11MWT04 in November 2012 due to insufficient water to pump to the surface.

- Planned analysis of SVOCs and low level PAHs for subsurface soil sample 11SB250507 were not analyzed due to a mistake by the laboratory.

- Some planned QC samples were not collected by the field crew including trip blanks for VOCs during the April 2011, December 2011 and November 2012 sampling events and equipment rinsate blanks during the December 2011 groundwater sampling event.

2.16 INVESTIGATION-DERIVED WASTE HANDLING

The field investigations generated several types of potentially contaminated wastes including personal protective equipment (PPE), decontamination fluids, DPT plastic sleeves, and drill cuttings. All PPE, tubing, and DPT plastic sleeves were double bagged and placed in NSA Crane trash receptacles (i.e., dumpsters). All drilling and sampling equipment decontamination fluids were collected and discharged to the NSA Crane permitted waste treatment plant. The cuttings produced from each DPT boring were scanned for volatile organic vapors, which were at ambient background levels for all borings, and the cuttings were placed back in the holes from which they originated. Any remaining cuttings that did not fit back into the hole were spread on the ground in the immediate vicinity of the boring.

2.17 SITE MANAGEMENT AND FACILITY SUPPORT

The FOL coordinated all day-to-day activities and ensured that all field team members (including subcontractors) were familiar with the approved SAP and HASP during the investigation. Coordination of all sampling tasks, QA/QC, field documentation, field change orders, and daily fieldwork status reports to the Tetra Tech Project Manager (PM) was also the responsibility of the FOL. Face-to-face meetings and

electronic media were employed to provide Crane personnel with the most immediate and effective communication regarding site preparation, mobilization\demobilization, and sampling activities.

2.18 RECORDKEEPING

The Master Site Logbook served as the overall record of field activities. Information recorded daily in the Master Site Logbook included daily field activities, weather conditions, identity and arrival and departure times of personnel, management issues, etc. Copies of field log books are included in Appendix D. Field data were also collected electronically using an EData system during the April 2011 sampling event and hand written on logs for during subsequent sampling events.

All field records, chain-of-custody forms, sample logs sheets, field forms, logbooks, and notebooks were consolidated into a central project file for CTO F27E. Appendices B, C, and D contain the field documents.

2.19 RESTORATION AND REVEGETATION

Site walkovers performed by Tetra Tech personnel at the end of each of the field events determined that based on minimal disturbance during the drilling/sampling activities, restoration and revegetation of the site was not necessary.

TABLE 2-1

SOIL BORINGS, SOIL AND SEDIMENT, AND GROUNDWATER SAMPLES COLLECTED, AND ANALYSES PERFORMED
SWMU 11 – OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

SWMU 11 – Soil Borings, Sediment, Surface Water, and Groundwater							
Boring No.	**Sample I.D. Number**	**Concrete or Asphalt Thickness (in.)**	**Sample Depth (ft.)**	**Total Depth (feet bgs)**	**Drilling Method**	**Date Drilled**	**Analytical Group**
Surface and Subsurface Soil							
11SB01	11SS010002	6	0 - 2	8.5	DPT	04/26/11	VOCs, SVOCs/Low level PAHs, Pesticides/PCBs, and Metals/Cyanide
	11SB010406		4 - 6				
11SB02	11SS020002	5	0 - 2	10	DPT	04/26/11	VOCs, SVOCs/Low level PAHs, Pesticides/PCBs, Metals/Cyanide, and Dioxins/Furans
	11SB020406		4 - 6				VOCs, SVOCs/Low level PAHs, Pesticides/PCBs, and Metals/Cyanide
11SB03	11SS030002	5	0 - 2	8.9	DPT	04/26/11	VOCs, SVOCs/Low level PAHs, Pesticides/PCBs, and Metals/Cyanide
	11SB030406		4 - 6				
11SB04	11SS040002	5	0 – 2	8.3	DPT	04/26/11	VOCs, SVOCs/Low level PAHs, Pesticides/PCBs, and Metals/Cyanide
	11SB040406		4 - 6				
11SB05	11SS050002	0	0 – 2	2	Hand Auger	04/26/11	SVOCs/Low level PAHs, Pesticides/PCBs, and Metals/Cyanide
11SB06	11SS060002	0	0 - 2	2	Hand Auger	04/26/11	SVOCs/Low level PAHs, Pesticides/PCBs, and Metals/Cyanide
11SB07	11SS070002	0	0 - 2	2	Hand Auger	04/26/11	SVOCs/Low level PAHs, Pesticides/PCBs, and Metals/Cyanide

TABLE 2-1

SOIL BORINGS, SOIL AND SEDIMENT, AND GROUNDWATER SAMPLES COLLECTED, AND ANALYSES PERFORMED
SWMU 11 – OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

SWMU 11 – Soil Borings, Sediment, Surface Water, and Groundwater							
Boring No.	**Sample I.D. Number**	**Concrete or Asphalt Thickness (in.)**	**Sample Depth (ft.)**	**Total Depth (feet bgs)**	**Drilling Method**	**Date Drilled**	**Analytical Group**
11SB08	11SS080002	0	0 - 2	2	Hand Auger	04/26/11	SVOCs/Low level PAHs, Pesticides/PCBs, and Metals/Cyanide
11SB09	11SS090002	0	0 - 2	2	Hand Auger	04/26/11	SVOCs/Low level PAHs, Pesticides/PCBs, Metals/Cyanide, and Dioxins/Furans
11SB10	11SS100002	0	0 - 2	2	Hand Auger	04/26/11	SVOCs/Low level PAHs, Pesticides/PCBs, and Metals/Cyanide
11SB11	11SS110002	0	0 - 2	2	Hand Auger	04/26/11	SVOCs/Low level PAHs, Pesticides/PCBs, Metals/Cyanide, and Dioxins/Furans
11SB12	11SS120002	0	0 - 2	5	DPT	04/26/11	SVOCs/Low level PAHs, Pesticides/PCBs, and Metals/Cyanide
11SB13	11SS130002	0	0 – 2	2	Hand Auger	04/26/11	SVOCs/Low level PAHs, Pesticides/PCBs, and Metals/Cyanide
11SB14	11SS140002	0	0 – 2	2	Hand Auger	04/26/11	SVOCs/Low level PAHs, Pesticides/PCBs, Metals/Cyanide, and Dioxins/Furans
11SB15	11SS150002	0	0 – 2	5	DPT	04/26/11	SVOCs/Low level PAHs, Pesticides/PCBs, and Metals/Cyanide

TABLE 2-1

SOIL BORINGS, SOIL AND SEDIMENT, AND GROUNDWATER SAMPLES COLLECTED, AND ANALYSES PERFORMED
SWMU 11 – OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

SWMU 11 – Soil Borings, Sediment, Surface Water, and Groundwater							
Boring No.	**Sample I.D. Number**	**Concrete or Asphalt Thickness (in.)**	**Sample Depth (ft.)**	**Total Depth (feet bgs)**	**Drilling Method**	**Date Drilled**	**Analytical Group**
11SB16	11SS160002	0	0 - 2	2	Hand Auger	04/26/11	SVOCs/Low level PAHs, Pesticides/PCBs, and Metals/Cyanide
11SB17	11SS170002	4	0 - 2	5	DPT	04/26/11	SVOCs/Low level PAHs, Pesticides/PCBs, and Metals/Cyanide
11SB18	11SS180002	4	0 - 2	5	DPT	04/26/11	SVOCs/Low level PAHs, Pesticides/PCBs, Metals/Cyanide, and Dioxins/Furans
11SB19	11SS190002	0	0 - 2	2	Hand Auger	04/26/11	Dioxins/Furans
11SB20	11SS200002	0	0 - 2	2	Hand Auger	04/26/11	Dioxins/Furans
11SB21	11SS210002	0	0 – 2	2	Hand Auger	04/26/11	Dioxins/Furans
11SB22	11SS220002	0	0 – 2	2	Hand Auger	04/26/11	Dioxins/Furans
11SB23	11SS230002	0	0 – 2	2	Hand Auger	04/26/11	Dioxins/Furans
11SB24	11SS240002	0	0 – 2	2	Hand Auger	04/26/11	Dioxins/Furans
11SB25	11SB250507	4	5 - 7	8.5	DPT	04/26/11	VOCs, SVOCs/Low level PAHs
11SB26	11SB260507	4	5 - 7	8	DPT	04/26/11	VOCs, SVOCs/Low level PAHs
11SB27	11SB270507	4	5 - 7	7.4	DPT	04/26/11	VOCs, SVOCs/Low level PAHs
11SB28	11SB280507	4	5 - 7	7	DPT	04/26/11	VOCs, SVOCs/Low level PAHs

TABLE 2-1

SOIL BORINGS, SOIL AND SEDIMENT, AND GROUNDWATER SAMPLES COLLECTED, AND ANALYSES PERFORMED
SWMU 11 – OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

SWMU 11 – Soil Borings, Sediment, Surface Water, and Groundwater							
Boring No.	**Sample I.D. Number**	**Concrete or Asphalt Thickness (in.)**	**Sample Depth (ft.)**	**Total Depth (feet bgs)**	**Drilling Method**	**Date Drilled**	**Analytical Group**
11SB29	11SS290002	0	0 - 2	2	Hand Auger	04/27/11	SVOCs/Low level PAHs, Pesticides/PCBs, and Metals/Cyanide
11SB30	11SS300002	0	0 - 2	2	Hand Auger	04/27/11	SVOCs/Low level PAHs, Pesticides/PCBs, and Metals/Cyanide
11SB31	11SS310002	0	0 - 2	2	Hand Auger	04/27/11	SVOCs/Low level PAHs, Pesticides/PCBs, and Metals/Cyanide
11SB32	11SS320002	0	0 - 2	2	Hand Auger	04/27/11	SVOCs/Low level PAHs, Pesticides/PCBs, and Metals/Cyanide
11SB33	11SB330406	5	4 - 6	4	DPT	11/16/11	VOCs
	11SB330607		6 - 7				
11SB34	11SB340406	3	4 - 6	4	DPT	11/16/11	VOCs,
	11SB340708		2 - 4				
11SB35	11SB350305	3	3 - 5	6.6	DPT	11/16/11	VOCs
	11SB350506		5 - 6				
11SB36	11SB360204	0	2 - 4	5.5	DPT	11/17/11	VOCs
	11SB360405		4 - 5				
11SB37	11SS370103	0	1 - 3	4	DPT	11/16/11	VOCs
	11SB370304		3 - 4				
11SB38	11SB380406	4	4 - 6	7	DPT	11/15/11	VOCs
	11SB380607		6 - 7				
11SB39	11SB390406	5	4 - 6	8.8	DPT	11/15/11	VOCs
	11SB390708		7 - 8				

TABLE 2-1

SOIL BORINGS, SOIL AND SEDIMENT, AND GROUNDWATER SAMPLES COLLECTED, AND ANALYSES PERFORMED
SWMU 11 – OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

SWMU 11 – Soil Borings, Sediment, Surface Water, and Groundwater							
Boring No.	**Sample I.D. Number**	**Concrete or Asphalt Thickness (in.)**	**Sample Depth (ft.)**	**Total Depth (feet bgs)**	**Drilling Method**	**Date Drilled**	**Analytical Group**
11SB40	11SB400305	4	3 - 5	6	DPT	11/15/11	VOCs
	11SB400506		5 - 6				
11SB41	11SB410204	0	2 - 4	5.5	DPT	11/17/11	VOCs
	11SB410405		4 - 5				
11SB42	11SB420102	0	1 - 2	3	DPT	11/16/11	VOCs
	11SB420203		2 - 3				
11SB43	11SB430406	6	4 - 6	9	DPT	11/16/11	VOCs
	11SB430809		8 - 9				
11SB44	11SB440406	4	4 - 6	2	DPT	11/16/11	VOCs
	11SB440607		6 - 7				
11SB45	11SB450204	4	2 - 4	6	DPT	11/16/11	VOCs
	11SB450506		5 - 6				
11SB46	11SB460305	0	3 - 5	6	DPT	11/16/11	VOCs
	11SB460506		5 - 6				
11SB47	11SB470103	0	1 - 3	4	DPT	11/16/11	VOCs
	11SB470304		3 - 4				
11SB48	11SB480305	4	3 - 5	6	DPT	11/16/11	VOCs
	11SB480506		5 - 6				
11SB49	11SB490204	4	2 - 4	5	DPT	11/16/11	VOCs
	11SB490405		4 - 5				
11SB50	11SB500305	4	3 - 5	6	DPT	11/16/11	VOCs
	11SB500506		5 - 6				
11SB51	11SB510204	0	2 - 4	6	DPT	10/30/12	VOCs
	11SB510506		5 - 6				
11SB52	11SB520204	0	2 - 4	6	DPT	10/30/12	VOCs

TABLE 2-1

SOIL BORINGS, SOIL AND SEDIMENT, AND GROUNDWATER SAMPLES COLLECTED, AND ANALYSES PERFORMED
SWMU 11 – OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

SWMU 11 – Soil Borings, Sediment, Surface Water, and Groundwater							
Boring No.	**Sample I.D. Number**	**Concrete or Asphalt Thickness (in.)**	**Sample Depth (ft.)**	**Total Depth (feet bgs)**	**Drilling Method**	**Date Drilled**	**Analytical Group**
	11SB520506		5 - 6				
11SB53	11SB530204	0	2 - 4	6	DPT	10/30/12	VOCs
	11SB530506		5 - 6				
11SB54	11SB540204	0	2 - 4	5	DPT	10/30/12	VOCs
	11SB540405		4 - 5				
11SB55	11SB550406	0	4 - 6	7	DPT	10/30/12	VOCs
	11SB550607		6 - 7				
11SB56	11SB560406	0	4 - 6	8	DPT	10/30/12	VOCs
	11SB560708		7 - 8				
11SB57	11SB570406	0	4 - 6	7	DPT	10/30/12	VOCs
	11SB570607		6 - 7				
11SB58	11SB580305	0	3 - 5	6	DPT	10/30/12	VOCs
	11SB580506		5 - 6				
11SB59	11SB590204	0	2 - 4	4	DPT	10/30/12	VOCs
11SB60	11SB600204	0	2 - 4	5	DPT	11/29/12	VOCs
	11SB600405		4 - 5				
11SB61	11SB610810	0	8 - 10	11	DPT	11/29/12	VOCs
	11SB611011		10 - 11				
11SB62	11SB620911	0	9 - 11	12	DPT	11/29/12	VOCs
	11SB621112		11 - 12				
11SB63	11SB630911	0	9 - 11	12	DPT	11/29/12	VOCs
	11SB631112		11 - 12				

TABLE 2-1

SOIL BORINGS, SOIL AND SEDIMENT, AND GROUNDWATER SAMPLES COLLECTED, AND ANALYSES PERFORMED
SWMU 11 – OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

SWMU 11 – Soil Borings, Sediment, Surface Water, and Groundwater							
Boring No.	**Sample I.D. Number**	**Concrete or Asphalt Thickness (in.)**	**Sample Depth (ft.)**	**Total Depth (feet bgs)**	**Drilling Method**	**Date Drilled**	**Analytical Group**
11SB64	11SB640911	0	9 - 11	12	DPT	11/29/12	VOCs
	11SB641112		11 - 12				
11SB65	11SB650911	0	9 - 11	12	DPT	11/29/12	VOCs
	11SB651112		11 - 12				
11SB66	11SB661315	0	13 - 15	16	DPT	1/23/13	VOCs
	11SB661516		15 - 16				
11SB67	11SB671416	0	14 - 16	17	DPT	1/23/13	VOCs
	11SB671617		16 - 17				
11SB68	11SB681315	0	13 - 15	16	DPT	1/23/13	VOCs
	11SB681516		15 - 16				
11SB69	11SB691416	0	14 - 16	69	DPT	1/23/13	VOCs
	11SB691617		16 - 17				
11SB70	11SB701315	0	13 - 15	70	DPT	1/23/13	VOCs
	11SB701516		15 - 16				
Sediments							
11SD01	11SD010006	NA	0 – 0.5	1	TROWEL	04/28/11	SVOCs/Low Level PAHs, Pesticides/ PCBs, Metals/Cyanide, TOC
	11SD010612		0.5 - 1				
11SD02	11SD020006	NA	0 – 0.5	1	TROWEL	04/28/11	SVOCs/Low Level PAHs, Pesticides/ PCBs, Metals/Cyanide, TOC, and Dioxins/Furans
	11SD020612		0.5 - 1				
11SD03	11SD030006	NA	0 – 0.5	1	TROWEL	04/28/11	SVOCs/Low Level PAHs, Pesticides/ PCBs, Metals/Cyanide, TOC
	11SD030612		0.5 - 1				
11SD04	11SD040006	NA	0 – 0.5	1	TROWEL	04/28/11	SVOCs/Low Level PAHs, Pesticides/ PCBs, Metals/Cyanide, TOC
	11SD040612		0.5 - 1				

TABLE 2-1

SOIL BORINGS, SOIL AND SEDIMENT, AND GROUNDWATER SAMPLES COLLECTED, AND ANALYSES PERFORMED
SWMU 11 – OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

SWMU 11 – Soil Borings, Sediment, Surface Water, and Groundwater							
Boring No.	**Sample I.D. Number**	**Concrete or Asphalt Thickness (in.)**	**Sample Depth (ft.)**	**Total Depth (feet bgs)**	**Drilling Method**	**Date Drilled**	**Analytical Group**
11SD05	11SD050006	NA	0 – 0.5	0.5	TROWEL	11/17/11	Dioxins and Furans
11SD06	11SD060006	NA	0 – 0.5	0.5	TROWEL	11/17/11	Dioxins and Furans
Groundwater Samples							
11MWT01	11MWT01-01	NA	NA	28	AR	11/04/11	VOCs
11MWT01	11MWT01-02	NA	NA	28	AR	11/04/11	VOCs
11MWT02	11MWT01-01	NA	NA	27	AR	11/06/11	VOCs
11MWT02	11MWT01-02	NA	NA	27	AR	11/06/11	VOCs
11MWT03	11MWT03-01	NA	NA	24.5	AR	11/05/11	VOCs
11MWT03	11MWT03-02	NA	NA	24.5	AR	11/05/11	VOCs
11MWT04	11MWT04-01	NA	NA	33	AR	11/06/11	VOCs
11MWT05	11MWT05-01	NA	NA	50	AH	11/17/12	VOCs
11MWT06	11MWT06-01	NA	NA	72	AH	11/19/12	VOCs
18CMWT001	18CGWT001-01	NA	NA	35	AR	11/04/11	VOCs and Metals *
18CMWT001	18CGWT001-02	NA	NA	35	AR	11/04/11	VOCs

TABLE 2-1

SOIL BORINGS, SOIL AND SEDIMENT, AND GROUNDWATER SAMPLES COLLECTED, AND ANALYSES PERFORMED
SWMU 11 – OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

DPT = Direct Push Technologies
VOCs = Volatile organic compounds
PAHs = polycyclic aromatic hydrocarbons
PCBs = polychlorinated biphenyls
TAL Metals = Target Analyte list metals
NA = Not Applicable
AR= Air Rotary Drilling
AH= Air Hammer Drilling
*metals analyzed and reported for SWMU 18 only

Table 2-2

Monitoring Well Construction Information and Water Level Measurements
SWMU 11- Old Storage Building 225
NSA Crane
Crane, Indiana

Well Number	Installation Date[1]	Northing (NAD 83)	Easting (NAD 83)	Ground Elevation (feet NAVD 88)	Top of Casing (feet NAVD 88)	Total Depth (feet bgs)	Screened Interval				15-Nov-11		13-Dec-11		16-Jan-12		01-Aug-12		27-Nov-12	
							Top (feet NAVD 88)	Bottom (feet NAVD 88)	Top (feet NAVD 88)	Bottom (feet NAVD 88)	Depth to Water (feet btor)	Water Elevation (feet NAVD 88)	Depth to Water (feet btor)	Water Elevation (feet NAVD 1988)	Depth to Water (feet btor)	Water Elevation (feet NAVD 1988)	Depth to Water (feet btor)	Water Elevation (feet NAVD 88)	Depth to Water (feet btor)	Water Elevation (feet NAVD 88)
11MWT01	04-Nov-11	13067499.48	3014474.52	687.84	691.25	29.00	18.00	28.00	669.84	659.84	9.85	681.65	9.20	682.30	8.59	682.91	9.40	681.85	9.81	681.44
11MWT02	06-Nov-11	1307226.18	3014337.27	685.00	685.00	28.00	17.00	27.00	668.00	658.00	4.49	680.24	5.01	679.72	5.32	679.68	5.26	679.74	5.20	679.80
11MWT03	05-Nov-11	1307021.21	3014185.32	683.23	686.29	25.00	14.50	24.50	668.73	658.73	8.05	678.24	8.86	677.43	9.10	677.19	9.76	676.53	9.84	676.45
11MWT04	06-Nov-11	1307368.18	3014175.57	685.95	688.79	35.00	23.00	33.00	662.95	652.95	19.00	669.79	32.41	656.38	33.65	655.56	33.33	655.46	35.21	653.58
11MWT05	18-Nov-12	1307167.60	3014155.52	685.28	684.87	50.00	30.00	50.00	654.87	634.87	NA	NA	NA	NA	NA	NA	NA	NA	21.56	663.31
11MWT06	19-Nov-12	1307163.27	3014307.05	685.11	684.81	72.00	62.00	72.00	623.11	613.11	NA	NA	NA	NA	NA	NA	NA	NA	53.78	631.03
18CMWT001	04-Nov-11	1306824.25	3014434.45	683.61	686.55	35.00	24.30	34.30	659.31	649.31	NM	NM	6.00	680.25	6.28	679.97	6.09	680.46	6.09	680.46

Footnotes
1 - Represents the date when the well was completed.

Acronyms
bgs= Below ground surface.
btor= Below top of riser.
NA= Not Applicable; well not installed at time of measurement.
NAD 83 = North American Datum 1983 (Indiana State Plane Coordinate System - West Zone 1).
NAVD 88 = North American Vertical Data 1988.
NM= Not Measured.

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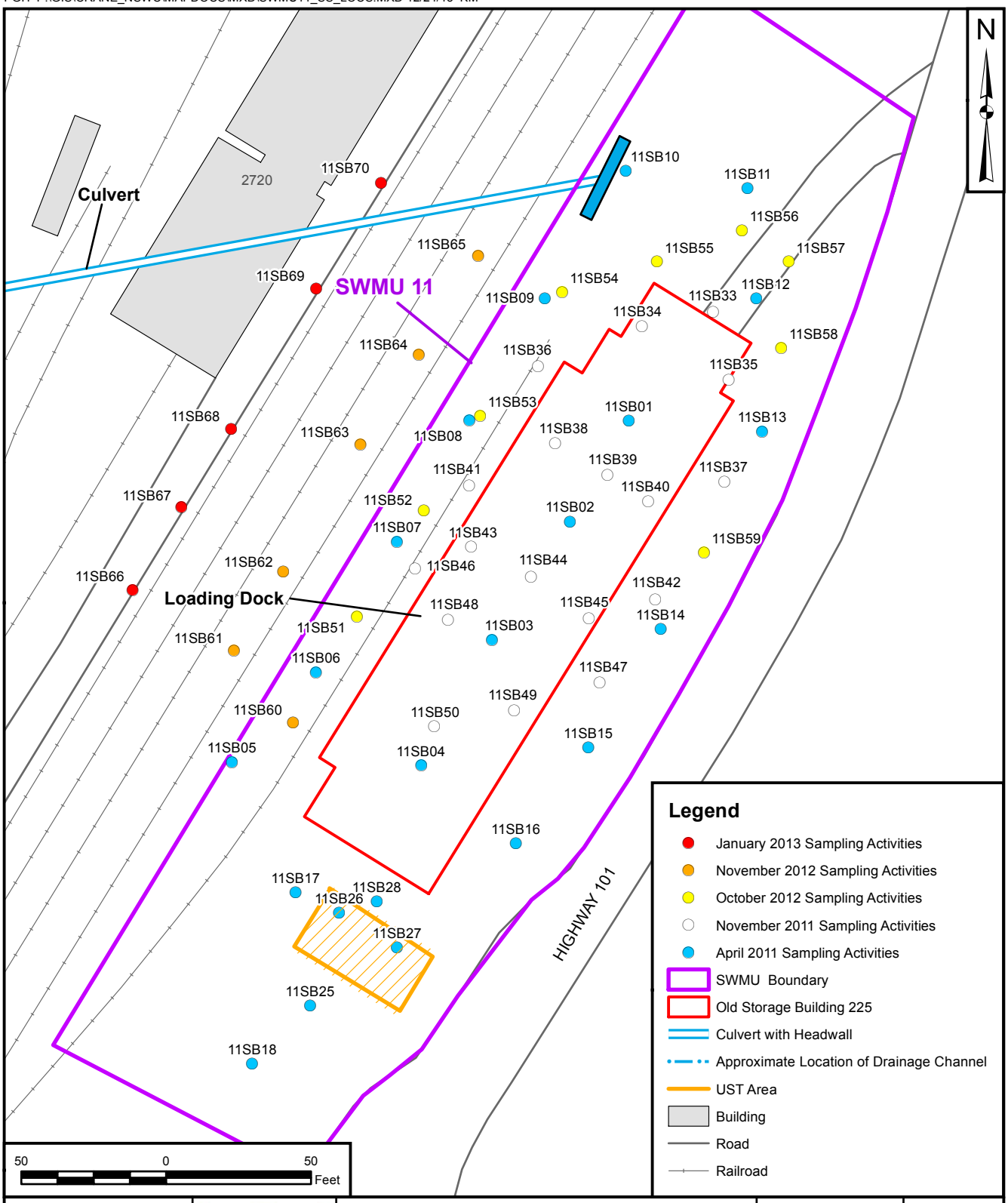

DRAWN BY	DATE
J. NOVAK	11/13/13
CHECKED BY	DATE
J. BUEL	12/24/13
REVISED BY	DATE
K. MOORE	12/24/13
SCALE	
AS NOTED	

NAVFAC

SURFACE AND SUBSURFACE
SOIL SAMPLE LOCATIONS - BUILDING 225 AREA
SWMU 11 - OLD STORAGE BUILDING 225
NAS CRANE
CRANE, INDIANA

CONTRACT NUMBER	CTO NUMBER
2635	F27E
APPROVED BY	DATE
J. BUEL	12/24/13
APPROVED BY	DATE
___	___
FIGURE NO.	REV
2-1	0

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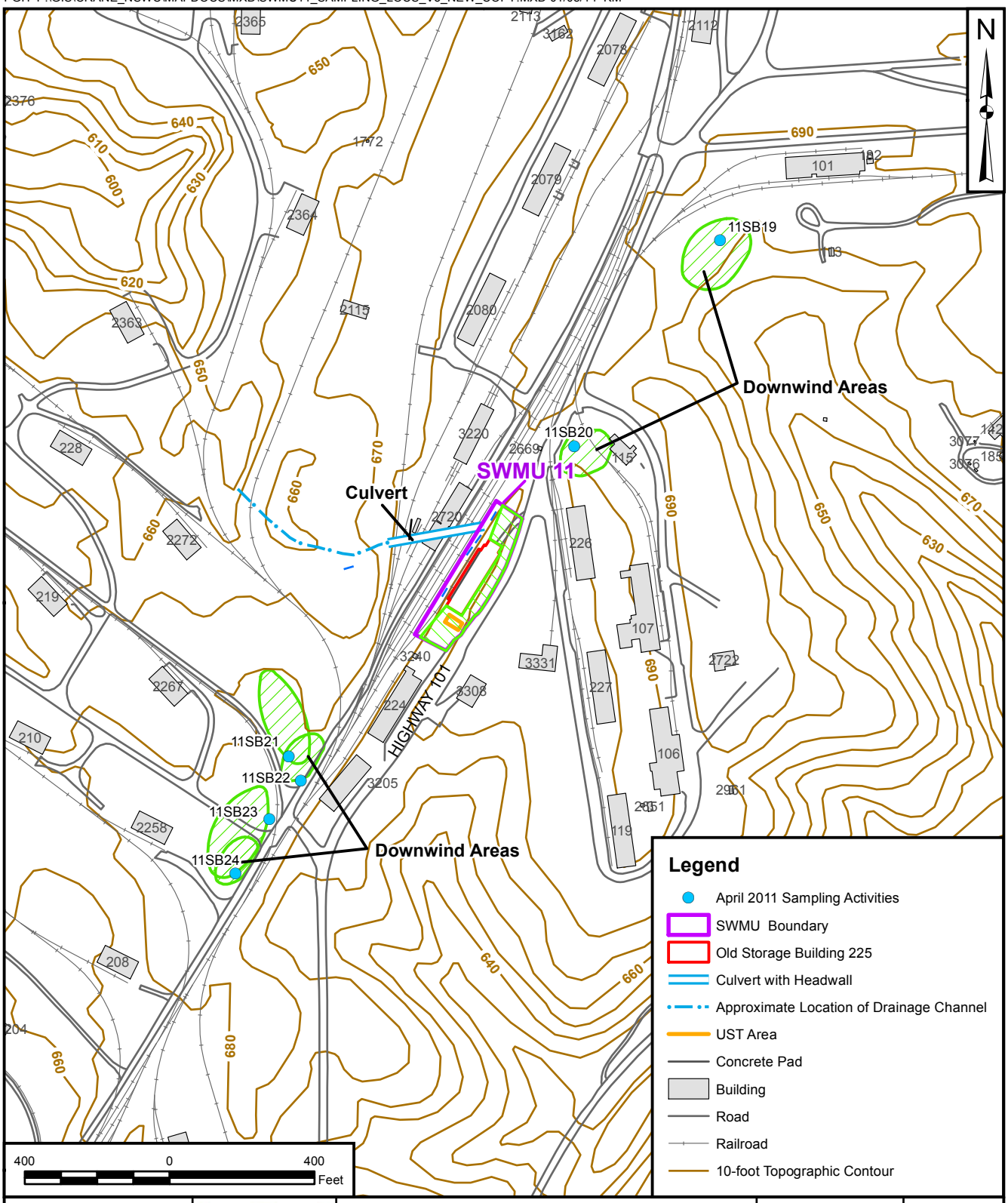

DRAWN BY	DATE
J. NOVAK	8/08/2010
CHECKED BY	DATE
J. BUEL	01/08/14
REVISED BY	DATE
J. NOVAK	01/08/14
SCALE	
AS NOTED	

NAVFAC

DOWNWIND SOIL SAMPLE LOCATIONS
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

CONTRACT NUMBER	CTO NUMBER
2635	F27E
APPROVED BY	DATE
J. BUEL	01/08/14
APPROVED BY	DATE
—	—
FIGURE NO.	REV
2-2	0

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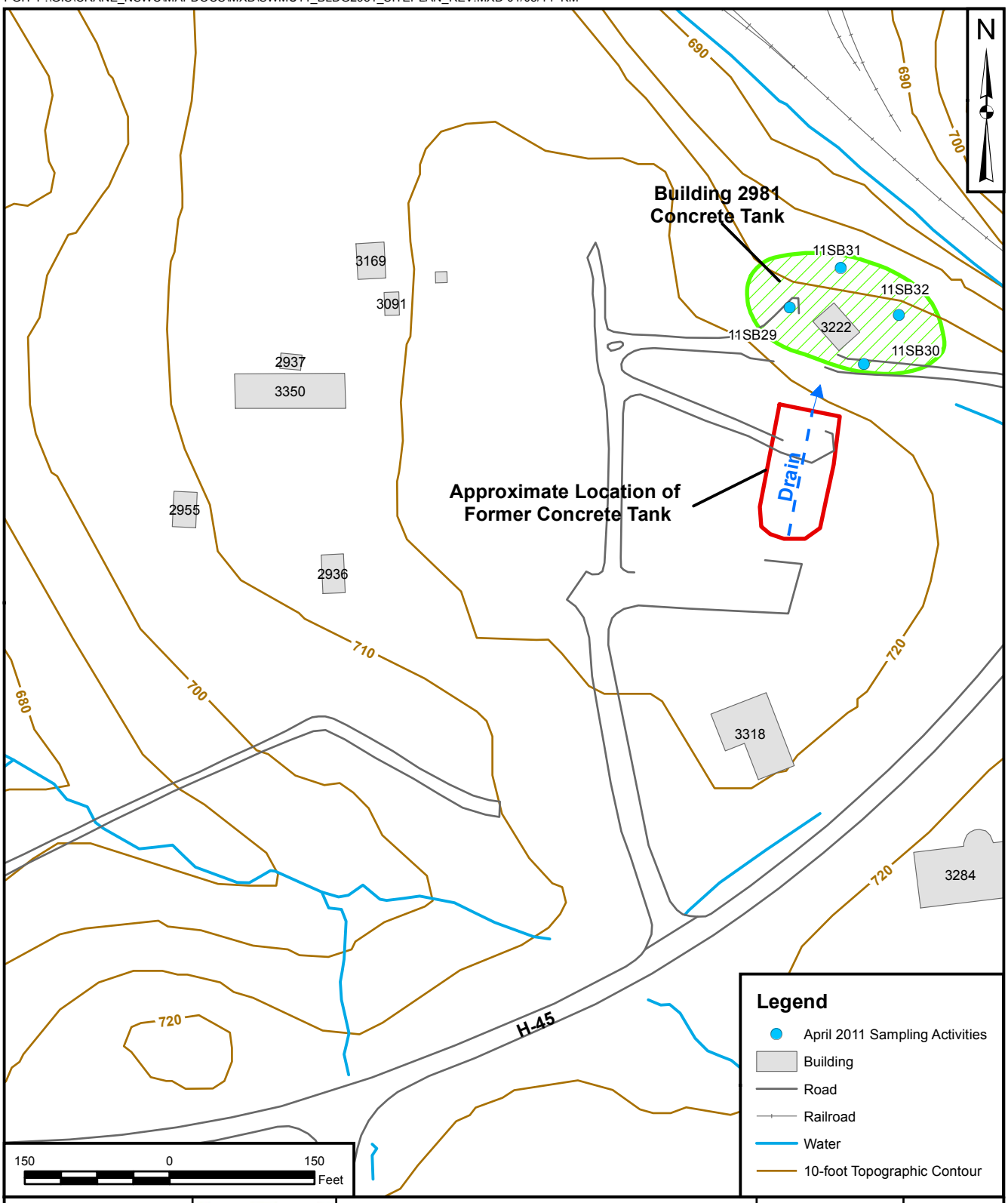

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J. NOVAK	11/13/13
CHECKED BY	DATE
J. BUEL	01/08/14
REVISED BY	DATE
J. NOVAK	01/08/14
SCALE AS NOTED	

NAVFAC

BUILDING 2981 CONCRETE TANK
SURFACE SOIL SAMPLE LOCATIONS
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

CONTRACT NUMBER	CTO NUMBER
2635	F27E
APPROVED BY	DATE
J. BUEL	01/08/14
APPROVED BY	DATE
___	___
FIGURE NO.	REV
2-3	0

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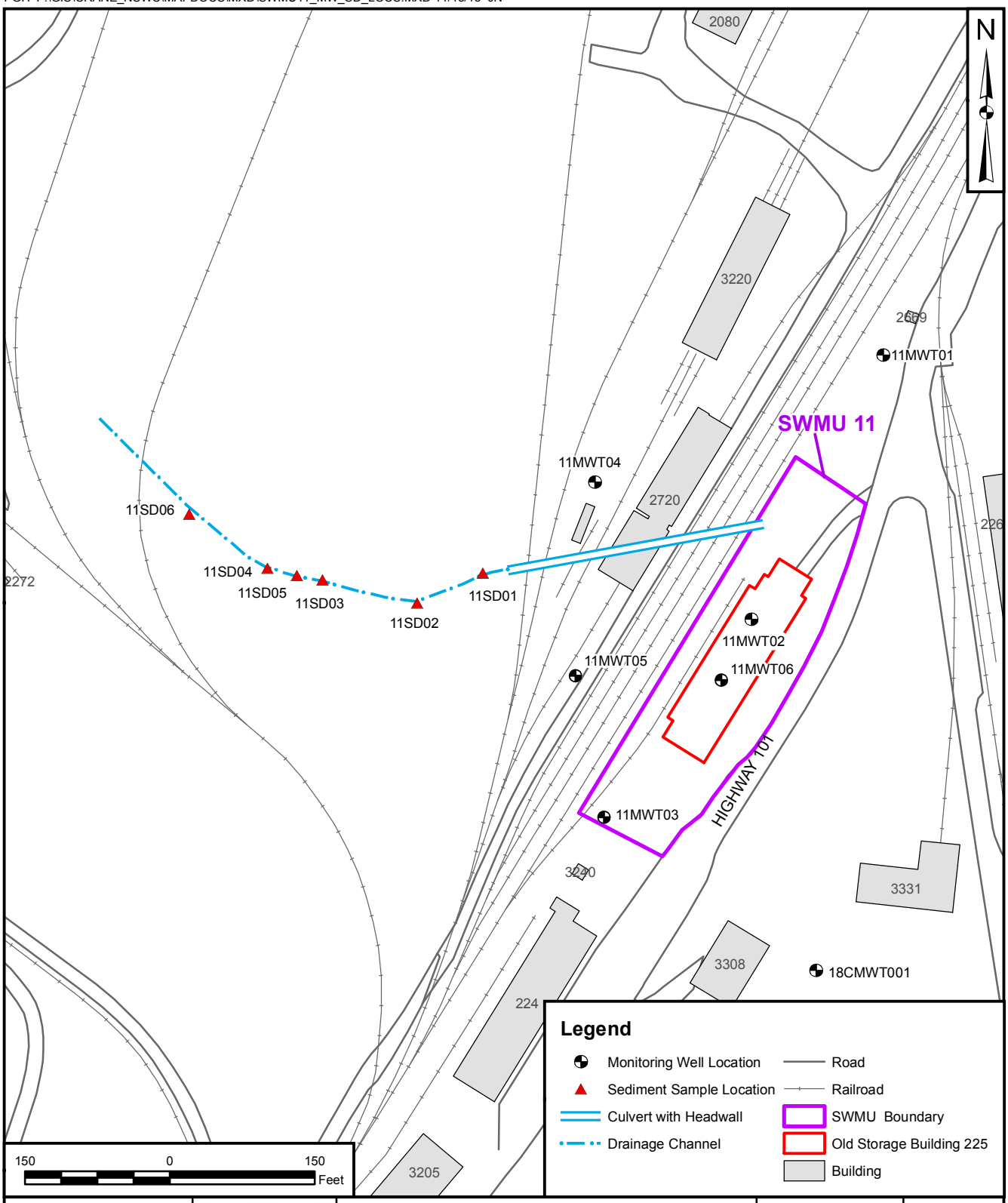


DRAWN BY	DATE
J. NOVAK	03/07/12
CHECKED BY	DATE
G. TEN EYCK	11/13/13
REVISED BY	DATE
J. NOVAK	11/13/13
SCALE AS NOTED	

NAVFAC

MONITORING WELL AND
SEDIMENT SAMPLE LOCATIONS
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

CONTRACT NUMBER	CTO NUMBER
2635	F27E
APPROVED BY	DATE
J. BUEL	11/13/13
APPROVED BY	DATE
—	—
FIGURE NO.	REV
2-4	0

3.0 DATA USABILITY ASSESSMENT

This section discusses the data usability assessment completed for the SWMU 11 RFI data. The usability of the data generated during the SWMU 11 RFI directly affects whether project objectives have been achieved. All of the results from samples that were submitted to the analytical laboratory were validated according to several specifications. A description of the data review processes used to determine whether analytical laboratory data are of acceptable technical quality for use in decision making and summary tables (Tables E-1 to E-5) that support the review of the data collected from SWMU 11 are presented in the Data Quality Review (DQR) in Appendix E. Complete tables of all analytical data collected at SWMU 11 are presented in Appendix F.

The DQR includes data verification and data validation processes. Verification is a process used to ensure that contractual requirements were satisfied. Validation is a comparison of data quality indicators (DQIs) to prescribed acceptance criteria to assess analytical method performance. The DQIs include measures to assess the bias and precision of the analytical calibrations and sample analyses. Together, verification and validation are the first steps in evaluating the DQIs of precision, accuracy, representativeness, completeness, comparability, and sensitivity (PARCCS). Each of the PARCCS parameters is discussed in greater detail in the DQR.

Assignment of data qualification flags conformed to rules established in the United States Environmental Protection Agency (USEPA) guidance documents Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review (USEPA, 1999), CLP National Functional Guidelines for Inorganic Data Review (USEPA, 2004a), CLP National Functional Guidelines for Chlorinated Dioxin/Furan Data Validation (USEPA, 2005a), and the Department of Defense (DoD) guidance document Quality Systems Manual (QSM) for Environmental Laboratories, Version 4.1 (DoD, 2009a), to the greatest extent practicable for non-CLP data. Numerical criteria used in conjunction with these rules were specified in the SWMU 11 SAP. A complete printout of the analytical data with data validation qualifications can be found in Appendix F. A detailed description of the data qualification flags can be found in the DQR in Appendix E.

The data collected during the SWMU 11 RFI were determined to be of sufficient quality to be used for determining the nature and extent of chemical contaminants identified at the site and for evaluating potential human health and ecological risks. However, the following data usability findings should be considered by project data users:

- Data validation was performed in accordance with the SAP for all organics and inorganics (metals and cyanide) following the USEPA CLP Functional Guidelines described in the preceding paragraph, and in conjunction with the DoD QSM Version 4.1 and method specific criteria presented in the SAP. Some results were flagged with the qualifiers J or UJ because the data were outside QC acceptance criteria. Some results were flagged with the qualifier U due to laboratory blank contamination.

- QC samples collected across all RFI field events included 14 field duplicate samples, 10 MS/MSD samples, seven equipment rinsate blanks, and seven trip blanks. As described in Section 2.14, some QC samples were not collected as planned during the April and December 2011 and November 2012 field events. However, the minimum frequencies for QC samples in the remaining RFI field events were met or exceeded.

- Laboratory conditions were identified that caused rejection (R or UR) of 2 out of the 10,457 total data points from all RFI sampling events, (yielding valid data for 10,455 of the 10,457 total data points. Two acetone results from the April 2011 sampling event were qualified as rejected due to unacceptable continuing calibration verification (CCV) relative retention factors (RRFs). The DQR concluded that 99.98 percent of the data points are considered usable, which exceeds the 95 percent completeness goal.

- Field duplicate precision measurements exceeded the acceptance criteria of 50 relative percent difference (RPD) for soil and sediment samples and 30 percent of RPD for aqueous samples (or two times the laboratory reporting limit for non-metals and four times the laboratory reporting limit for metals) for one or more analytes in 7 of the 14 field duplicate data sets. These data were qualified as estimated (J or UJ) and are considered usable.

- A number of accuracy measurements exceeded the acceptance criteria for initial calibration (ICAL) linear range, CCV, interference check standard (ICS), internal standard (IS), surrogate percent recoveries (%Rs), matrix spike (MS)/MS duplicates %Rs, and laboratory control sample/LCS duplicates %R for detected and non-detected analytes. These data were qualified as estimated (J or UJ) and are considered usable.

- Holding time exceedances that caused data to be qualified were limited to eight positive results for endrin or gamma-chlordane in re-extracted and re-analyzed samples, and estimated detection limits for a number of pesticides and 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) (in one sample) that were not positively identified.

- For all detected target analytes in surface and subsurface soil, sediment, and groundwater, the Limits of Quantitation (LOQs) were sufficiently sensitive (less than the corresponding PSLs for human health direct contact and/or ecological exposure, as originally identified in Worksheet #15 of the SAP and as revised according to current risk-based criteria as identified in Table E-3) to meet the project quality objectives (PQOs), with the exceptions noted in the DQR. Any positive detections between the LOQs and laboratory detection limits (DLs) were qualified as estimated (J) and are considered usable.

4.0 PHYSICAL CHARACTERISTICS OF THE STUDY AREA

4.1 PHYSIOGRAPHY AND TOPOGRAPHY

SWMU 11 is located in the west-central area of NSA Crane within an industrially developed area with many active buildings within 500 feet of the site. The approximately 1-acre site is bounded by Highway 101 to the east and by Buildings 226 and 3331 to the northeast. To the southwest is an asphalt parking area, and Building 224 is further southwest and within 100 feet of the site. To the west and northwest are active rail road tracks. Further northwest is Building 2720 which is within 100 feet of the site. Further west of Building 2720 are active railroad tracks and a wooded area. Immediately to the north are active railroad tracks. Figures 1-2 and 1-3 show these details.

The site and immediate surrounding area is relatively flat. The surface elevation of the former Building 225 concrete slab is 685 feet (NAVD88). As shown on Figure 1- 4, the site slopes gently from northeast to southwest with an elevation change from 688 (northeast) to 683 (southwest) feet. The elevation of the drainage ditch immediately northwest of the concrete pad is approximately 675 feet. The elevation of the drainage channel that runs through the wooded area to the west is between 670 and 660 feet. The drainage channel flows west and northwest to the upper reaches of Broom Branch.

The Building 2981 concrete tank area is located approximately 1 mile southwest of SWMU 11. The topographic elevation of the concrete pond area is 720 feet above msl. The Building 2981 concrete pond area is bounded by Highway 45 to the south and east, gravel parking area to the west, and Building 3222 to the north. The surface slopes to the northeast toward Building 3222. Further north of Building 3222 is a wooded area and small surface stream. Figure 1-5 shows the layout of the Building 2981 Concrete Tank Area. The surface topography of the Building 2981 concrete pond area is shown on Figure 2-3.

4.2 METEOROLOGY

NSA Crane is located in a warm, temperate climatic zone. In general, the summers are warm and humid, and winters are mild with occasional short cold periods. Average daily high temperatures range from 89 degrees Fahrenheit (°F) in July to 26°F in January. Precipitation is fairly evenly distributed throughout the calendar year; the maximum precipitation occurs during the spring and early summer. The average annual precipitation at the facility is 44 inches and consists of 42 inches of rain and 15 inches of snow. The average humidity ranges from 40 to 90 percent in summer and 60 to 90 percent in winter. Long-term climatological records for the area indicate that the monthly prevailing wind direction is from the southwest from April through December and from the northwest during January through March [National Oceanic and Atmospheric Administration (NOAA, 1988)]. The annual prevailing wind direction for the region is from the

southwest, and the annual average wind speed for the area is about 9.6 miles per hour. Figure 4-1 is a wind rose summarizing the mean wind direction and wind speed distribution at the Indianapolis International Airport over a 5-year period (1985 to 1989).

4.3 SURFACE WATER HYDROLOGY

Surface water from the site flows by direct runoff either into the drainage ditch on the western side of the Building 225 concrete slab or southwest across the asphalt parking onto Highway 101. The drainage ditch flows southwest to northeast to a drainage culvert that carries the surface water west under the railroad tracks to the drainage channel. Drainage from Highway 101 also enters the drainage ditch and is conveyed to the drainage channel west of the site.

The drainage channel is a natural stream that flows through a wooded area west of the site and discharges to Broom Branch approximately 1,000 feet northwest of the site as shown on Figure 1-4. Broom Branch then discharges into First Creek approximately 2.5 miles northwest of the site. First Creek flows northwest and off of the NSA Crane facility approximately 3 miles northwest of the site. The site topography and area features are shown on Figure 1-4.

Surface water drainage from the Building 2981 concrete tank area is toward the northeast.

4.4 GEOLOGY

NSA Crane is located within the unglaciated Crawford Upland Physiographic Province of the Southern Hills and Lowlands Region Indiana, which is a rugged dissected plateau bordered on the west by the Wabash Lowland and on the east by the Mitchell Plain (Figure 4-2). Bedrock at SWMU 11 is mapped as the Lower Pennsylvanian-age Mansfield Formation of the Raccoon Creek Group (Figure 4-3), which is overlain by thin Quaternary-age deposits. The Mansfield formation consists of alternating beds of dark shale, sandstone, mudstone, siltstone, and discontinuous coal units.

Detailed SWMU 11 geologic information was collected from the 70 borings and seven bedrock wells drilled during RFI activities. The 70 soil borings were drilled to depths ranging from 2 to 17 feet bgs to collect soil samples and seven bedrock well borings were drilled to depths ranging from 25 to 72 feet bgs to install permanent groundwater monitoring wells.

4.4.1 Soils

The soil below the Building 225 area is identified as a member of the Zanesville-Udorthents Complex in the Soil Survey of Martin County, Indiana published by the United States Department of Agriculture

(USDA) Natural Resource Conservation Service (USDA, 1988). The soil below the main portion of the Building 2981 concrete tank area is also identified as a member of the Zanesville-Udorthents Complex and the soil in the wooded area north of the concrete pond is mapped as the Wellston-Gilpin Complex.

The Zanesville-Udorthents soil is described as gently sloping, shallow to deep, well drained and moderately well drained soil. Udorthents are soils that have been affected by construction activities, which occurred at SWMU 11. This silt loam has low organic matter, moderate permeability, and moderate surface runoff. Near the top of bedrock the soil is a friable silt loam. Wellston-Gilpin soils are described as deep and moderately deep, gently sloping to very steep, well-drained soil formed from loess and material weathered from sandstone, siltstone, and shales on uplands.

These soil descriptions are consistent with the surface and subsurface soils encountered during RFI activities. In general, SWMU 11 soils were described as brown to gray silty clays grading to a thin layer of fine sand with clay at the top of bedrock.

4.4.2 Bedrock

Figure 4-4 presents the locations of two geologic cross-sections through SWMU 11. The geologic cross-sections A-A' and B-B' are presented on Figures 4-5 and 4-6 and show the bedrock description, thicknesses, monitoring well screen intervals, and groundwater elevations from the most recent groundwater sampling event.

Based on the monitoring well borings, the top of bedrock was encountered from 6.7 (18CMWT001) to 17 (11MWT05) feet bgs. The bedrock at SWMU 11 is 2- to 3- feet of orange to brown, weathered sandstone or gray siltstone (11MWT02), underlain by gray to brown silty sandstone and gray siltstone with an average thickness of about 7 feet. This sandstone unit was often dry with a few minor fractures.

Below the gray to brown, silty sandstone unit are laminated units of (in order of depth) gray siltstone and/or shale; silty sandstone; siltstone and shale; brown sandstone. Coal layers were encountered at several locations.

4.5 HYDROGEOLOGY

The groundwater at NSA Crane appears to be divided into two distinct regimes: one associated with the overburden/unconsolidated material and one associated with bedrock. The shallow groundwater is probably transient; during periods of excessive prolonged rainfall and during the early spring months, there is probably saturated soil and free water above the soil-rock interface. The shallow groundwater

dissipates by percolation into bedrock and into intermittent or perennial streams. The groundwater associated with bedrock is stable and probably fluctuates only a minor amount (less than 10 feet) per year. Possibly more than one zone of saturation exists in the bedrock due to the successive beds of sandstone, shale, and, limestone. The shale beds should be the least permeable of the series and, where underlying a permeable sandstone or limestone, would support a saturated or free-water zone. These shale zones grade laterally to zones of sandstone, so the downward percolating water would be free to move continually downward [Naval Energy and Environmental Support Activity (NEESA), 1983].

Groundwater at SWMU 11 was encountered within bedrock and likely travels through an interconnected network of fractures within the laminated shale, siltstone, and sandstone units. Groundwater was not encountered in the overburden at SWMU 11. Wet zones were observed immediately above bedrock in two borings (11MWT03 and 11MWT04); however, these zones were discontinuous and considered localized, thin perched zones.

Figure 4-8 is a groundwater potentiometric surface map of the first groundwater zone prepared based on November 2012 groundwater elevations. The groundwater flow is to the west with a hydraulic gradient of approximately 0.13. Aquifer testing was not conducted at SWMU 11, but estimates of bulk hydraulic conductivity were calculated for the RFI for SWMU 8 - Building 106 Pond (Tetra Tech, 2008) located approximately 500 feet east of SWMU 11. The median bulk hydraulic conductivity for the upper groundwater zone at SWMU 8 was 6.6 feet per day.

4.6 ECOLOGY

The NSA Crane facility includes developed areas, wooded areas, and old agricultural fields in various stages of biological succession. Eighty percent of NSA Crane's approximately 63,000 acres is classified as Central Hardwoods Forest of the United States (NEESA, 1983). The hillside communities include hickory, white and black oak, red maple, sugar maple, tulip poplar, ash, and beech. Areas that tend to be wetter, such as the area along Broom Branch, have river birch, willow, sycamore, and cottonwood.

The wildlife habitats and vegetation types present at NSA Crane, including many stages of forest succession, streams, ponds, Greenwood Lake, and grassy open spaces, support a diverse terrestrial and aquatic fauna. The abundance of wildlife is mainly due to the mixture of landforms and vegetation types that occur over the installation. There is an adequate amount of forage materials, concealment opportunities, and shelter locations to support a highly diverse wildlife community at NSA Crane.

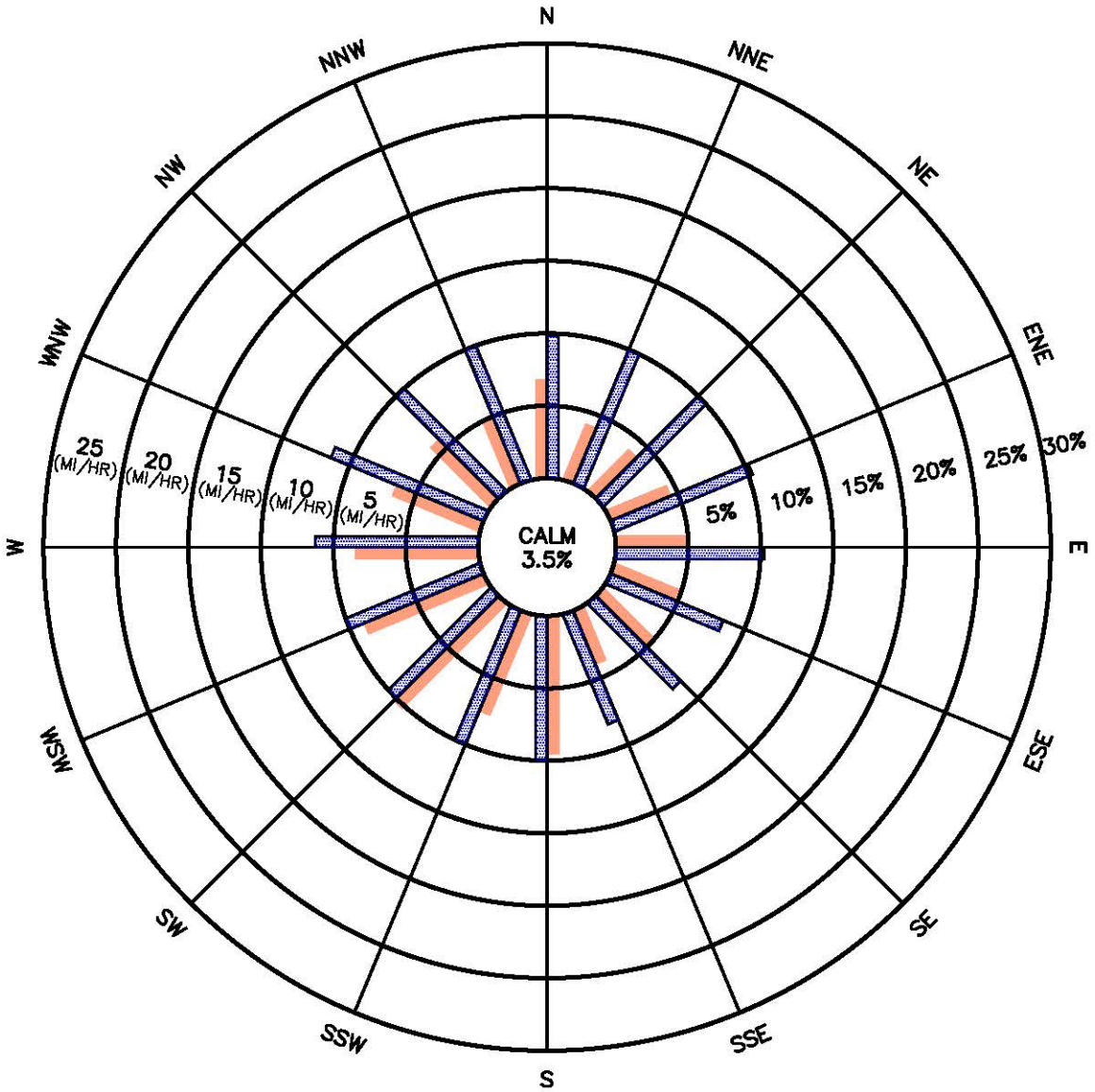
SWMU 11 is a 1-acre site located on a relatively flat developed area. Much of the site is paved and therefore provides little ecological habitat. However, the grassy areas east and west of the Building 225

foundation, drainage ditch, and drainage channel can support wildlife. There are no lakes, ponds, or wetlands at SWMU 11.

The wooded and grassy areas adjacent to the Building 225 foundation and the drainage channel provide shelter and food sources for various species of mammals, birds, amphibians, reptiles, fish, and invertebrates. A total of 46 distinct fish species were collected from the installation during a 1987 inventory of fish fauna at NSA Crane. The greatest number of species was observed in Lake Greenwood which discharges directly into First Creek. The drainage channel flows directly into Broom Branch which flows into First Creek. Many small tadpoles were observed in the drainage channel during April 2011 RFI activities.

The drainage channel that flows through the wooded area to the west of SWMU 11 is a slightly curving east-to-west trending stream that is approximately 5-feet wide with a rocky and sediment base. The most upgradient point of the drainage channel is the outfall of the culvert that runs under the railroad tracks. The drainage channel continues beneath Building 2720 and “daylights” on the opposite side of the railroad tracks (Figure 1-3). The drainage channel flow has intermittent flow throughout the year and is dry in drier times of the year. The drainage channel is generally shallow during normal flow, with pools no deeper than 1 foot. The drainage channel riparian zone is wooded and exhibits natural stream meanders. Photographs of the culvert outfall and drainage channel are shown on Figure 1-6.

Additional information regarding the environmental setting and threatened and endangered species of NSA Crane and the surrounding area is discussed in Section 8.0.



LEGEND:

WIND DIRECTION FREQUENCY (PERCENT)
(DIRECTION FROM WHICH THE WIND IS BLOWING)

MEAN WIND SPEED (MI/HR)

DATA SOURCE: INDIANAPOLIS, INDIANA AIRPORT
PERIOD OF RECORD: 1985–1989
43,824 OBSERVATIONS

DRAWN BY BH	DATE 2/10/11	FIVE YEAR WIND ROSE SUMMARY FOR INDIANAPOLIS, INDIANA SWMU 11–OLD STORAGE BUILDING 225 NSA CRANE CRANE, INDIANA	CONTRACT NO. F27E
CHECKED BY GCT	DATE 7/19/11		OWNER NO.
REVISED BY	DATE		APPROVED BY / DATE
SCALE NOT TO SCALE			DRAWING NO. FIGURE 4–1 / REV. 0

NAVFAC

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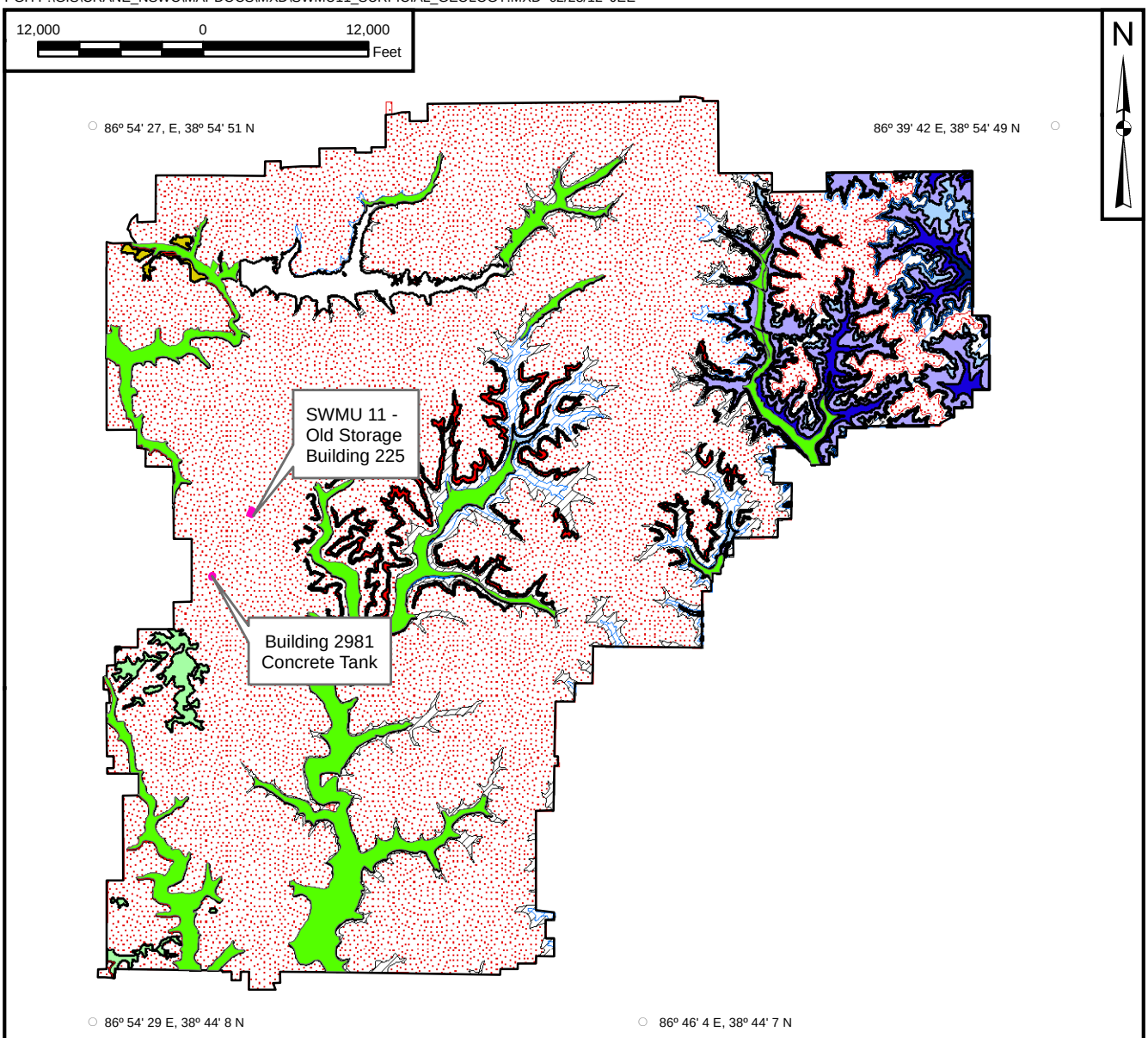

Explanation of Geology

- Qal — *Alluvium*
- Ql — *Loess*
- Qo — *Glacial Outwash*
- P — *Raccoon Creek Group and undifferentiated*
- Ps — *Sandstone-dominated horizon of Lower Pennsylvanian*
- M6 — *Glenn Dean Ls, Hardinsburg Fm, Haney Ls, Indian Springs Shale Mbr, and undifferentiated*
- M5 — *Sandstone member of the Big Clifty Fm*
- M4 — *Beech Creek Ls*
- M3 — *Elwren Fm, Reelsville Ls, upper Sample Fm, and undifferentiated*
- M2 — *Lower part of Sample Fm, Beaver Bend Ls, Bethel Fm, and undifferentiated*
- M1 — *Paoli Ls, Ste Genevieve Ls, and undifferentiated*
- Select Solid Waste Management Units (SWMUs)

DRAWN BY S. STROZ	DATE 08/26/11	SURFICIAL GEOLOGY MAP SWMU 11 - OLD STORAGE BUILDING 225 NSA CRANE CRANE, INDIANA	CONTRACT NUMBER 2635	CTO NUMBER F27E
CHECKED BY K. LOSEKAMP	DATE 02/23/12		APPROVED BY ___	DATE ___
REVISED BY	DATE		APPROVED BY ___	DATE ___
SCALE AS NOTED			FIGURE NO. FIGURE 4-2	REV 0

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N

PERIOD	EPOCH	THICKNESS (FEET)	LITHOLOGY	FORMATION	GROUP
PENN-SYL-VANIAN	POTTS-VILLE	150–300		MANSFIELD FM.	"RACCOON CREEK"
MISSISSIPPI	CHESTER	20–30		GLEN DEAN LS	STEPHENS-PORT
		30–40		HARDINSBURG SS.	
		40–50		GOLCONDA LS.	
		25–40		BIG CLIFTY FM.	
		15–25		BEECH CREEK LS.	
		20–40		ELWREN FM.	WEST BADEN
		0–5		REELSVILLE LS.	
		20–40		SAMPLE FM.	
		10–20		BEAVER BEND LS.	
		12–30		BETHEL FM.	
	MERAMEC	15–20		PAOLI LS.	BLUE RIVER
		100–120		STE. GENEVIEVE LS.	
		100–120		ST. LOUIS LS.	
		90–100		SALEM LS.	SANDERS
		50–80		HARRODSBURG LS.	
	OSAGE	600–800		MULDRAUGH FM.	BORDEN

Source: Draft Report, RCRA Facility Investigation
Phase II Groundwater Release Assessment, SWMU 06/09
Demolition Area and Phase III Release
Characterization SWMU 07/09 Old Rifle Range
November 1995 - Figure 13
by William L. Murphy and Roy Wade

DRAWN BY T. WHEATON	DATE 06/21/10	GENERALIZED STRATIGRAPHIC COLUMN SWMU 11 - OLD STORAGE BUILDING 225 NSA CRANE CRANE INDIANA	CONTRACT NUMBER ___	CTO NUMBER F27E
CHECKED BY K. LOSEKAMP	DATE 02/09/12		APPROVED BY ___	DATE ___
REVISED BY J. NOVAK	DATE 02/09/12		APPROVED BY ___	DATE ___
SCALE AS NOTED			FIGURE NO. 4 - 3	REV 0

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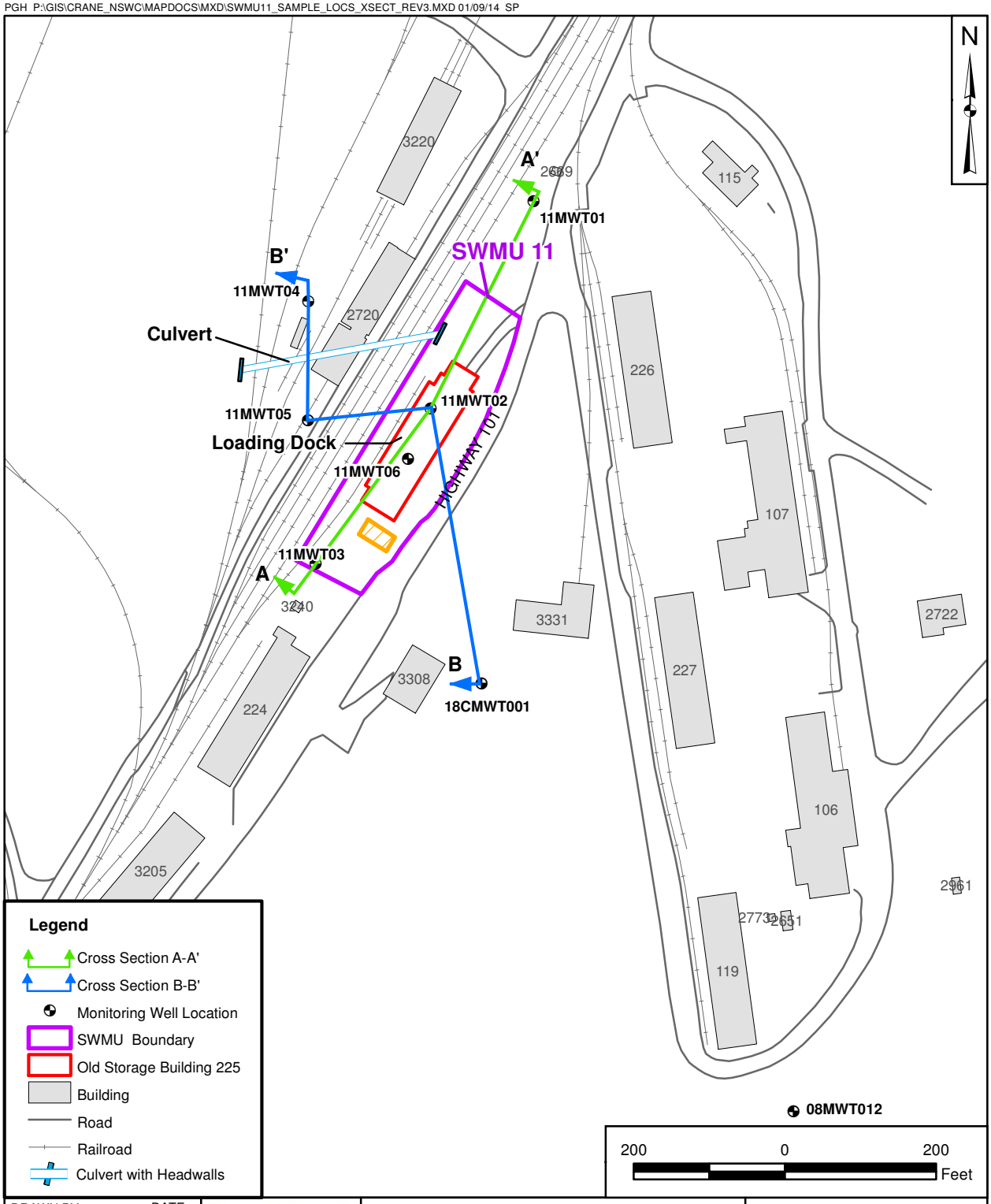


DRAWN BY	DATE
S. STROZ	05/04/11
CHECKED BY	DATE
T. EVANS	01/09/14
REVISED BY	DATE
S. PAXTON	01/09/14
SCALE	
AS NOTED	

NAVFAC

GEOLOGIC CROSS SECTION LOCATION MAP

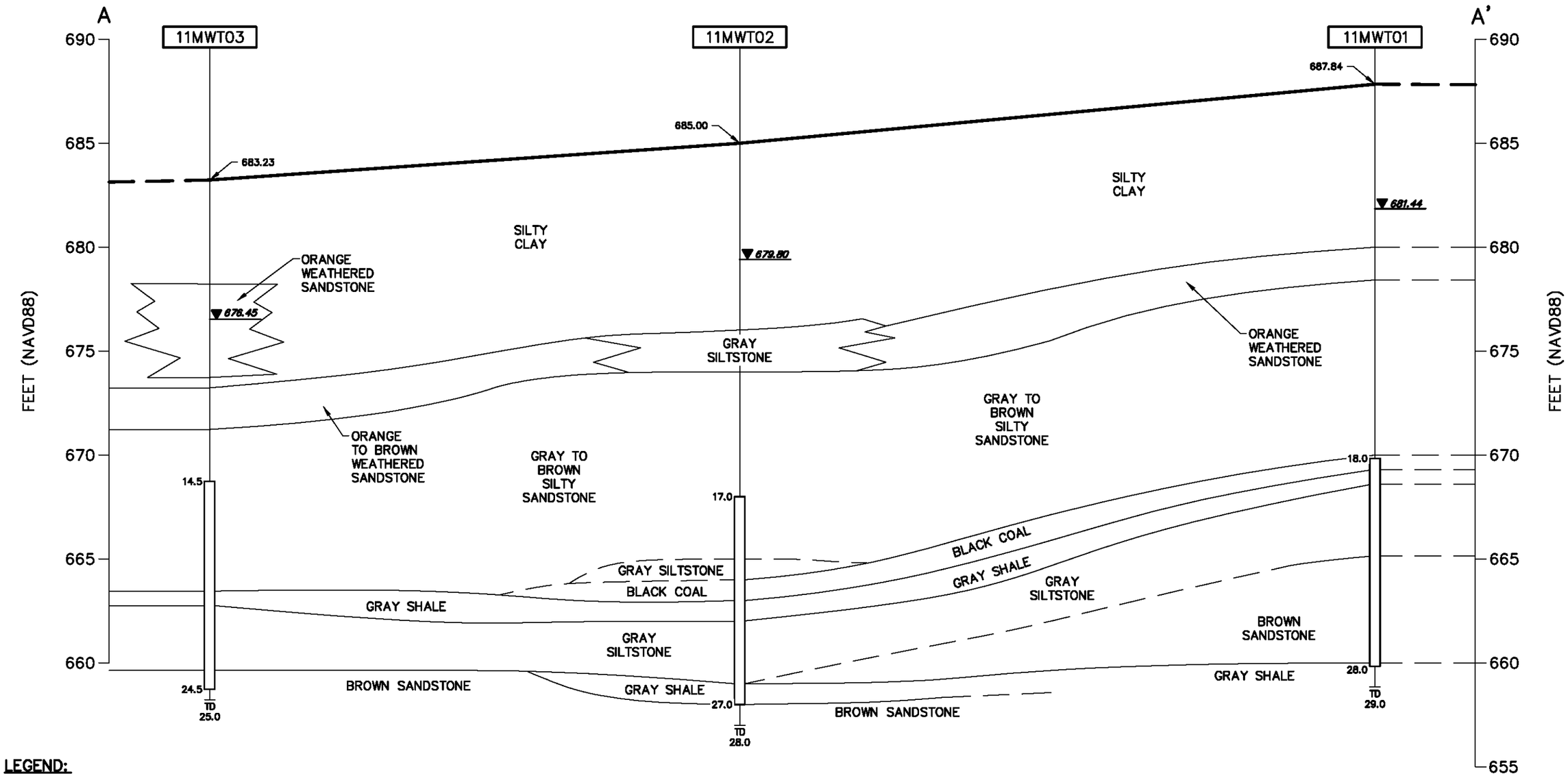
A-A' AND B-B'

SWMU 11 - OLD STORAGE BUILDING 225

NSA CRANE

CRANE, INDIANA

CONTRACT NUMBER CTO F27E	
APPROVED BY	DATE
APPROVED BY	DATE
FIGURE NO. 4-4	REV 0



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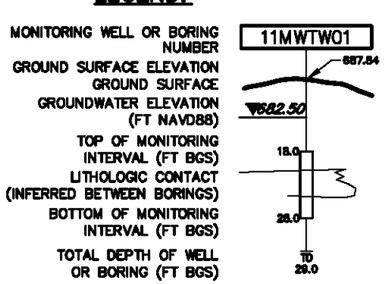

0 50 100
HORIZONTAL SCALE: 1" = 50'

0 5 10
VERTICAL SCALE: 1" = 5'

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NSA CRANE
CRANE, INDIANA

GEOLOGIC CROSS SECTION A–A'
SWMU 11 OLD STORAGE BUILDING 225

SCALE: AS NOTED

DATE:	2/7/12
PROJECT NO.:	112G02635
DESIGNED BY:	KL
DRAWN BY:	NN
CHECKED BY:	
SHEET:	OF –
SIZE: B	

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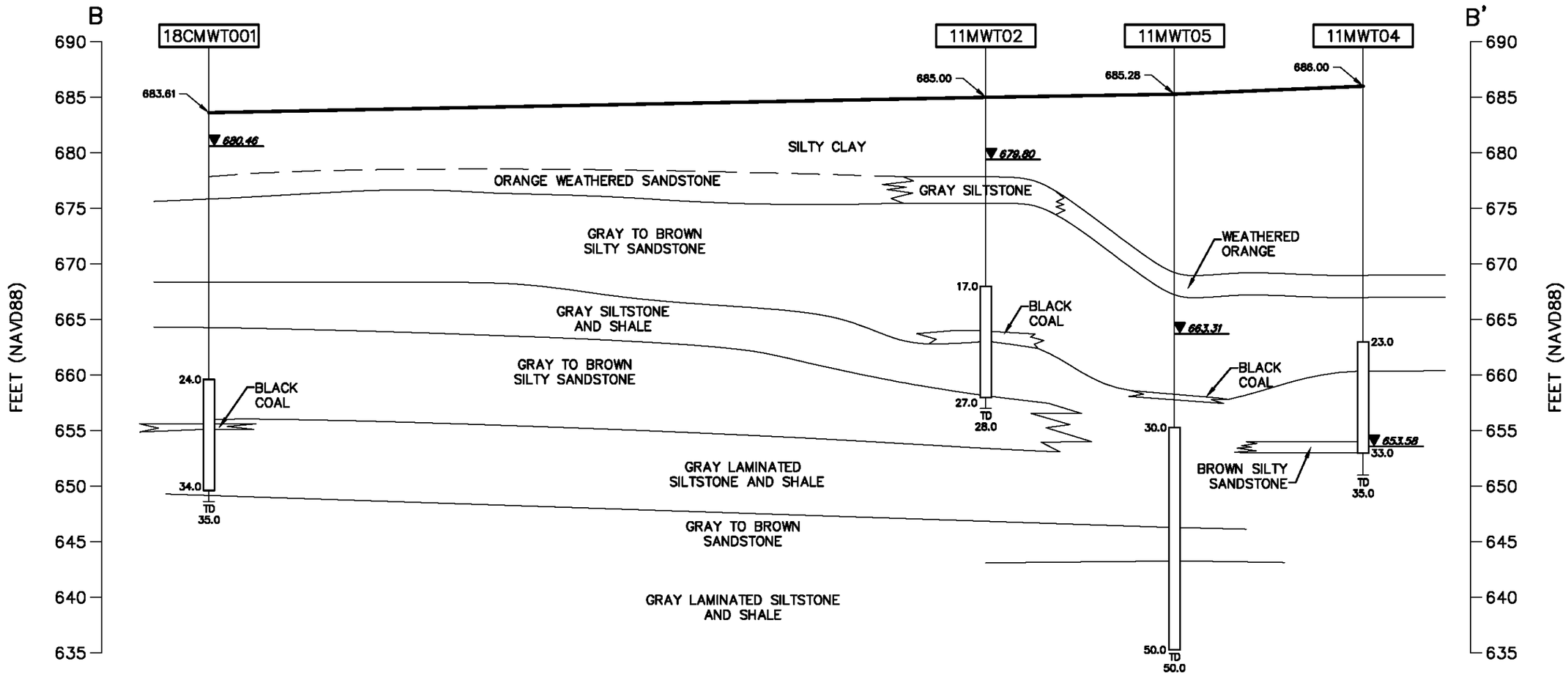
FIGURE 4–5



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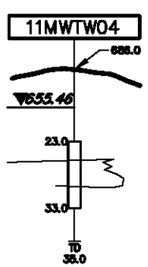

0 50 100
HORIZONTAL SCALE IN FEET

0 10 20
VERTICAL SCALE IN FEET

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GEOLOGIC CROSS SECTION B–B'
SWMU 11 OLD STORAGE BUILDING 225

SCALE: AS NOTED

DATE:	2/7/12
PROJECT NO.:	112G02635
DESIGNED BY:	KL
DRAWN BY:	NN
CHECKED BY:	
SHEET:	OF –
SIZE: B	FIGURE 4–6

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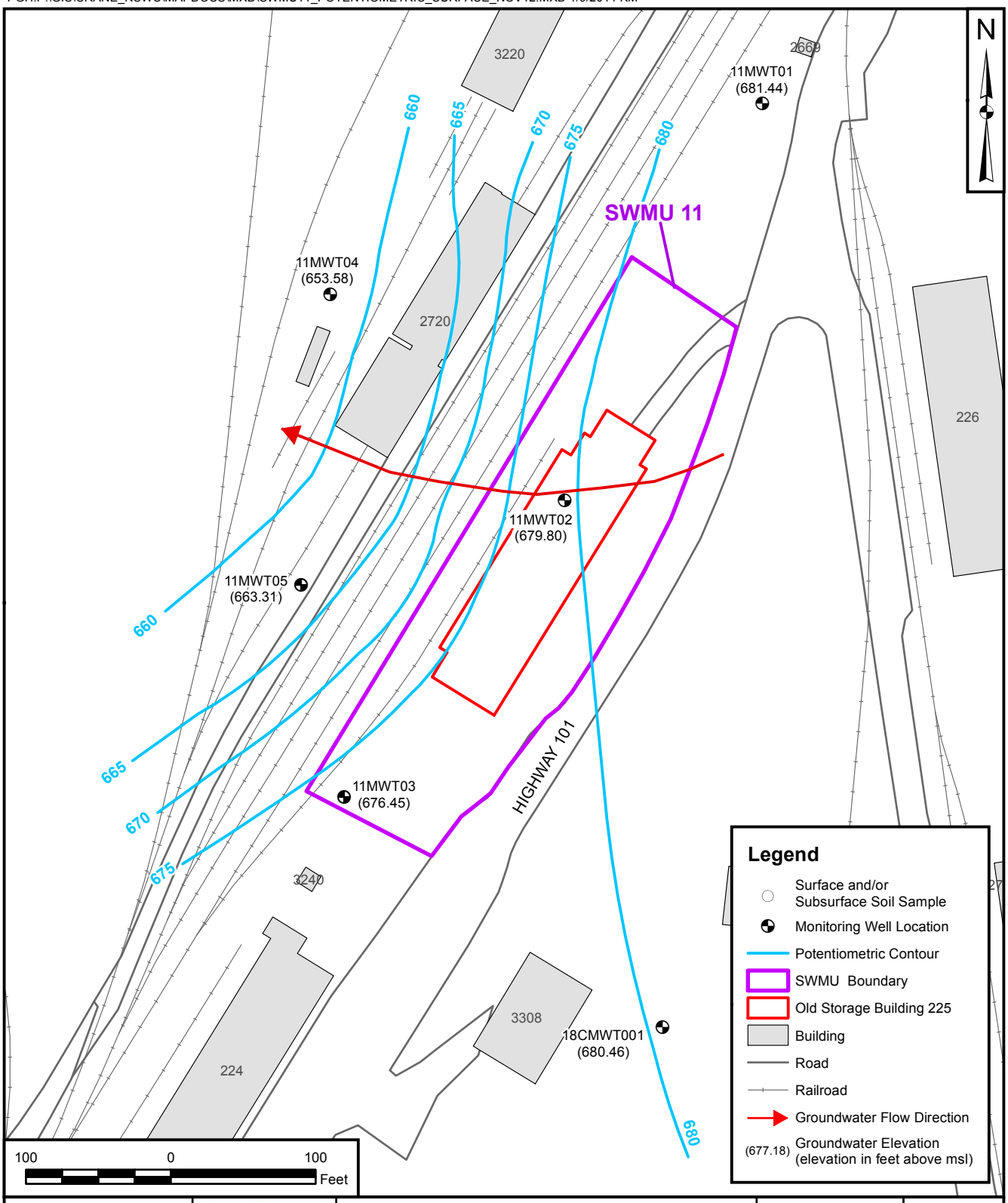


DRAWN BY	DATE			CONTRACT NUMBER	CTO NUMBER
S. STROZ	12/01/10		POTENTIOMETRIC SURFACE MAP	2635	F27E
CHECKED BY	DATE		NOVEMBER 27, 2012	APPROVED BY	DATE
J. BUEL	01/09/14		SWMU 11 - OLD STORAGE BUILDING 225	J. BUEL	01/09/14
REVISED BY	DATE		NSA CRANE	APPROVED BY	DATE
K. MOORE	01/09/14		CRANE, INDIANA	—	—
SCALE				FIGURE NO.	REV
AS NOTED				4-7	0

5.0 NATURE AND EXTENT OF CONTAMINATION

This section discusses the locations, spatial patterns, and concentrations of chemical contaminants in soil, sediment, and groundwater at SWMU 11. The chemicals released from Building 225 during the fire are the likely source of contamination at SWMU 11. Historical information indicates that releases likely occurred directly onto the soil surface and that contaminants migrated to subsurface soil and groundwater, and discharged to the drainage ditch and drainage channel west of the site. The analytical data collected during the RFI are included in this discussion of the nature and extent of contamination.

Analytical results were compared to PSLs to focus the nature and extent discussion. The sources of the PSLs used in the data comparisons in this section of the report include the following):

- USEPA Residential Soil Regional Screening Levels (R-RSL) (USEPA, 2013a) for direct contact exposures – Noncarcinogen RSLs have been adjusted by a factor of 10 to account for additive effects.

- USEPA RSL Soil to Groundwater Screening Levels (USEPA, 2013a)- Values are representative of a dilution and attenuation factor (DAF) of 20. Note that if an MCL-based value was available, then this value was selected; otherwise, the risk-based value was used.

- Indiana Department of Environmental Management (IDEM) Residential Soil Direct Contact Risk Screening Levels (IDEM, 2013).

- USEPA Ecological Soil Screening Levels USEPA, 2007a and supporting documents) and USEPA Region 5 Ecological Screening Levels (USEPA, 2003b).

- USEPA Tap water RSLs - Noncarcinogenic RSLs have been adjusted by a factor of 10 to account for additive effects (USEPA, 2013a).

- USEPA Vapor Intrusion Groundwater Screening Levels (USEPA, 2013b).

- Federal Maximum Contaminant Levels (MCLs) (USEPA, 2012a).

- USEPA Region 3 freshwater sediment screening levels. (USEPA, 2006)

The data comparisons to the PSLs for each medium are presented in Tables 5-1 to 5-8. The hierarchy of the selected PSL when there are two of more sources is also identified on Tables 5-1 to 5-8. The IDEM Risk Integrated System of Closure (RISC) migration to groundwater and groundwater screening levels were not included in the data comparisons in this section because USEPA values are typically lower than IDEM values; however, these values were considered in the HHRA (Section 7.0). The results of the background comparison for metals are included in Appendix G and are considered in the discussions in this section.

5.1 SURFACE SOIL

During the SWMU 11 RFI, 28 surface soil samples were collected from 0 to 2 feet bgs at locations SB01 through SB24, and SB29 through SB32. Table 5-1 presents the chemicals detected at least once in RFI surface soil samples. The applicable human health PSLs (residential direct contact and soil to groundwater) and ecological PSLs are also presented in Table 5-1. Table 5-2 presents basic summary statistics for those chemicals detected at least once in the surface soil samples.

In accordance with the SWMU 11 SAP, surface soil samples in open areas (SB05 and higher) were not analyzed for VOCs. Surface soil samples from SB01, SB02, SB03, and SB04 were collected from surface soil below the Building 225 concrete pad (which would prevent VOCs from volatilizing from the soil) and were analyzed for volatiles. No surface soil samples were collected from soil borings 11SB25 through 11SB28 because those samples were collected to assess potential contamination from the former Building 225 UST; the focus in this area was on subsurface soil which was most likely to be impacted by an UST release.

In surface soil, PSL exceedances were noted for PAHs, pesticides, dioxins/furans, and metals. The following discussion focuses on the magnitudes and distributions of these chemicals detected in excess of PSLs in surface soil samples.

PAHs

Seven of the 22 surface soil samples analyzed for PAHs had PAH concentrations greater than one or more human health PSLs; ecological PSLs were not exceeded. The sample locations with PAH concentrations exceeding criteria are located north and northeast of the Building 225 slab and at the Building 2981 concrete tank area.

Total PAH concentrations in the samples north and northeast of the Building 225 foundation ranged from 1,996 to 3,450 µg/kg with a maximum benzo(a)pyrene concentration of 348 µg/kg. The maximum total

PAH and benzo(a)pyrene concentrations were detected in the sample collected near the northeastern corner of the Building 225 slab (11SB13). Exceedances of the human health PSLs for individual PAHs included direct contact and soil to groundwater screening levels; however, only one sample (11SB13) exceeded the soil-to-groundwater screening levels. PAHs were nondetect in subsurface soil samples collected in this area indicating that migration to groundwater for PAHs is not of concern. Sample locations with PAH concentrations exceeding human health direct contact PSLs in the Building 225 area are presented on Figure 5-1.

All four samples collected from the Building 2981 concrete tank area had exceedances of at least one PAH and had total PAH concentrations ranging from 135 to 1,300 µg/kg. The maximum benzo(a)pyrene concentration in the Building 2981 concrete tank area was 130 µg/kg. Exceedances of human health PSLs were limited to the residential direct contact screening level. All PAH concentrations were less than soil-to-groundwater screening levels, indicating that migration to groundwater for PAHs is not of concern in this area.

Pesticides

One sample collected from adjacent to the Building 225 railroad spur (11SB08) contained an exceedance of a pesticide, alpha–benzene hexachloride (BHC). This chemical was only detected in two surface soil samples and the PSL exceedance was limited to one sample; therefore, the contamination is localized. The human health PSL exceeded was the migration to groundwater PSL. This chemical was not detected in subsurface soil samples collected from the SWMU 11 area, further indicating that migration to groundwater for pesticides is not of concern at the site.

Dioxins/Furans

All of the 11 surface soil samples analyzed for dioxin and furan congeners in the Building 225 area and downwind areas contained at least one PSL exceedance. Calculated concentrations of 2,3,7,8-TCDD equivalents (using detected concentrations only) ranged from 0.52 ng/kg to 19.8 ng/kg in samples collected from the Building 225 area and from 0.18 to 3.6 ng/kg in the downwind areas. At least one compound in each surface soil sample contained an exceedance of an ecological PSL, which is primarily associated with the low 2,3,7,8-TCDD equivalents screening value of 0.199 ng/kg.

Human health PSLs exceedances were less frequent, with dioxin/furan concentrations in three samples in the Building 225 area and two sample locations in the downwind area exceeding human health PSLs (when considering 2,3,7,8-TCDD equivalents calculated using detected concentrations only). Exceedances of human health PSLs in the Building 225 area included direct contact and soil to

groundwater screening levels and the exceedances were detected in samples collected under the Building 225 concrete slab (11SB02) and to the north (11SB11) and east (11SB14) of the slab. The only soil to groundwater screening level exceedance for individual congeners in the Building 225 area was in the surface soil sample collected from 11SB02 (1,3,3,4,6,7,8-HPCDD). Exceedances of the human health PSL in the downwind area included direct contact (11SB20 and 11SB22) and soil to groundwater (11SB20) screening levels. Although no subsurface soil samples were analyzed for dioxins/furans at the site, the low detections and low frequency of soil to groundwater screening level exceedances is an indication that migration of dioxins/furans from soil to groundwater is not likely of concern at the site. Sample locations with dioxins/furans exceeding human health direct contact PSLs are presented on Figure 5-1 for the Building 225 area and on Figure 5-2 for the downwind areas.

Metals

All of the 22 surface soil samples analyzed for metals in the Building 225 area and Building 2981 concrete tank area had at least one metals PSL exceedance. Concentrations of several metals exceeded PSLs in at least one surface soil sample (as shown in Table 5-2); however, the only metals with concentrations determined to be statistically greater than Crane background concentrations (Appendix G) and in exceedance of PSLs include aluminum and iron. Aluminum concentrations ranged from 7,490 to 19,900 mg/kg, and most of the detected concentrations in the Building 225 area and Building 2981 concrete tank samples were similar to the maximum concentration. Exceedance of the PSL for aluminum was limited to the human health direct contact PSL. Concentrations of iron in the Building 2981 concrete tank samples ranged from 16,400 to 30,100 mg/kg with the majority of the samples similar to the minimum concentration. Concentrations of iron in the Building 225 area samples ranged from 13,400 to 27,200 mg/kg, with approximately one-half of the samples similar to the minimum concentration and the other half similar to the maximum concentration. Exceedances of the PSL for iron noted included human health direct contact and soil to groundwater screening values, and ecological screening values. Metals exceeding the human health direct contact PSL in surface soil are presented on Figure 5-1.

5.2 SUBSURFACE SOIL

A total of 83 subsurface soil samples were collected during The SWMU 11 RFI. Subsurface soil samples were collected in the former Building 225 area, including the former UST area south of the former Building 225 concrete slab, and extending to the west under the active railroad tracks. No subsurface soil samples were collected from soil borings located in the downwind areas or the Building 2981 Concrete Tank area because the CSM assumed that soil contamination in these areas would likely be the result of contaminants being released to surface soil.

Table 5-3 presents the chemicals detected at least once in subsurface soil samples and the HHRA PSLs, and Table 5-4 presents basic summary statistics for those chemicals. In subsurface soil, concentrations of VOCs and metals exceeded PSLs. The following discussion focuses on the magnitudes and distributions of these chemicals in subsurface soil.

VOCs

Twenty of the 83 subsurface soil samples analyzed for VOCs had at least one VOC at a concentration greater than PSLs. The VOCs that exceeded PSLs are identified on Table 5-4, and consist primarily of chlorinated VOCs and benzene.

Direct contact human health PSL exceedances were noted for chlorinated VOCs in samples collected from the northern portion of the Building 225 slab, one sample near the Building 225 railroad spur, and two samples (11SB68 and 11SB67) at the western boundary. Chlorinated VOCs detected in subsurface soil at concentrations exceeding human health direct contact PSLs included PCE, TCE and VC. Maximum concentrations of PCE and VC in subsurface soil were detected in samples collected from under the Building 225 slab; PCE at 31,200 µg/kg at location 11SB40 (5-6 feet bgs) and VC at 154 µg/kg (11SB02 at 4-6 feet bgs). The maximum concentration of TCE in subsurface soil was detected along the western boundary of the site at a concentration of 1,290 µg/kg (11SB68, 13-15 feet bgs). Figure 5-3 identifies the subsurface soil sample locations with a direct contact human health PSL exceedance.

Soil-to-groundwater PSL exceedances were noted for several chlorinated VOCs, as identified on Figure 5-4. The samples with exceedances were primarily collected under the northern portion of the Building 225 slab and immediately west of the slab; however, two samples collected along the western boundary also had VOC concentrations exceeding soil-to-groundwater PSLs. Concentration of several of these compounds (e.g., PCE, TCE and VC) were an order of magnitude greater than soil-to- groundwater PSLs, indicating a higher potential for migration of these chemicals to the groundwater, which has been confirmed based on groundwater data (discussed in Section 5.4). Soil-to-groundwater PSL exceedances for other VOCs in the subsurface soil were infrequent and are identified in Table 5-4 and on Figure 5-4.

Metals

All of the four subsurface soil samples analyzed for metals from under the Building 225 concrete slab had at least one PSL exceedance for metals. As identified in Table 5-4, concentrations of six metals exceeded PSLs in at least one subsurface soil sample; however, the only metals with concentrations determined to be statistically greater than Crane background concentrations (identified in Appendix G) and in exceedance of a PSL were arsenic, iron and vanadium. Maximum subsurface soil concentrations

of arsenic (20.4 mg/kg), iron (75,600 mg/kg) and vanadium (75,600 mg/kg) were greater than maximum concentrations in the surface soil. Arsenic and iron concentrations exceeded both direct contact and soil-to-groundwater human health PSLs. The vanadium concentration in one subsurface soil sample exceeded the direct contact human health PSL.

5.3 SEDIMENT

During the RFI, 10 sediment samples were collected from the drainage channel at locations downstream of SWMU 11. The drainage channel receives surface water runoff from SWMU 11 and begins at the outlet of the culvert that extends from the drainage ditch immediately west of former Building 225. There is no available sediment sample location upstream of SWMU 11.

Table 5-5 presents the chemicals detected at least once in RFI sediment samples along with the associated human health and ecological PSLs, and Table 5-6 presents basic summary statistics for these chemicals. In sediment, concentrations of dioxins/furans, PAHs, metals and cyanide exceeded PSLs. The following discussion focuses on the magnitudes and distributions of these chemicals in sediment.

Dioxin/Furans

Detected concentrations of all dioxin/furan congeners, except 1,2,3,7,8-pentachlorodibenzo-p-dioxin (PeCDD), in sediment samples exceeded PSLs in at least one sample. All dioxin and furan congeners exceeded an ecological PSL, with the exception of 1,2,3,7,8-PeCDD. Human health PSL exceedances included total HPCDD concentrations in four samples. Detected concentrations of 2,3,7,8-TCDD exceeded the ecological PSL of 0.12 ng/kg in two samples. One sample was collected from the top 6 inches at location 11SD02 (0.494 ng/kg), and the other sample was collected from the top 6 inches at location 11SD06, the most downstream sample (0.657 ng/kg). More dioxin and furan congener concentrations exceeded PSLs in the sample from location 11SD02 than the further downstream locations 11SD05 and 11SD06. More maximum concentrations of dioxin and furan congeners were detected in the deeper sample at location 11SD02 (6 to 12 inches) than in the shallow (0 to 6 inches) sample at the same location. Dioxins/furans concentrations in sediment that exceed PSLs are shown on Figure 5-5.

PAHs

Detected concentrations of seven PAHs in sediment samples exceeded human health or ecological PSLs. Acenaphthylene, chrysene, fluoranthene, and pyrene were detected at concentrations exceeding ecological PSLs; however, human health PSLs were not exceeded in any sediment sample. Conversely,

concentrations of benzo(a)pyrene, benzo(b)fluoranthene, and dibenzo(a,h)anthracene exceeded human health PSLs, but not ecological PSLs.

Concentrations of benzo(a)pyrene decrease with increasing distance downstream from the site. Concentrations of benzo(a)pyrene exceeding the human health PSL of 15 µg/kg ranged from 136 µg/kg in 11SD010006 (closest to the site) to 19.7 µg/kg in 11SD040612 (furthest downstream from the site). Most of the PAHs that exceed PSLs were detected in 11SD010006, the sample closest to the site. Only benzo(a)pyrene and acenaphthylene concentrations exceeded PSLs in samples downstream of 11SD010006. PAH concentrations in sediment that exceed PSLs are shown on Figure 5-6.

Metals and Cyanide

Concentrations of several metals exceeded PSLs in sediment; however, the only metals with concentrations determined to be statistically greater than Crane background concentrations and in exceedance of a human health or ecological PSL were arsenic, cadmium, chromium, cobalt, iron, thallium, vanadium and zinc. Concentrations of cyanide also exceeded the ecological PSLs.

Concentrations of arsenic, cobalt, and thallium were similar in all sediment samples. Concentrations of cadmium, chromium, and lead were greater in the most upstream sample (collected closest to the site) than in the downstream samples. Vanadium concentrations were greater in the downstream sediment samples. Concentrations of iron in shallow sediment samples (0 to 6 inches) were similar at all locations; however, deep sediment samples (6 to 12 inches) from downstream locations had greater concentrations than deep sediment samples collected closer to the site. Metals concentrations in sediment that exceed the PSL are shown on Figure 5-6.

Cyanide was not detected in the most upstream samples (collected closest to the site) in either shallow or deep sediment. Cyanide concentrations did exceed the ecological PSL (0.0001 mg/kg) in shallow or deep sediment samples collected further downstream of site. In the last downstream sample analyzed for cyanide (11SD040612), a maximum concentration of 0.462 mg/kg was detected in the deep sample. Cyanide was not detected in the shallow sample collected at the same location. Cyanide concentrations in sediment that exceed the PSL are shown on Figure 5-6.

5.4 GROUNDWATER

Table 5-7 presents the VOCs detected at least once in the groundwater samples collected at SWMU 11 along with the PSLs and Table 5-8 presents basic summary statistics for these VOCs. Analyses for the sample from upgradient well 18CMWT001 included dissolved and total metals to support the SWMU 18

investigation; these are not discussed further in this section. The locations of the monitoring wells sampled during the SWMU 11 RFI are shown on Figure 5-7.

VOCs were detected at concentrations greater than PSLs at four monitoring wells as shown on Figure 5-7. VOCs detected in groundwater at concentrations exceeding PSLs include chlorinated VOCs, benzene, and chloroform. The PSLs exceeded include USEPA tapwater and vapor intrusion PSLs. Only PCE and TCE were detected at concentrations greater than MCLs for drinking water.

Benzene and chloroform exceedances were detected in the first round of samples in wells collected from under the Building 225 slab (11MWT02 and 11MWT0601) and southwest of the former UST area. Benzene exceedances were not confirmed during the second round. During the second round, the chloroform concentration (0.63 µg/L) at only one location exceeded the PSL and was approximately one-half of the concentration detected during the first round. Based on the RFI results, the VOC contamination in these groundwater monitoring wells appears to be localized.

Chlorinated VOCs exceeding PSLs included cis,1-2-DCE, PCE, TCE, and VC. Maximum PCE and TCE concentrations, 25.5 and 115 µg/L, were detected at 11MWT02, located under the northern portion of the Building 225 concrete slab. Concentrations of these chemicals are lower in downgradient well 11MWT05; however, the concentration of PCE at this well still slightly exceeds the MCL. The VOC contamination appears to be localized to these wells because the upgradient/sidegradient wells 18CGWT001 and 11MWT0101, and the downgradient well 11MWT040101 were less than PSLs.

TABLE 5-1

CHEMICALS DETECTED IN SURFACE SOIL SAMPLES
SWMU 11 RFI
NSA CRANE, CRANE, INDIANIA

LOCATION	Residential Direct Contact Screening Level (1)	Soil to Groundwater Screening Level (2)	Ecological Screening Level (3)	11SB01	11SB02	11SB03	11SB04	11SB05	11SB06
SAMPLE ID				11SB010002	11SB020002	11SB030002	11SB040002	11SS050002	11SS060002
SAMPLE DATE				20110426	20110426	20110426	20110426	20110426	20110426
SAMPLE CODE				NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX				SO	SO	SO	SO	SO	SO
SAMPLE TYPE				NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX				SS	SS	SS	SS	SS	SS
TOP DEPTH				0	0	0	0	0	0
BOTTOM DEPTH	[R]	[SG]	[E]	2	2	2	2	2	2
VOLATILES (UG/KG)									
1,2-DICHLOROBENZENE	190000	11600	2960	2.51 U	2.74 U	1.42 J	2.98 U	NA	NA
2-BUTANONE	2800000	20000	89600	5.03 U	5.47 U	5.62 U	3.68 J	NA	NA
ACETONE	6100000	48000	2500	10.1 U	14.6 J	11.2 UR	25.8	NA	NA
CIS-1,2-DICHLOROETHENE	16000	420	784	2.19 J	3.27 J	2.81 U	2.98 U	NA	NA
TETRACHLOROETHENE	22000	46	9920	1.36 J	2.74 U	2.81 U	2.98 UJ	NA	NA
SEMIVOLATILES (UG/KG)									
DIETHYL PHTHALATE	4900000	94000	24800	212 U	4440	200 U	206 U	198 U	196 U
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)									
2-METHYLNAPHTHALENE	23000	2800	29000	4.22 U	4.11 U	3.99 U	4.1 U	3.94 U	3.91 U
ACENAPHTHENE	340000	82000	20000	4.22 U	4.11 U	3.99 U	4.1 U	3.94 U	3.91 U
ACENAPHTHYLENE	340000	82000	20000	4.22 U	4.11 U	3.99 U	4.1 U	3.94 U	3.91 U
ANTHRACENE	1700000	840000	2500	4.22 U	4.11 U	3.99 U	4.1 U	3.94 U	3.91 U
BENZO(A)ANTHRACENE	150	200	1100	4.22 U	4.11 U	3.99 U	4.1 U	3.94 U	3.91 U
BENZO(A)PYRENE	15	4800	1100	4.22 U	4.11 U	3.99 U	4.1 U	3.94 U	3.91 U
BENZO(B)FLUORANTHENE	150	700	1100	4.22 U	4.11 U	3.99 U	4.1 U	4.63 J	3.91 U
BENZO(G,H,I)PERYLENE	170000	190000	1100	4.22 U	4.11 U	3.99 U	4.1 U	3.94 U	2.71 J
BENZO(K)FLUORANTHENE	1500	7000	1100	4.22 U	4.11 U	3.99 U	4.1 U	2.93 J	3.91 U
CHRYSENE	15000	22000	1100	4.22 U	4.11 U	3.99 U	4.1 U	3.94 U	3.09 J
DIBENZO(A,H)ANTHRACENE	15	220	1100	4.22 U	4.11 U	3.99 U	4.1 U	3.94 U	3.91 U
FLUORANTHENE	230000	1400000	29000	4.22 U	4.11 U	3.99 U	4.1 U	3.94 U	2.92 J
FLUORENE	230000	80000	29000	4.22 U	4.11 U	3.99 U	4.1 U	3.94 U	3.91 U
INDENO(1,2,3-CD)PYRENE	150	4000	1100	4.22 U	4.11 U	3.99 U	4.1 U	3.94 U	2.64 J
NAPHTHALENE	3600	9.4	29000	4.22 U	4.11 U	3.99 U	4.1 U	3.94 U	3.91 U
PHENANTHRENE	170000	190000	29000	4.22 U	2.24 J	3.99 U	4.1 U	3.94 U	2.35 J
PYRENE	170000	190000	1100	4.22 U	4.11 U	3.99 U	4.1 U	2.46 J	2.87 J
PESTICIDES (UG/KG)									
4,4'-DDE	1400	920	21	0.417 U	0.42 U	0.416 U	0.419 U	0.395 U	0.402 U
ALPHA-BHC	77	0.72	99.4	0.417 U	0.42 U	0.416 U	0.419 U	0.395 U	0.402 U
BETA-BHC	270	2.6	3.98	0.417 U	0.265 J	0.221 J	0.419 U	0.395 U	0.402 U
GAMMA-BHC (LINDANE)	520	24	5	0.417 U	0.42 U	0.416 U	0.419 U	0.395 U	0.402 U
GAMMA-CHLORDANE	1600	2800	224	0.417 U	0.42 U	0.416 U	0.419 UJ	0.395 UJ	0.935 J
METHOXYCHLOR	31000	44000	19.9	0.417 U	0.42 U	0.416 U	0.419 U	0.395 UJ	0.402 UJ
DIOXINS/FURANS (NG/KG)									
1,2,3,4,6,7,8,9-OCDD	15000	17400	0.199	NA	**2830 [E]**	NA	NA	NA	NA
1,2,3,4,6,7,8,9-OCDF	15000	17400	38.6	NA	2.96 J	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDD	450	520	0.199	NA	**66.4 [E]**	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDF	450	520	38.6	NA	0.622 J	NA	NA	NA	NA
1,2,3,4,7,8,9-HPCDF	450	520	38.6	NA	3.28 U	NA	NA	NA	NA
1,2,3,4,7,8-HXCDD	45	52	0.199	NA	**0.655 J[E]**	NA	NA	NA	NA
1,2,3,4,7,8-HXCDF	45	52	38.6	NA	3.28 U	NA	NA	NA	NA
1,2,3,6,7,8-HXCDD	45	52	0.199	NA	**0.767 J[E]**	NA	NA	NA	NA
1,2,3,6,7,8-HXCDF	45	52	38.6	NA	3.28 U	NA	NA	NA	NA
1,2,3,7,8,9-HXCDD	45	52	0.199	NA	**1.31 J[E]**	NA	NA	NA	NA
1,2,3,7,8,9-HXCDF	45	52	38.6	NA	3.28 U	NA	NA	NA	NA

TABLE 5-1

CHEMICALS DETECTED IN SURFACE SOIL SAMPLES
SWMU 11 RFI
NSA CRANE, CRANE, INDIANIA

LOCATION	Residential Direct Contact Screening Level (1)	Soil to Groundwater Screening Level (2)	Ecological Screening Level (3)	11SB01	11SB02	11SB03	11SB04	11SB05	11SB06
SAMPLE ID				11SB010002	11SB020002	11SB030002	11SB040002	11SS050002	11SS060002
SAMPLE DATE				20110426	20110426	20110426	20110426	20110426	20110426
SAMPLE CODE				NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX				SO	SO	SO	SO	SO	SO
SAMPLE TYPE				NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX				SS	SS	SS	SS	SS	SS
TOP DEPTH				0	0	0	0	0	0
BOTTOM DEPTH	[R]	[SG]	[E]	2	2	2	2	2	2
1,2,3,7,8-PECDD	4.5	5.2	0.199	NA	3.28 U	NA	NA	NA	NA
1,2,3,7,8-PECDF	150	174	38.6	NA	3.28 U	NA	NA	NA	NA
2,3,4,6,7,8-HXCDF	45	52	38.6	NA	3.28 U	NA	NA	NA	NA
2,3,4,7,8-PECDF	15	17.4	38.6	NA	3.28 U	NA	NA	NA	NA
2,3,7,8-TCDD	4.5	300	0.199	NA	0.653 U	NA	NA	NA	NA
TEQ BIRD	NC	NC	NC	NA	0.527336	NA	NA	NA	NA
TEQ BIRD HALFND	NC	NC	NC	NA	5.215236	NA	NA	NA	NA
2,3,7,8-TCDD Equivalents	4.5	5.2	0.199	NA	**1.793308 [E]**	NA	NA	NA	NA
2,3,7,8-TCDD Equivalents - HALFN	4.5	5.2	0.199	NA	**4.997908 [R][E]**	NA	NA	NA	NA
TOTAL HPCDD	94	180	NC	NA	**119 [R]**	NA	NA	NA	NA
TOTAL HPCDF	NC	NC	NC	NA	3.28 U	NA	NA	NA	NA
TOTAL HXCDD	NC	NC	NC	NA	8.91	NA	NA	NA	NA
TOTAL HXCDF	NC	NC	NC	NA	0.273 J	NA	NA	NA	NA
TOTAL PECDD	NC	NC	NC	NA	0.343 J	NA	NA	NA	NA
TOTAL PECDF	NC	NC	NC	NA	3.28 U	NA	NA	NA	NA
TOTAL TCDD	NC	NC	NC	NA	0.653 U	NA	NA	NA	NA
TOTAL TCDF	NC	NC	NC	NA	0.49 U	NA	NA	NA	NA
METALS (MG/KG)									
ALUMINUM	7700	460000	NA	**19900 [R]**	**12700 [R]**	**16800 [R]**	**15100 [R]**	**19200 [R]**	**12600 [R]**
ARSENIC	0.61	5.8	17	**12 [R][SG]**	**7.18 [R][SG]**	**3.57 [R]**	**6.39 [R][SG]**	**11.9 [R][SG]**	**6.44 [R][SG]**
BARIUM	1500	1640	330	67.3	40.4	61.7	52.1	67.8	70.8
BERYLLIUM	16	64	10	0.833	0.532 J	0.481 J	0.545 J	0.837	0.752
CADMIUM	7	7.6	0.36	0.251 U	0.243 U	0.245 U	0.239 U	0.238 U	0.245 U
CALCIUM	NC	NC	NA	560 J	278 J	544 J	883	1920	1420
CHROMIUM	NC	3600000	26	21	20.9	17.8	17.2	19.2	14.4
COBALT	2.3	4.2	13	**6.36 J[R][SG]**	**3.48 [R]**	**3.61 [R]**	**4.19 [R]**	**9.55 [R][SG]**	**5.82 [R][SG]**
COPPER	310	920	28	18.3	10.6	15	13	17.4	13.4
IRON	5500	5400	200	**27200 [R][SG][E]**	**23800 [R][SG][E]**	**14300 [R][SG][E]**	**18400 [R][SG][E]**	**25900 [R][SG][E]**	**19100 [R][SG][E]**
LEAD	400	280	11	**14 [E]**	**11.4 [E]**	8.71	9.11	**14.2 [E]**	**13.2 [E]**
MAGNESIUM	NC	NC	NA	2550	1370	1890	1830	2180	1590
MANGANESE	180	420	220	**271 J[R][E]**	**231 [R][E]**	111	127	**279 [R][E]**	**191 [R]**
MERCURY	1	2	0.1	0.0512 J	0.0389 UJ	0.0446 J	0.0235 J	0.0407 J	0.0464 J
NICKEL	150	400	38	15.4	8.9	9.85	10.2	15.6	12.6
POTASSIUM	NC	NC	NA	1040	516 J	839	748	1110	613
SELENIUM	39	5.2	0.52	**0.652 J[E]**	0.406 J	0.612 U	0.597 U	**0.67 J[E]**	**0.565 J[E]**
SODIUM	NC	NC	NA	376 U	365 U	367 U	358 U	356 U	368 U
VANADIUM	39	1260	7.8	**41 [R][E]**	**35.2 [E]**	**22.9 [E]**	**29 [E]**	**39.6 [R][E]**	**29 [E]**
ZINC	2300	5800	46	**52.5 [E]**	21.6	33.1	27	**46.9 [E]**	37

TABLE 5-1

CHEMICALS DETECTED IN SURFACE SOIL SAMPLES
SWMU 11 RFI
NSA CRANE, CRANE, INDIANIA

LOCATION	Residential Direct Contact Screening Level (1)	Soil to Groundwater Screening Level (2)	Ecological Screening Level (3)	11SB07	11SB08	11SB09	11SB10	11SB11	11SB12
SAMPLE ID				11SS070002	11SS080002	11SS090002	11SS100002	11SS110002	11SS120002
SAMPLE DATE				20110426	20110426	20110426	20110426	20110426	20110426
SAMPLE CODE				NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX				SO	SO	SO	SO	SO	SO
SAMPLE TYPE				NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX				SS	SS	SS	SS	SS	SS
TOP DEPTH				0	0	0	0	0	0
BOTTOM DEPTH	[R]	[SG]	[E]	2	2	2	2	2	2
VOLATILES (UG/KG)									
1,2-DICHLOROBENZENE	190000	11600	2960	NA	NA	NA	NA	NA	NA
2-BUTANONE	2800000	20000	89600	NA	NA	NA	NA	NA	NA
ACETONE	6100000	48000	2500	NA	NA	NA	NA	NA	NA
CIS-1,2-DICHLOROETHENE	16000	420	784	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	22000	46	9920	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/KG)									
DIETHYL PHTHALATE	4900000	94000	24800	207 U	193 U	218 U	222 U	193 U	196 U
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)									
2-METHYLNAPHTHALENE	23000	2800	29000	4.13 U	3.85 U	4.34 U	4.43 U	3.84 U	3.91 U
ACENAPHTHENE	340000	82000	20000	4.13 U	3.85 U	4.34 U	4.43 U	17.2 J	3.91 U
ACENAPHTHYLENE	340000	82000	20000	4.13 U	3.85 U	4.34 U	4.43 U	3.57 J	3.91 U
ANTHRACENE	1700000	840000	2500	4.13 U	3.85 U	4.34 U	4.43 U	28.6 J	3.91 U
BENZO(A)ANTHRACENE	150	200	1100	5.49 J	3.85 U	4.34 U	4.43 U	130 J	3.91 U
BENZO(A)PYRENE	15	4800	1100	3.9 J	3.85 U	4.34 U	4.43 U	**136 J[R]**	3.91 U
BENZO(B)FLUORANTHENE	150	700	1100	8.6	3.85 U	4.34 U	4.43 U	**183 J[R]**	3.91 U
BENZO(G,H,I)PERYLENE	170000	190000	1100	4.98 J	3.85 U	4.34 U	4.43 U	117 J	3.91 U
BENZO(K)FLUORANTHENE	1500	7000	1100	4.13 U	3.85 U	4.34 U	4.43 U	83.1 J	3.91 U
CHRYSENE	15000	22000	1100	8.1 J	3.85 U	4.34 U	4.43 U	157 J	3.91 U
DIBENZO(A,H)ANTHRACENE	15	220	1100	4.13 U	3.85 U	4.34 U	4.43 U	**25 J[R]**	3.91 U
FLUORANTHENE	230000	1400000	29000	9.91	3.85 U	4.34 U	4.43 U	403 J	3.91 U
FLUORENE	230000	80000	29000	4.13 U	3.85 U	4.34 U	4.43 U	12.4 J	3.91 U
INDENO(1,2,3-CD)PYRENE	150	4000	1100	3.85 J	3.85 U	4.34 U	4.43 U	92.7 J	3.91 U
NAPHTHALENE	3600	9.4	29000	4.13 U	3.85 U	4.34 U	4.43 U	2.74 J	3.91 U
PHENANTHRENE	170000	190000	29000	2.64 J	3.85 U	4.34 U	4.43 U	301 J	3.91 U
PYRENE	170000	190000	1100	10.6	3.85 U	4.34 U	4.43 U	304 J	3.91 U
PESTICIDES (UG/KG)									
4,4'-DDE	1400	920	21	0.421 U	0.409 U	0.426 U	0.462 U	0.411 U	0.392 U
ALPHA-BHC	77	0.72	99.4	0.421 U	**0.93 [SG]**	0.426 U	0.226 J	0.411 U	0.392 U
BETA-BHC	270	2.6	3.98	0.421 U	0.409 U	0.426 U	0.462 U	0.411 U	0.392 U
GAMMA-BHC (LINDANE)	520	24	5	0.421 U	0.409 U	0.426 U	0.462 U	0.411 U	0.392 U
GAMMA-CHLORDANE	1600	2800	224	1.25 J	0.409 U	0.426 UJ	0.462 U	0.893 J	0.244 J
METHOXYCHLOR	31000	44000	19.9	0.421 UJ	0.409 UJ	0.426 UJ	0.462 UJ	0.411 UJ	1.01 J
DIOXINS/FURANS (NG/KG)									
1,2,3,4,6,7,8,9-OCDD	15000	17400	0.199	NA	NA	**1510 [E]**	NA	**6220 J[E]**	NA
1,2,3,4,6,7,8,9-OCDF	15000	17400	38.6	NA	NA	1.18 J	NA	**583 J[E]**	NA
1,2,3,4,6,7,8-HPCDD	450	520	0.199	NA	NA	**22.9 [E]**	NA	**772 J[R][SG][E**	NA
1,2,3,4,6,7,8-HPCDF	450	520	38.6	NA	NA	0.244 J	NA	**102 J[E]**	NA
1,2,3,4,7,8,9-HPCDF	450	520	38.6	NA	NA	3.19 U	NA	7.82	NA
1,2,3,4,7,8-HXCDD	45	52	0.199	NA	NA	3.19 U	NA	**8.54 [E]**	NA
1,2,3,4,7,8-HXCDF	45	52	38.6	NA	NA	3.19 U	NA	3.91 J	NA
1,2,3,6,7,8-HXCDD	45	52	0.199	NA	NA	3.19 U	NA	**24.7 J[E]**	NA
1,2,3,6,7,8-HXCDF	45	52	38.6	NA	NA	3.19 U	NA	4.61 J	NA
1,2,3,7,8,9-HXCDD	45	52	0.199	NA	NA	3.19 U	NA	**13.7 J[E]**	NA
1,2,3,7,8,9-HXCDF	45	52	38.6	NA	NA	3.19 U	NA	1.56 J	NA

TABLE 5-1

CHEMICALS DETECTED IN SURFACE SOIL SAMPLES
SWMU 11 RFI
NSA CRANE, CRANE, INDIANIA

LOCATION	Residential Direct Contact Screening Level (1)	Soil to Groundwater Screening Level (2)	Ecological Screening Level (3)	11SB07	11SB08	11SB09	11SB10	11SB11	11SB12
SAMPLE ID				11SS070002	11SS080002	11SS090002	11SS100002	11SS110002	11SS120002
SAMPLE DATE				20110426	20110426	20110426	20110426	20110426	20110426
SAMPLE CODE				NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX				SO	SO	SO	SO	SO	SO
SAMPLE TYPE				NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX				SS	SS	SS	SS	SS	SS
TOP DEPTH				0	0	0	0	0	0
BOTTOM DEPTH	[R]	[SG]	[E]	2	2	2	2	2	2
1,2,3,7,8-PECDD	4.5	5.2	0.199	NA	NA	3.19 U	NA	2.45 J[E]	NA
1,2,3,7,8-PECDF	150	174	38.6	NA	NA	3.19 U	NA	2.14 J	NA
2,3,4,6,7,8-HXCDF	45	52	38.6	NA	NA	3.19 U	NA	4.51 J	NA
2,3,4,7,8-PECDF	15	17.4	38.6	NA	NA	3.19 U	NA	1.04 J	NA
2,3,7,8-TCDD	4.5	300	0.199	NA	NA	0.635 U	NA	0.637 U	NA
TEQ BIRD	NC	NC	NC	NA	NA	0.176458	NA	9.7575	NA
TEQ BIRD HALFND	NC	NC	NC	NA	NA	4.939608	NA	10.3945	NA
2,3,7,8-TCDD Equivalents	4.5	5.2	0.199	NA	NA	0.684794 [E]	NA	19.8383 [R][SG][E]	NA
2,3,7,8-TCDD Equivalents - HALFN	4.5	5.2	0.199	NA	NA	4.274794 [E]	NA	20.18865 [R][SG][E]	NA
TOTAL HPCDD	94	180	NC	NA	NA	46	NA	1440 J[R][SG]	NA
TOTAL HPCDF	NC	NC	NC	NA	NA	0.691 J	NA	430 J	NA
TOTAL HXCDD	NC	NC	NC	NA	NA	1.52 J	NA	168 J	NA
TOTAL HXCDF	NC	NC	NC	NA	NA	3.19 U	NA	108 J	NA
TOTAL PECDD	NC	NC	NC	NA	NA	3.19 U	NA	18.5 J	NA
TOTAL PECDF	NC	NC	NC	NA	NA	3.19 U	NA	19.2 J	NA
TOTAL TCDD	NC	NC	NC	NA	NA	0.635 U	NA	1.17	NA
TOTAL TCDF	NC	NC	NC	NA	NA	0.374 U	NA	1.74 U	NA
METALS (MG/KG)									
ALUMINUM	7700	460000	NA	13300 [R]	12800 [R]	14000 [R]	13000 [R]	14000 [R]	10400 [R]
ARSENIC	0.61	5.8	17	11 [R][SG]	8.4 [R][SG]	8.75 [R][SG]	5.83 [R][SG]	8.81 [R][SG]	3.16 [R]
BARIUM	1500	1640	330	57.3	48.2	49.9	43.9	78.1	33.6
BERYLLIUM	16	64	10	0.642	0.665	0.58 J	0.511 J	0.737	0.373 J
CADMIUM	7	7.6	0.36	0.249 UJ	0.239 UJ	0.249 UJ	0.26 UJ	0.242 UJ	0.24 UJ
CALCIUM	NC	NC	NA	1800	650	723	750	13700 J	1740
CHROMIUM	NC	3600000	26	16.4	14.4	23.8	15.6	17.8	12.7
COBALT	2.3	4.2	13	5.51 [R][SG]	26 [R][SG][E]	4.83 [R][SG]	4.73 [R][SG]	7.71 [R][SG]	5.18 [R][SG]
COPPER	310	920	28	13.7	11.5	14.7	10.2	15.2	6.37
IRON	5500	5400	200	20300 [R][SG][E]	22500 [R][SG][E]	25800 [R][SG][E]	19100 [R][SG][E]	22000 [R][SG][E]	13400 [R][SG][E]
LEAD	400	280	11	13 [E]	27.7 [E]	11.9 [E]	10	16.7 [E]	5.45 J
MAGNESIUM	NC	NC	NA	1670	1430	1640	1460	2440	743
MANGANESE	180	420	220	187 J[R]	835 J[R][SG][	190 J[R]	123 J	380 J[R][E]	251 J[R][E]
MERCURY	1	2	0.1	0.0478 J	0.0397 UJ	0.0645 J	0.0447 J	0.0321 J	0.0303 J
NICKEL	150	400	38	10.7	10.7	10.7	9.15	13.1	6.12
POTASSIUM	NC	NC	NA	667 J	636 J	677 J	577 J	667 J	368 J
SELENIUM	39	5.2	0.52	0.622 U	0.599 U	0.623 U	0.649 U	0.605 U	0.6 U
SODIUM	NC	NC	NA	373 U	359 U	374 U	389 U	139 J	360 U
VANADIUM	39	1260	7.8	29.4 J[E]	30.5 J[E]	32.1 J[E]	26.4 J[E]	29.1 J[E]	19 J[E]
ZINC	2300	5800	46	36.6	31.8	37.8	29.6	43.7	18.2

TABLE 5-1

CHEMICALS DETECTED IN SURFACE SOIL SAMPLES
SWMU 11 RFI
NSA CRANE, CRANE, INDIANIA

LOCATION	Residential Direct Contact Screening Level (1)	Soil to Groundwater Screening Level (2)	Ecological Screening Level (3)	11SB13	11SB14	11SB15	11SB16	11SB17	11SB18
SAMPLE ID				11SS130002	11SS140002	11SS150002	11SS160002	11SS170002	11SS180002
SAMPLE DATE				20110426	20110426	20110426	20110426	20110426	20110426
SAMPLE CODE				NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX				SO	SO	SO	SO	SO	SO
SAMPLE TYPE				NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX				SS	SS	SS	SS	SS	SS
TOP DEPTH				0	0	0	0	0	0
BOTTOM DEPTH	[R]	[SG]	[E]	2	2	2	2	2	2
VOLATILES (UG/KG)									
1,2-DICHLOROBENZENE	190000	11600	2960	NA	NA	NA	NA	NA	NA
2-BUTANONE	2800000	20000	89600	NA	NA	NA	NA	NA	NA
ACETONE	6100000	48000	2500	NA	NA	NA	NA	NA	NA
CIS-1,2-DICHLOROETHENE	16000	420	784	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	22000	46	9920	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/KG)									
DIETHYL PHTHALATE	4900000	94000	24800	193 U	203 U	207 U	214 U	200 U	194 U
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)									
2-METHYLNAPHTHALENE	23000	2800	29000	10.8 J	4.05 U	4.13 U	4.28 U	3.98 U	3.87 U
ACENAPHTHENE	340000	82000	20000	19.2 U	4.05 U	4.13 U	4.28 U	3.98 U	3.87 U
ACENAPHTHYLENE	340000	82000	20000	86.9	10.2	4.13 U	4.28 U	3.98 U	3.87 U
ANTHRACENE	1700000	840000	2500	52.3	3.9 J	4.13 U	4.28 U	3.98 U	3.87 U
BENZO(A)ANTHRACENE	150	200	1100	**322 [R][SG]**	33.1	4.13 U	4.28 U	3.98 U	3.87 U
BENZO(A)PYRENE	15	4800	1100	**348 [R]**	**34.5 [R]**	4.13 U	4.28 U	3.98 U	3.87 U
BENZO(B)FLUORANTHENE	150	700	1100	**454 [R]**	54.3	4.13 U	4.28 U	3.63 J	3.87 U
BENZO(G,H,I)PERYLENE	170000	190000	1100	234	28.6	4.13 U	4.28 U	3.98 U	3.87 U
BENZO(K)FLUORANTHENE	1500	7000	1100	202	26.5	4.13 U	4.28 U	2.59 J	3.87 U
CHRYSENE	15000	22000	1100	427	37.3	4.13 U	4.28 U	3.98 U	3.87 U
DIBENZO(A,H)ANTHRACENE	15	220	1100	**82.1 [R]**	9.15	4.13 U	4.28 U	3.98 U	3.87 U
FLUORANTHENE	230000	1400000	29000	454	40.5	4.13 U	4.28 U	2.67 J	3.87 U
FLUORENE	230000	80000	29000	16.1 J	4.05 U	4.13 U	4.28 U	3.98 U	3.87 U
INDENO(1,2,3-CD)PYRENE	150	4000	1100	**187 [R]**	24.7	4.13 U	4.28 U	2.08 J	3.87 U
NAPHTHALENE	3600	9.4	29000	**14.4 J[SG]**	4.05 U	4.13 U	4.28 U	3.98 U	3.87 U
PHENANTHRENE	170000	190000	29000	153 J	8.33 J	4.13 U	4.28 U	3.98 U	3.87 U
PYRENE	170000	190000	1100	417 J	35.5 J	4.13 U	4.28 U	6.41 J	3.87 U
PESTICIDES (UG/KG)									
4,4'-DDE	1400	920	21	0.402 U	1.4 J	0.405 U	0.431 U	0.393 U	0.4 U
ALPHA-BHC	77	0.72	99.4	0.402 U	0.41 U	0.405 U	0.431 U	0.393 U	0.4 U
BETA-BHC	270	2.6	3.98	0.402 U	0.41 U	0.405 U	0.431 U	0.393 U	0.4 U
GAMMA-BHC (LINDANE)	520	24	5	2.27 J	0.41 U	0.405 U	0.431 U	0.393 U	0.4 U
GAMMA-CHLORDANE	1600	2800	224	0.859 J	0.902 J	0.405 U	0.431 U	0.393 U	0.4 U
METHOXYCHLOR	31000	44000	19.9	0.402 UJ	0.41 UJ	0.405 UJ	0.428 UJ	0.383 UJ	0.414 UJ
DIOXINS/FURANS (NG/KG)									
1,2,3,4,6,7,8,9-OCDD	15000	17400	0.199	NA	**6710 J[E]**	NA	NA	NA	**1280 [E]**
1,2,3,4,6,7,8,9-OCDF	15000	17400	38.6	NA	8.23 J	NA	NA	NA	6.33 U
1,2,3,4,6,7,8-HPCDD	450	520	0.199	NA	**91.7 [E]**	NA	NA	NA	**13.9 [E]**
1,2,3,4,6,7,8-HPCDF	450	520	38.6	NA	3.45 J	NA	NA	NA	3.17 U
1,2,3,4,7,8,9-HPCDF	450	520	38.6	NA	3.12 U	NA	NA	NA	3.17 U
1,2,3,4,7,8-HXCDD	45	52	0.199	NA	**0.716 J[E]**	NA	NA	NA	3.17 U
1,2,3,4,7,8-HXCDF	45	52	38.6	NA	0.547 J	NA	NA	NA	3.17 U
1,2,3,6,7,8-HXCDD	45	52	0.199	NA	**0.976 J[E]**	NA	NA	NA	3.17 U
1,2,3,6,7,8-HXCDF	45	52	38.6	NA	0.737 J	NA	NA	NA	3.17 U
1,2,3,7,8,9-HXCDD	45	52	0.199	NA	**1.21 J[E]**	NA	NA	NA	3.17 U
1,2,3,7,8,9-HXCDF	45	52	38.6	NA	3.12 U	NA	NA	NA	3.17 U

TABLE 5-1

CHEMICALS DETECTED IN SURFACE SOIL SAMPLES
SWMU 11 RFI
NSA CRANE, CRANE, INDIANIA

LOCATION	Residential Direct Contact Screening Level (1)	Soil to Groundwater Screening Level (2)	Ecological Screening Level (3)	11SB13	11SB14	11SB15	11SB16	11SB17	11SB18
SAMPLE ID				11SS130002	11SS140002	11SS150002	11SS160002	11SS170002	11SS180002
SAMPLE DATE				20110426	20110426	20110426	20110426	20110426	20110426
SAMPLE CODE				NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX				SO	SO	SO	SO	SO	SO
SAMPLE TYPE				NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX				SS	SS	SS	SS	SS	SS
TOP DEPTH				0	0	0	0	0	0
BOTTOM DEPTH	[R]	[SG]	[E]	2	2	2	2	2	2
1,2,3,7,8-PECDD	4.5	5.2	0.199	NA	3.12 U	NA	NA	NA	3.17 U
1,2,3,7,8-PECDF	150	174	38.6	NA	0.849 J	NA	NA	NA	3.17 U
2,3,4,6,7,8-HXCDF	45	52	38.6	NA	1.68 J	NA	NA	NA	3.17 U
2,3,4,7,8-PECDF	15	17.4	38.6	NA	3.12 J	NA	NA	NA	3.17 U
2,3,7,8-TCDD	4.5	300	0.199	NA	0.621 U	NA	NA	NA	0.633 U
TEQ BIRD	NC	NC	NC	NA	4.465883	NA	NA	NA	0.1419
TEQ BIRD HALFND	NC	NC	NC	NA	6.761483	NA	NA	NA	4.947017
2,3,7,8-TCDD Equivalents	4.5	5.2	0.199	NA	**4.515039 [R][E]**	NA	NA	NA	**0.523 [E]**
2,3,7,8-TCDD Equivalents - HALFN	4.5	5.2	0.199	NA	**6.582489 [R][SG][E]**	NA	NA	NA	**4.11375 [E]**
TOTAL HPCDD	94	180	NC	NA	**175 [R]**	NA	NA	NA	26.9
TOTAL HPCDF	NC	NC	NC	NA	8.24	NA	NA	NA	3.17 U
TOTAL HXCDD	NC	NC	NC	NA	11.7	NA	NA	NA	1.94 J
TOTAL HXCDF	NC	NC	NC	NA	28.7	NA	NA	NA	3.17 U
TOTAL PECDD	NC	NC	NC	NA	1.12 J	NA	NA	NA	0.332 J
TOTAL PECDF	NC	NC	NC	NA	36.6	NA	NA	NA	3.17 U
TOTAL TCDD	NC	NC	NC	NA	0.621 U	NA	NA	NA	0.633 U
TOTAL TCDF	NC	NC	NC	NA	8.4 U	NA	NA	NA	0.868 U
METALS (MG/KG)									
ALUMINUM	7700	460000	NA	**12300 [R]**	7490	**16900 [R]**	**16100 [R]**	**7930 [R]**	**14800 [R]**
ARSENIC	0.61	5.8	17	**6.73 [R][SG]**	**5.86 [R][SG]**	**10.7 [R][SG]**	**10.6 [R][SG]**	**5.35 [R]**	**8.93 [R][SG]**
BARIUM	1500	1640	330	88.1	54.4	76	76.6	21.4	69.6
BERYLLIUM	16	64	10	0.855	0.573 J	0.857	0.934	0.438 J	0.773
CADMIUM	7	7.6	0.36	0.243 UJ	0.246 UJ	0.246 UJ	0.261 UJ	0.232 UJ	0.24 UJ
CALCIUM	NC	NC	NA	1860	10600	2110	1560	242 J	1980
CHROMIUM	NC	3600000	26	14.2	13.7	19.1	19.2	15.2	19.3
COBALT	2.3	4.2	13	**12.1 [R][SG]**	**8.4 [R][SG]**	**9.64 [R][SG]**	**13.1 [R][SG][E]**	**2.85 [R]**	**5.92 [R][SG]**
COPPER	310	920	28	10.4	13.6	17.5	17	6.82	18.4
IRON	5500	5400	200	**17300 [R][SG][E]**	**15700 [R][SG][E]**	**24800 [R][SG][E]**	**25100 [R][SG][E]**	**18100 [R][SG][E]**	**23600 [R][SG][E]**
LEAD	400	280	11	**14.4 [E]**	**21.5 [E]**	**14.6 [E]**	**14.6 [E]**	**13.7 [E]**	**13.1 [E]**
MAGNESIUM	NC	NC	NA	1330	1810	2260	2220	738	2490
MANGANESE	180	420	220	**622 J[R][SG][E**	**486 J[R][SG][E**	**419 J[R][E]**	**472 J[R][SG][E**	**244 J[R][E]**	**213 J[R]**
MERCURY	1	2	0.1	0.0426	0.0346 J	0.0588	0.0512	0.0296 U	0.0365 U
NICKEL	150	400	38	12	10.5	16.1	15.7	5.23	14.7
POTASSIUM	NC	NC	NA	602 J	445 J	855 J	819 J	278 J	762 J
SELENIUM	39	5.2	0.52	0.608 U	0.616 U	0.517 J	**0.542 J[E]**	0.58 U	0.599 U
SODIUM	NC	NC	NA	365 U	179 J	340 J	342 J	348 U	174 J
VANADIUM	39	1260	7.8	**27.2 J[E]**	**17.6 J[E]**	**34.3 J[E]**	**35.5 J[E]**	**25 J[E]**	**32 J[E]**
ZINC	2300	5800	46	32.8	39.6	44.6	45.1	10.9	44.3

TABLE 5-1

CHEMICALS DETECTED IN SURFACE SOIL SAMPLES
SWMU 11 RFI
NSA CRANE, CRANE, INDIANIA

LOCATION	Residential Direct Contact Screening Level (1)	Soil to Groundwater Screening Level (2)	Ecological Screening Level (3)	11SB19	11SB20	11SB21	11SB22	11SB23	11SB24
SAMPLE ID				11SS190002	11SS200002	11SS210002	11SS220002	11SS230002	11SS240002
SAMPLE DATE				20110426	20110426	20110426	20110426	20110426	20110426
SAMPLE CODE				NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX				SO	SO	SO	SO	SO	SO
SAMPLE TYPE				NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX				SS	SS	SS	SS	SS	SS
TOP DEPTH				0	0	0	0	0	0
BOTTOM DEPTH	[R]	[SG]	[E]	2	2	2	2	2	2
VOLATILES (UG/KG)									
1,2-DICHLOROBENZENE	190000	11600	2960	NA	NA	NA	NA	NA	NA
2-BUTANONE	2800000	20000	89600	NA	NA	NA	NA	NA	NA
ACETONE	6100000	48000	2500	NA	NA	NA	NA	NA	NA
CIS-1,2-DICHLOROETHENE	16000	420	784	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	22000	46	9920	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/KG)									
DIETHYL PHTHALATE	4900000	94000	24800	NA	NA	NA	NA	NA	NA
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)									
2-METHYLNAPHTHALENE	23000	2800	29000	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	340000	82000	20000	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	340000	82000	20000	NA	NA	NA	NA	NA	NA
ANTHRACENE	1700000	840000	2500	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	150	200	1100	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	15	4800	1100	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	150	700	1100	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	170000	190000	1100	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	1500	7000	1100	NA	NA	NA	NA	NA	NA
CHRYSENE	15000	22000	1100	NA	NA	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	15	220	1100	NA	NA	NA	NA	NA	NA
FLUORANTHENE	230000	1400000	29000	NA	NA	NA	NA	NA	NA
FLUORENE	230000	80000	29000	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	150	4000	1100	NA	NA	NA	NA	NA	NA
NAPHTHALENE	3600	9.4	29000	NA	NA	NA	NA	NA	NA
PHENANTHRENE	170000	190000	29000	NA	NA	NA	NA	NA	NA
PYRENE	170000	190000	1100	NA	NA	NA	NA	NA	NA
PESTICIDES (UG/KG)									
4,4'-DDE	1400	920	21	NA	NA	NA	NA	NA	NA
ALPHA-BHC	77	0.72	99.4	NA	NA	NA	NA	NA	NA
BETA-BHC	270	2.6	3.98	NA	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	520	24	5	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	1600	2800	224	NA	NA	NA	NA	NA	NA
METHOXYCHLOR	31000	44000	19.9	NA	NA	NA	NA	NA	NA
DIOXINS/FURANS (NG/KG)									
1,2,3,4,6,7,8,9-OCDD	15000	17400	0.199	**2060 [E]**	**6410 J[E]**	**2310 [E]**	**1420 [E]**	**2490 [E]**	**443 [E]**
1,2,3,4,6,7,8,9-OCDF	15000	17400	38.6	1.14 J	8.05 J	1.36 J	17.1	6.36 U	6.22 U
1,2,3,4,6,7,8-HPCDD	450	520	0.199	**31.6 [E]**	**103 [E]**	**39.6 [E]**	**47.9 [E]**	**25.3 [E]**	**4.84 [E]**
1,2,3,4,6,7,8-HPCDF	450	520	38.6	0.625 J	3.95 J	0.839 J	7.44	3.19 U	3.12 U
1,2,3,4,7,8,9-HPCDF	450	520	38.6	3.18 U	0.329 J	3.21 U	0.455 J	3.19 U	3.12 U
1,2,3,4,7,8-HXCDD	45	52	0.199	3.18 U	**0.816 J[E]**	3.21 U	**0.57 J[E]**	3.19 U	3.12 U
1,2,3,4,7,8-HXCDF	45	52	38.6	3.18 U	0.318 J	0.321 J	2.53 J	3.19 U	3.12 U
1,2,3,6,7,8-HXCDD	45	52	0.199	**0.663 J[E]**	**1.28 J[E]**	**0.642 J[E]**	**1.18 J[E]**	3.19 U	3.12 U
1,2,3,6,7,8-HXCDF	45	52	38.6	3.18 U	0.313 J	3.21 U	0.553 J	3.19 U	3.12 U
1,2,3,7,8,9-HXCDD	45	52	0.199	**0.596 J[E]**	**1.69 J[E]**	**0.671 J[E]**	**1.16 J[E]**	3.19 U	3.12 U
1,2,3,7,8,9-HXCDF	45	52	38.6	3.18 U	3.09 U	3.21 U	3.19 U	3.19 U	3.12 U

TABLE 5-1

CHEMICALS DETECTED IN SURFACE SOIL SAMPLES
SWMU 11 RFI
NSA CRANE, CRANE, INDIANIA

LOCATION	Residential Direct Contact Screening Level (1)	Soil to Groundwater Screening Level (2)	Ecological Screening Level (3)	11SB19	11SB20	11SB21	11SB22	11SB23	11SB24
SAMPLE ID				11SS190002	11SS200002	11SS210002	11SS220002	11SS230002	11SS240002
SAMPLE DATE				20110426	20110426	20110426	20110426	20110426	20110426
SAMPLE CODE				NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX				SO	SO	SO	SO	SO	SO
SAMPLE TYPE				NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX				SS	SS	SS	SS	SS	SS
TOP DEPTH				0	0	0	0	0	0
BOTTOM DEPTH	[R]	[SG]	[E]	2	2	2	2	2	2
1,2,3,7,8-PECDD	4.5	5.2	0.199	3.18 U	3.09 U	3.21 U	**0.51 J[E]**	3.19 U	3.12 U
1,2,3,7,8-PECDF	150	174	38.6	3.18 U	3.09 U	3.21 U	2.5 J	3.19 U	3.12 U
2,3,4,6,7,8-HXCDF	45	52	38.6	3.18 U	0.383 J	3.21 U	1.31 J	3.19 U	3.12 U
2,3,4,7,8-PECDF	15	17.4	38.6	3.18 U	3.09 U	3.21 U	2.03 J	3.19 U	3.12 U
2,3,7,8-TCDD	4.5	300	0.199	**0.24 J[E]**	0.616 U	0.641 U	**0.69 J[E]**	0.636 U	0.622 U
TEQ BIRD	NC	NC	NC	0.550194	1.111595	0.384746	4.34616	0.2743	0.04914
TEQ BIRD HALFND	NC	NC	NC	4.848094	5.070095	4.838046	4.84216	5.051718	4.794251
2,3,7,8-TCDD Equivalents	4.5	5.2	0.199	**1.306492 [E]**	**3.478205 [E]**	**1.261198 [E]**	**3.60338 [E]**	**1 [E]**	0.1813
2,3,7,8-TCDD Equivalents - HALFN	4.5	5.2	0.199	**4.254842 [E]**	**6.020705 [R][SG][E]**	**4.392848 [E]**	**3.79653 [E]**	**4.607154 [R][E]**	**3.716533 [E]**
TOTAL HPCDD	94	180	NC	67.3	**199 [R][SG]**	82.9	**162 [R]**	50.1	9.63
TOTAL HPCDF	NC	NC	NC	1.33 J	8.31	1.53 J	18.6	3.19 U	3.12 U
TOTAL HXCDD	NC	NC	NC	9.32	14.8	5.5	23	1.38 J	3.12 U
TOTAL HXCDF	NC	NC	NC	0.255 J	5.3	1.25 J	20.2	3.19 U	3.12 U
TOTAL PECDD	NC	NC	NC	0.491 J	1.11 J	3.21 U	2.48 J	3.19 U	3.12 U
TOTAL PECDF	NC	NC	NC	3.18 U	0.853 J	3.21 U	26.6	3.19 U	3.12 U
TOTAL TCDD	NC	NC	NC	0.634 U	0.616 U	0.641 U	0.69 J	0.636 U	0.622 U
TOTAL TCDF	NC	NC	NC	0.842 U	0.899 U	0.641 U	10	0.369 U	0.506 U
METALS (MG/KG)									
ALUMINUM	7700	460000	NA	NA	NA	NA	NA	NA	NA
ARSENIC	0.61	5.8	17	NA	NA	NA	NA	NA	NA
BARIUM	1500	1640	330	NA	NA	NA	NA	NA	NA
BERYLLIUM	16	64	10	NA	NA	NA	NA	NA	NA
CADMIUM	7	7.6	0.36	NA	NA	NA	NA	NA	NA
CALCIUM	NC	NC	NA	NA	NA	NA	NA	NA	NA
CHROMIUM	NC	3600000	26	NA	NA	NA	NA	NA	
COBALT	2.3	4.2	13	NA	NA	NA	NA	NA	NA
COPPER	310	920	28	NA	NA	NA	NA	NA	NA
IRON	5500	5400	200	NA	NA	NA	NA	NA	NA
LEAD	400	280	11	NA	NA	NA	NA	NA	NA
MAGNESIUM	NC	NC	NA	NA	NA	NA	NA	NA	NA
MANGANESE	180	420	220	NA	NA	NA	NA	NA	NA
MERCURY	1	2	0.1	NA	NA	NA	NA	NA	NA
NICKEL	150	400	38	NA	NA	NA	NA	NA	NA
POTASSIUM	NC	NC	NA	NA	NA	NA	NA	NA	NA
SELENIUM	39	5.2	0.52	NA	NA	NA	NA	NA	NA
SODIUM	NC	NC	NA	NA	NA	NA	NA	NA	NA
VANADIUM	39	1260	7.8	NA	NA	NA	NA	NA	NA
ZINC	2300	5800	46	NA	NA	NA	NA	NA	NA

TABLE 5-1

CHEMICALS DETECTED IN SURFACE SOIL SAMPLES
SWMU 11 RFI
NSA CRANE, CRANE, INDIANIA

LOCATION SAMPLE ID SAMPLE DATE SAMPLE CODE MATRIX SAMPLE TYPE SUBMATRIX TOP DEPTH BOTTOM DEPTH	**Residential Direct Contact Screening Level (1)** **[R]**	**Soil to Groundwater Screening Level (2)** **[SG]**	**Ecological Screening Level (3)** **[E]**	**11SB29** **11SS290002** **20110427** **NORMAL** **SO** **NORMAL** **SS** **0** **2**	**11SB30** **11SS300002** **20110427** **NORMAL** **SO** **NORMAL** **SS** **0** **2**	**11SB31** **11SS310002** **20110426** **NORMAL** **SO** **NORMAL** **SS** **0** **2**	**11SB32** **11SS320002** **20110426** **NORMAL** **SO** **NORMAL** **SS** **0** **2**
VOLATILES (UG/KG)							
1,2-DICHLOROBENZENE	190000	11600	2960	NA	NA	NA	NA
2-BUTANONE	2800000	20000	89600	NA	NA	NA	NA
ACETONE	6100000	48000	2500	NA	NA	NA	NA
CIS-1,2-DICHLOROETHENE	16000	420	784	NA	NA	NA	NA
TETRACHLOROETHENE	22000	46	9920	NA	NA	NA	NA
SEMIVOLATILES (UG/KG)							
DIETHYL PHTHALATE	4900000	94000	24800	213 U	189 U	203 U	204 U
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)							
2-METHYLNAPHTHALENE	23000	2800	29000	4.25 U	3.77 U	2.52 J	2.52 J
ACENAPHTHENE	340000	82000	20000	4.25 U	3.91 U	4.05 U	2.57 J
ACENAPHTHYLENE	340000	82000	20000	5.09 J	12.9	19	20.8
ANTHRACENE	1700000	840000	2500	4.25 U	18.3	9.88	15.8
BENZO(A)ANTHRACENE	150	200	1100	12.1	107	37	97.3
BENZO(A)PYRENE	15	4800	1100	**16.1 [R]**	**122 [R]**	**60.2 [R]**	**130 [R]**
BENZO(B)FLUORANTHENE	150	700	1100	20.1	**152 [R]**	81	**170 [R]**
BENZO(G,H,I)PERYLENE	170000	190000	1100	18.2	94.6	55.8	104
BENZO(K)FLUORANTHENE	1500	7000	1100	9.14	64.2	36	60.2
CHRYSENE	15000	22000	1100	16.1	136	66.8	117
DIBENZO(A,H)ANTHRACENE	15	220	1100	4.25 U	**22.3 [R]**	**15.7 [R]**	**30.8 [R]**
FLUORANTHENE	230000	1400000	29000	9.7	221	73.4	147
FLUORENE	230000	80000	29000	4.25 U	3.93 J	4.05 U	3.25 J
INDENO(1,2,3-CD)PYRENE	150	4000	1100	12.4	72.6	41.4	79.4
NAPHTHALENE	3600	9.4	29000	4.25 U	2.26 J	3.7 J	4.82 J
PHENANTHRENE	170000	190000	29000	2.33 J	72.7 J	31.6 J	48.9 J
PYRENE	170000	190000	1100	14.4 J	198 J	78.4 J	145 J
PESTICIDES (UG/KG)							
4,4'-DDE	1400	920	21	0.42 U	0.39 U	0.411 U	0.413 U
ALPHA-BHC	77	0.72	99.4	0.42 U	0.39 U	0.411 U	0.413 U
BETA-BHC	270	2.6	3.98	0.42 U	0.39 U	0.411 U	0.413 U
GAMMA-BHC (LINDANE)	520	24	5	0.42 U	0.39 U	0.411 U	0.413 U
GAMMA-CHLORDANE	1600	2800	224	0.42 U	0.39 U	0.411 U	0.413 U
METHOXYCHLOR	31000	44000	19.9	0.431 UJ	0.387 UJ	0.403 UJ	0.427 UJ
DIOXINS/FURANS (NG/KG)							
1,2,3,4,6,7,8,9-OCDD	15000	17400	0.199	NA	NA	NA	NA
1,2,3,4,6,7,8,9-OCDF	15000	17400	38.6	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDD	450	520	0.199	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDF	450	520	38.6	NA	NA	NA	NA
1,2,3,4,7,8,9-HPCDF	450	520	38.6	NA	NA	NA	NA
1,2,3,4,7,8-HXCDD	45	52	0.199	NA	NA	NA	NA
1,2,3,4,7,8-HXCDF	45	52	38.6	NA	NA	NA	NA
1,2,3,6,7,8-HXCDD	45	52	0.199	NA	NA	NA	NA
1,2,3,6,7,8-HXCDF	45	52	38.6	NA	NA	NA	NA
1,2,3,7,8,9-HXCDD	45	52	0.199	NA	NA	NA	NA
1,2,3,7,8,9-HXCDF	45	52	38.6	NA	NA	NA	NA

TABLE 5-1

CHEMICALS DETECTED IN SURFACE SOIL SAMPLES
SWMU 11 RFI
NSA CRANE, CRANE, INDIANIA

LOCATION SAMPLE ID SAMPLE DATE SAMPLE CODE MATRIX SAMPLE TYPE SUBMATRIX TOP DEPTH BOTTOM DEPTH	**Residential Direct Contact Screening Level (1)** **[R]**	**Soil to Groundwater Screening Level (2)** **[SG]**	**Ecological Screening Level (3)** **[E]**	**11SB29** **11SS290002** **20110427** **NORMAL** **SO** **NORMAL** **SS** **0** **2**	**11SB30** **11SS300002** **20110427** **NORMAL** **SO** **NORMAL** **SS** **0** **2**	**11SB31** **11SS310002** **20110426** **NORMAL** **SO** **NORMAL** **SS** **0** **2**	**11SB32** **11SS320002** **20110426** **NORMAL** **SO** **NORMAL** **SS** **0** **2**
1,2,3,7,8-PECDD	4.5	5.2	0.199	NA	NA	NA	NA
1,2,3,7,8-PECDF	150	174	38.6	NA	NA	NA	NA
2,3,4,6,7,8-HXCDF	45	52	38.6	NA	NA	NA	NA
2,3,4,7,8-PECDF	15	17.4	38.6	NA	NA	NA	NA
2,3,7,8-TCDD	4.5	300	0.199	NA	NA	NA	NA
TEQ BIRD	NC	NC	NC	NA	NA	NA	NA
TEQ BIRD HALFND	NC	NC	NC	NA	NA	NA	NA
2,3,7,8-TCDD Equivalents	4.5	5.2	0.199	NA	NA	NA	NA
2,3,7,8-TCDD Equivalents - HALFN	4.5	5.2	0.199	NA	NA	NA	NA
TOTAL HPCDD	94	180	NC	NA	NA	NA	NA
TOTAL HPCDF	NC	NC	NC	NA	NA	NA	NA
TOTAL HXCDD	NC	NC	NC	NA	NA	NA	NA
TOTAL HXCDF	NC	NC	NC	NA	NA	NA	NA
TOTAL PECDD	NC	NC	NC	NA	NA	NA	NA
TOTAL PECDF	NC	NC	NC	NA	NA	NA	NA
TOTAL TCDD	NC	NC	NC	NA	NA	NA	NA
TOTAL TCDF	NC	NC	NC	NA	NA	NA	NA
METALS (MG/KG)							
ALUMINUM	7700	460000	NA	**10200 [R]**	**8830 [R]**	**13400 [R]**	**14400 [R]**
ARSENIC	0.61	5.8	17	**4.37 [R]**	**3.48 [R]**	**7.85 [R][SG]**	**8.78 [R][SG]**
BARIUM	1500	1640	330	44.7	65.7	142	109
BERYLLIUM	16	64	10	0.622 J	0.731	0.925	1.14
CADMIUM	7	7.6	0.36	0.256 UJ	0.174 J	0.139 J	0.238 UJ
CALCIUM	NC	NC	NA	14600	96200	1950	2280
CHROMIUM	NC	3600000	26	10.9	12.7	13.6	**27.6 [E]**
COBALT	2.3	4.2	13	**4.98 [R][SG]**	**12.6 [R][SG]**	**13.2 [R][SG][E]**	**16.2 [R][SG][E]**
COPPER	310	920	28	9.24	11.2	12.6	12.3
IRON	5500	5400	200	**16400 [R][SG][E]**	**19400 [R][SG][E]**	**18300 [R][SG][E]**	**30100 [R][SG][E]**
LEAD	400	280	11	7.26	8.75	**17.1 [E]**	**19.2 [E]**
MAGNESIUM	NC	NC	NA	1310	4260	1390	1490
MANGANESE	180	420	220	101 J	**253 J[R][E]**	**1070 J[R][SG][E**	**839 J[R][SG][E**
MERCURY	1	2	0.1	0.0252 J	0.0402 U	0.0448	0.0327 J
NICKEL	150	400	38	7.05	17.1	14.3	14.7
POTASSIUM	NC	NC	NA	481 J	690 J	710 J	686 J
SELENIUM	39	5.2	0.52	0.64 U	0.577 U	0.516 J	0.472 J
SODIUM	NC	NC	NA	384 U	397 J	360 U	357 U
VANADIUM	39	1260	7.8	**18.6 J[E]**	**18.3 J[E]**	**27 J[E]**	**36 J[E]**
ZINC	2300	5800	46	26.8	**50 [E]**	44	**50.2 [E]**

TABLE 5-1

CHEMICALS DETECTED IN SURFACE SOIL SAMPLES
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

Footnotes:
1 - Value presented is the lower of the USEPA Residential RSL (noncarcinogens have been adjusted by a factor of 10) (USEPA, 2013) and the IDEM 2013 Residential Direct Contact Risk-Screening Level (IDEM, 2013).
2 - Value presented in the following hierarchy: 1) EPA MCL Based SSL (representative of a DAF of 20) (USEPA, 2013), 2) EPA Risk-Bassed SSL (representative of a DAF of 20).
3 - Value presented in the lowest of the selected benchmark for plants, invertebrates, birds and mammals. The benchmarks were selected by order of preference according to the following hierarchy:
EPA Ecological SSL (USEPA, 2005, 2007, 2008), followed by USEPA Region 5 Ecological Screening Levels (USEPA, August 2003), Canadian Soil Quality Guidelines (CCME 1999, 2010), and Oak Ridge National Laboratory Plant and Invertebrate Toxicological Benchmarks (Efroymson, 1997a, 1997b).

Acronyms:

DAF	Dilution and Attenuation Factor
FOD	Frequency of Detection
HALFND	Half the nondetect value used
IDEM	Indiana Department of Environmental Management
MCL	Maximum Contaminant Level
mg/kg	milligram per kilogram
NA	not analyzed
NC	no screening criteria available
ng/kg	nanogram per kilogram
RSL	Regional Screening Level
SSL	Soil Screening Level
ug/kg	microgram per kilogram
USEPA	United States Environmental Protection Agency

Screening Level Qualifiers:

[R]	Indicates exceedance of the Residential Direct Contact Screening Level
[SG]	Indicates exceedance of the Soil to Groundwater Screening Level
[E]	Indicates exceedance of the Ecological Screening Level

Data Qualifiers:

J	Positive result is estimated.
U	Chemical is not detected at the specified numerical limit
UJ	Chemical is not detected and the specified numerical detection

TABLE 5-2

SUMMARY OF DESCRIPTIVE STATISTICS IN SURFACE SOIL SAMPLES
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

Parameter	FOD	Minimum Detection	Maximum Detection	Sample ID of Maximum Detection	Range of Nondetects	Average of Detections	Overall Average	Standard Deviation	Residential Direct Contact Screening Level (1) [R]	No. of Samples > R	Soil to Groundwater Screening Level (2) [SG]	No. of Samples > SG	Ecological Screening Level (3) [E]	No. of Samples > E
Volatile Organics (UG/KG)														
1,2-DICHLOROBENZENE	1/4	1.42 J	1.42 J	11SB030002	2.51 - 2.98	1.42	1.4	0.099	190000	0	11600	0	2960	0
2-BUTANONE	1/4	3.68 J	3.68 J	11SB040002	5.03 - 5.62	3.68	2.9	0.512	2800000	0	20000	0	89600	0
ACETONE	2/3	14.6 J	25.8	11SB040002	10.1 - 10.1	20.2	15.2	10.4	6100000	0	48000	0	2500	0
CIS-1,2-DICHLOROETHENE	2/4	2.19 J	3.27 J	11SB020002	2.81 - 2.98	2.73	2.1	0.862	16000	0	420	0	784	0
TETRACHLOROETHENE	1/4	1.36 J	1.36 J	11SB010002	2.74 - 2.98	1.36	1.4	0.059	22000	0	46	0	9920	0
Semivolatile Organics (UG/KG)														
DIETHYL PHTHALATE	1/22	4440	4440	11SB020002	189 - 222	4440	299	925	4900000	0	94000	0	24800	0
Polycyclic Aromatic Hydrocarbons (UG/KG)														
2-METHYLNAPHTHALENE	3/22	2.52 J	10.8 J	11SS130002	3.77 - 4.43	5.28	2.5	1.87	23000	0	2800	0	29000	0
ACENAPHTHENE	2/22	2.57 J	17.2 J	11SS110002	3.85 - 19.2	9.885	3.1	3.54	340000	0	82000	0	20000	0
ACENAPHTHYLENE	7/22	3.57 J	86.9	11SS130002	3.85 - 4.43	22.64	8.6	18.38	340000	0	82000	0	20000	0
ANTHRACENE	6/22	3.9 J	52.3	11SS130002	3.85 - 4.43	21.46	7.3	12.21	1700000	0	840000	0	2500	0
BENZO(A)ANTHRACENE	8/22	5.49 J	322	11SS130002	3.85 - 4.43	93.0	35.1	74.67	150	1	200	1	1100	0
BENZO(A)PYRENE	8/22	3.9 J	348	11SS130002	3.85 - 4.43	106	40.0	82.05	15	7	4800	0	1100	0
BENZO(B)FLUORANTHENE	10/22	3.63 J	454	11SS130002	3.85 - 4.43	113	52.5	107	150	4	700	0	1100	0
BENZO(G,H,I)PERYLENE	9/22	2.71 J	234	11SS130002	3.85 - 4.43	73.3	31.2	58.2	170000	0	190000	0	1100	0
BENZO(K)FLUORANTHENE	9/22	2.59 J	202	11SS130002	3.85 - 4.43	54.1	23.3	46.6	1500	0	7000	0	1100	0
CHRYSENE	9/22	3.09 J	427	11SS130002	3.85 - 4.43	107.6	45.2	97.7	15000	0	22000	0	1100	0
DIBENZO(A,H)ANTHRACENE	6/22	9.15	82.1	11SS130002	3.85 - 4.43	30.8	9.9	18.3	15	5	220	0	1100	0
FLUORANTHENE	10/22	2.67 J	454	11SS130002	3.85 - 4.43	136	63.1	131	230000	0	1400000	0	29000	0
FLUORENE	4/22	3.25 J	16.1 J	11SS130002	3.85 - 4.43	8.92	3.3	3.6	230000	0	80000	0	29000	0
INDENO(1,2,3-CD)PYRENE	10/22	2.08 J	187	11SS130002	3.85 - 4.43	51.9	24.7	45.9	150	1	4000	0	1100	0
NAPHTHALENE	5/22	2.26 J	14.4 J	11SS130002	3.85 - 4.43	5.6	2.8	2.7	3600	0	9.4	1	29000	0
PHENANTHRENE	10/22	2.24 J	301 J	11SS110002	3.85 - 4.43	62.5	29.5	70.3	170000	0	190000	0	29000	0
PYRENE	11/22	2.46 J	417 J	11SS130002	3.85 - 4.43	110	56.2	112	170000	0	190000	0	1100	0
Pesticides (UG/KG)														
4,4'-DDE	1/22	1.4 J	1.4 J	11SS140002	0.39 - 0.462	1.4	0.260	0.255	1400	0	920	0	21	0
ALPHA-BHC	2/22	0.226 J	0.93	11SS080002	0.39 - 0.431	0.578	0.239	0.155	77	0	0.72	1	99.4	0
BETA-BHC	2/22	0.221 J	0.265 J	11SB020002	0.39 - 0.462	0.243	0.209	0.015	270	0	2.6	0	3.98	0
GAMMA-BHC (LINDANE)	1/22	2.27 J	2.27 J	11SS130002	0.39 - 0.462	2.27	0.300	0.440	520	0	24	0	5	0
GAMMA-CHLORDANE	6/22	0.244 J	1.25 J	11SS070002	0.39 - 0.462	0.85	0.382	0.333	1600	0	2800	0	224	0
METHOXYCHLOR	1/22	1.01 J	1.01 J	11SS120002	0.383 - 0.462	1.01	0.243	0.171	31000	0	44000	0	19.9	0
Dioxins/Furans (NG/KG)														
1,2,3,4,6,7,8,9-OCDD	11/11	443	6710 J	11SS140002	-	3062	3062	2271	15000	0	17400	0	0.199	11
1,2,3,4,6,7,8,9-OCDF	8/11	1.14 J	583 J	11SS110002	6.22 - 6.36	77.9	57.5	174	15000	0	17400	0	38.6	1
1,2,3,4,6,7,8-HPCDD	11/11	4.84	772 J	11SS110002	-	111	111	221	450	1	520	1	0.199	11
1,2,3,4,6,7,8-HPCDF	8/11	0.244 J	102 J	11SS110002	3.12 - 3.19	14.9	11.3	30.2	450	0	520	0	38.6	1
1,2,3,4,7,8,9-HPCDF	3/11	0.329 J	7.82	11SS110002	3.12 - 3.28	2.87	1.94	2.01	450	0	520	0	38.6	0
1,2,3,4,7,8-HXCDD	5/11	0.57 J	8.54	11SS110002	3.12 - 3.21	2.26	1.89	2.25	45	0	52	0	0.199	5
1,2,3,4,7,8-HXCDF	5/11	0.318 J	3.91 J	11SS110002	3.12 - 3.28	1.53	1.56	1.03	45	0	52	0	38.6	0
1,2,3,6,7,8-HXCDD	7/11	0.642 J	24.7 J	11SS110002	3.12 - 3.19	4.32	3.32	7.10	45	0	52	0	0.199	7
1,2,3,6,7,8-HXCDF	4/11	0.313 J	4.61 J	11SS110002	3.12 - 3.28	1.55	1.58	1.12	45	0	52	0	38.6	0
1,2,3,7,8,9-HXCDD	7/11	0.596 J	13.7 J	11SS110002	3.12 - 3.19	2.91	2.42	3.76	45	0	52	0	0.199	7
1,2,3,7,8,9-HXCDF	1/11	1.56 J	1.56 J	11SS110002	3.09 - 3.28	1.56	1.58	0.027	45	0	52	0	38.6	0
1,2,3,7,8-PECDD	2/11	0.51 J	2.45 J	11SS110002	3.09 - 3.28	1.48	1.57	0.437	4.5	0	5.2	0	0.199	2
1,2,3,7,8-PECDF	3/11	0.849 J	2.5 J	11SS220002	3.09 - 3.28	1.83	1.65	0.405	150	0	174	0	38.6	0
2,3,4,6,7,8-HXCDF	4/11	0.383 J	4.51 J	11SS110002	3.12 - 3.28	1.97	1.73	0.993	45	0	52	0	38.6	0
2,3,4,7,8-PECDF	3/11	1.04 J	3.12 J	11SS140002	3.09 - 3.28	2.06	1.72	0.516	15	0	17.4	0	38.6	0
2,3,7,8-TCDD	2/11	0.24 J	0.69 J	11SS220002	0.616 - 0.653	0.47	0.343	0.117	4.5	0	300	0	0.199	2

TABLE 5-2

SUMMARY OF DESCRIPTIVE STATISTICS IN SURFACE SOIL SAMPLES
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

Parameter	FOD	Minimum Detection	Maximum Detection	Sample ID of Maximum Detection	Range of Nondetects	Average of Detections	Overall Average	Standard Deviation	Residential Direct Contact Screening Level (1) [R]	No. of Samples > R	Soil to Groundwater Screening Level (2) [SG]	No. of Samples > SG	Ecological Screening Level (3) [E]	No. of Samples > E
TEQ BIRD	11/11	0.0491	9.7575	11SS110002	-	1.98	1.98	3.05	NC	0	NC	0	NC	0
TEQ BIRD HALFND	11/11	4.7943	10.3945	11SS110002	-	5.61	5.61	1.68	NC	0	NC	0	NC	0
2,3,7,8-TCDD Equivalents	11/11	0.1813	19.8383	11SS110002	-	3.47	3.47	5.61	4.5	**2**	5.2	**1**	0.199	**10**
2,3,7,8-TCDD Equivalents - HALFND	11/11	3.7165	20.1887	11SS110002	-	6.09	6.09	4.76	4.5	**5**	5.2	**3**	0.199	**11**
TOTAL HPCDD	11/11	9.63	1440 J	11SS110002	-	216	216	411	94	**5**	180	**2**	NC	0
TOTAL HPCDF	7/11	0.691 J	430 J	11SS110002	3.12 - 3.28	67.0	43.2	128	NC	0	NC	0	NC	0
TOTAL HXCDD	10/11	1.38 J	168 J	11SS110002	3.12 - 3.12	24.6	22.5	48.7	NC	0	NC	0	NC	0
TOTAL HXCDF	7/11	0.255 J	108 J	11SS110002	3.12 - 3.19	23.4	15.5	32.1	NC	0	NC	0	NC	0
TOTAL PECDD	7/11	0.332 J	18.5 J	11SS110002	3.12 - 3.21	3.48	2.8	5.2	NC	0	NC	0	NC	0
TOTAL PECDF	4/11	0.853 J	36.6	11SS140002	3.12 - 3.28	20.8	8.6	12.7	NC	0	NC	0	NC	0
TOTAL TCDD	2/11	0.69 J	1.17	11SS110002	0.616 - 0.653	0.93	0.428	0.271	NC	0	NC	0	NC	0
TOTAL TCDF	1/11	10	10	11SS220002	0.369 - 8.4	10.0	1.60	3.02	NC	0	NC	0	NC	0
Inorganics (MG/KG)														
ALUMINUM	22/22	7490	19900	11SB010002	-	13461	13461	3246	7700	**21**	460000	0	NA	0
ARSENIC	22/22	3.16	12	11SB010002	-	7.55	7.5	2.7	0.61	**22**	5.8	**17**	17	0
BARIUM	22/22	21.4	142	11SS310002	-	64.5	64.5	25.9	1500	0	1640	0	330	0
BERYLLIUM	22/22	0.373 J	1.14	11SS320002	-	0.697	0.697	0.189	16	0	64	0	10	0
CADMIUM	2/22	0.139 J	0.174 J	11SS300002	0.232 - 0.261	0.157	0.126	0.012	7	0	7.6	0	0.36	0
CALCIUM	22/22	242 J	96200	11SS300002	-	7198	7198	20314	NC	0	NC	0	NA	0
CHROMIUM	22/22	10.9	27.6	11SS320002	-	17.1	17.1	4.0	NC	0	3600000	0	26	**1**
COBALT	22/22	2.85	26	11SS080002	-	8.45	8.5	5.4	2.3	**22**	4.2	**18**	13	**4**
COPPER	22/22	6.37	18.4	11SS180002	-	13.11	13.1	3.4	310	0	920	0	28	0
IRON	22/22	13400	30100	11SS320002	-	20936	20936	4449	5500	**22**	5400	**22**	200	**22**
LEAD	22/22	5.45 J	27.7	11SS080002	-	13.6	13.6	4.9	400	0	280	0	11	**16**
MAGNESIUM	22/22	738	4260	11SS300002	-	1822	1822	741	NC	0	NC	0	NA	0
MANGANESE	22/22	101 J	1070 J	11SS310002	-	359	359	265	180	**18**	420	**6**	220	**14**
MERCURY	17/22	0.0235 J	0.0645 J	11SS090002	0.0296 - 0.0402	0.042	0.037	0.014	1	0	2	0	0.1	0
NICKEL	22/22	5.23	17.1	11SS300002	-	11.8	11.8	3.4	150	0	400	0	38	0
POTASSIUM	22/22	278 J	1110	11SS050002	-	672	672	196	NC	0	NC	0	NA	0
SELENIUM	8/22	0.406 J	0.67 J	11SS050002	0.577 - 0.649	0.543	0.391	0.128	39	0	5.2	0	0.52	**4**
SODIUM	6/22	139 J	397 J	11SS300002	348 - 389	262	205	64.7	NC	0	NC	0	NA	0
VANADIUM	22/22	17.6 J	41	11SB010002	-	28.9	28.9	6.7	39	**2**	1260	0	7.8	**22**
ZINC	22/22	10.9	52.5	11SB010002	-	36.6	36.6	11.0	2300	0	5800	0	46	**4**

Footnotes:
1 - Value presented is the lower of the USEPA Residential RSL (noncarcinogens have been adjusted by a factor of 10) (USEPA, 2013) and the IDEM 2013 Residential Direct Contact Risk-Screening Level (IDEM, 2013).
2 - Value presented in the following hierarchy: 1) EPA MCL Based SSL (representative of a DAF of 20) (USEPA, 2013), 2) EPA Risk-Based SSL (representative of a DAF of 20).
3 - Value presented in the lowest of the selected benchmark for plants, invertebrates, birds and mammals. The benchmarks were selected by order of preference according to the following hierarchy:
EPA Ecological SSL (USEPA, 2005, 2007, 2008), followed by USEPA Region 5 Ecological Screening Levels (USEPA, August 2003), Canadian Soil Quality Guidelines (CCME 1999, 2010), and Oak Ridge National Laboratory Plant and Invertebrate Toxicological Benchmarks (Efroymson, 1997a, 1997b).

Acronyms:

DAF	Dilution and Attenuation Factor	ng/kg	nanogram per kilogram
FOD	Frequency of Detection	RSL	Regional Screening Level
HALFND	Half the nondetect value used	SSL	Soil Screening Level
IDEM	Indiana Department of Environmental Management	TEQ	Toxicity Equivalent
MCL	Maximum Contaminant Level	ug/kg	microgram per kilogram
mg/kg	milligram per kilogram	USEPA	United States Environmental Protection Agency

TABLE 5-2

SUMMARY OF DESCRIPTIVE STATISTICS IN SURFACE SOIL SAMPLES
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

Parameter	FOD	Minimum Detection	Maximum Detection	Sample ID of Maximum Detection	Range of Nondetects	Average of Detections	Overall Average	Standard Deviation	Residential Direct Contact Screening Level (1) [R]	No. of Samples > R	Soil to Groundwater Screening Level (2) [SG]	No. of Samples > SG	Ecological Screening Level (3) [E]	No. of Samples > E

Associated Samples:

11SB010002	11SS150002
11SB020002	11SS160002
11SB030002	11SS170002
11SB040002	11SS180002
11SS050002	11SS190002
11SS060002	11SS200002
11SS070002	11SS210002
11SS080002	11SS220002
11SS090002	11SS230002
11SS100002	11SS240002
11SS110002	11SS290002
11SS120002	11SS300002
11SS130002	11SS310002
11SS140002	11SS320002

TABLE 5-3

CHEMICALS DETECTED IN SUBSURFACE SOIL SAMPLES
SWMU 11 RFI
NSA CRANE, CRANE INDIANA

LOCATION	Residential Direct Contact Screening Level (1)	Soil to Groundwater Screening Level (2)	11SB01	11SB02	11SB03	11SB04	11SB25	11SB26
SAMPLE ID			11SB010406	11SB020406	11SB030406	11SB040406	11SB250507	11SB260507
SAMPLE DATE			20110426	20110426	20110426	20110426	20110426	20110427
SAMPLE CODE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX			SO	SO	SO	SO	SO	SO
SAMPLE TYPE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX			SB	SB	SB	SB	SB	SB
TOP DEPTH			4	4	4	4	5	5
BOTTOM DEPTH	[R]	[SG]	6	6	6	6	7	7
VOLATILES (UG/KG)								
1,1-DICHLOROETHENE	24000	50	2.38 U	1.9 J	2.38 U	2.51 U	2.9 U	2.79 U
1,2-DICHLOROBENZENE	190000	11600	2.38 U	2.55 U	1.4 J	2.51 U	2.9 U	2.79 U
1,4-DICHLOROBENZENE	2400	1440	2.38 U	2.55 U	2.38 U	2.51 U	2.9 U	2.79 U
2-BUTANONE	2800000	20000	4.75 U	5.1 U	4.77 U	5.03 U	5.79 U	5.57 U
ACETONE	6100000	48000	9.5 U	10.2 U	9.53 UR	10.1 U	11.6 U	11.1 UJ
BENZENE	1100	52	2.38 U	2.55 U	2.38 U	2.51 U	2.9 U	2.79 U
CHLOROBENZENE	29000	1360	2.38 U	2.55 U	2.38 U	2.51 U	2.9 U	2.79 U
CIS-1,2-DICHLOROETHENE	16000	420	61.6 J	357	2.38 U	2.51 U	2.9 U	2.79 U
ETHYLBENZENE	5400	15600	2.38 U	2.55 U	2.38 U	2.51 U	2.9 U	2.79 U
ISOPROPYLBENZENE	210000	12800	2.38 U	2.55 U	2.38 U	2.51 U	2.9 U	2.79 U
METHYL CYCLOHEXANE	NC	NC	2.38 U	2.55 U	2.38 U	2.51 U	2.9 U	2.79 U
METHYLENE CHLORIDE	56000	24	4.75 U	5.1 U	4.77 U	5.03 U	5.79 U	11.1 J
TETRACHLOROETHENE	22000	46	14.2 J	**826 [SG]**	1.57 J	2.51 UJ	2.9 UJ	2.79 U
TOLUENE	500000	13800	2.38 U	10.6	2.38 U	2.51 U	2.9 U	2.79 U
TOTAL XYLENES	63000	196000	7.13 U	7.66 U	7.15 U	7.54 U	8.69 U	8.36 U
TRANS-1,2-DICHLOROETHENE	15000	580	2.38 U	1.45 J	2.38 U	2.51 U	2.9 U	2.79 U
TRICHLOROETHENE	910	36	**159 J[SG]**	**243 J[SG]**	2.38 U	2.51 U	2.9 U	2.79 U
VINYL CHLORIDE	60	13.8	2.38 U	**154 [R][SG]**	2.38 U	2.51 U	2.9 U	2.79 U
SEMIVOLATILES (UG/KG)								
DIETHYL PHTHALATE	4900000	94000	300 J	211 U	189 U	189 U	NA	186 U
PESTICIDES (UG/KG)								
BETA-BHC	270	2.6	0.402 U	0.437 U	0.488 J	0.377 U	NA	NA
GAMMA-CHLORDANE	1600	2800	0.402 UJ	0.437 UJ	0.355 J	0.377 UJ	NA	NA
METALS (MG/KG)								
ALUMINUM	7700	460000	**14000 [R]**	**15400 [R]**	**12300 [R]**	**8150 [R]**	NA	NA
ARSENIC	0.61	5.8	**6.41 [R][SG]**	**20.4 [R][SG]**	**2.49 [R]**	**6.22 [R][SG]**	NA	NA
BARIUM	1500	1640	53 J	53.8	60.9	49.1	NA	NA
BERYLLIUM	16	64	0.554 J	0.827 J	0.392 J	0.571	NA	NA
CALCIUM	NC	NC	310 J	418 J	688	168 J	NA	NA
CHROMIUM	NC	3600000	27.4 J	74.9	13.8	19.4	NA	NA
COBALT	2.3	4.2	**3.13 [R]**	**2.56 J[R]**	1.88	**5.73 [R][SG]**	NA	NA
COPPER	310	920	12.7	10.1	6.05	7.28	NA	NA
IRON	5500	5400	**20800 [R][SG]**	**75600 [R][SG]**	**11400 [R][SG]**	**21300 [R][SG]**	NA	NA
LEAD	400	280	10.2	28.5 J	6.76	15.3	NA	NA
MAGNESIUM	NC	NC	1460	900 J	1030	792	NA	NA
MANGANESE	180	420	66.8	109	12.5	**593 [R][SG]**	NA	NA
MERCURY	1	2	0.0203 J	0.0353 UJ	0.0337 UJ	0.025 J	NA	NA
NICKEL	150	400	9.53	9.71	6.59	5.71	NA	NA
POTASSIUM	NC	NC	643	401 J	489 J	294 J	NA	NA
SELENIUM	39	5.2	0.59 U	1.26 J	0.588 U	0.559 U	NA	NA
VANADIUM	39	1260	32.4	**86.2 [R]**	17.6	32.9	NA	NA
ZINC	2300	5800	27.1	19.9 J	11.1	11.4	NA	NA

TABLE 5-3

CHEMICALS DETECTED IN SUBSURFACE SOIL SAMPLES
SWMU 11 RFI
NSA CRANE, CRANE INDIANA

LOCATION	Residential Direct Contact Screening Level (1)	Soil to Groundwater Screening Level (2)	11SB27	11SB28	11SB33		11SB34	
SAMPLE ID			11SB270507	11SB280507	11SB330406	11SB330607	11SB340406	11SB340708
SAMPLE DATE			20110426	20110426	20111116	20111116	20111116	20111116
SAMPLE CODE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX			SO	SO	SO	SO	SO	SO
SAMPLE TYPE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX			SB	SB	SB	SB	SB	SB
TOP DEPTH			5	5	4	6	4	7
BOTTOM DEPTH	[R]	[SG]	7	7	6	7	6	8
VOLATILES (UG/KG)								
1,1-DICHLOROETHENE	24000	50	2.24 U	3.31 U	2.31 U	2.17 U	122 U	2.38 U
1,2-DICHLOROBENZENE	190000	11600	2.24 U	3.31 U	2.31 U	2.17 U	122 U	2.38 U
1,4-DICHLOROBENZENE	2400	1440	2.24 U	3.31 U	2.31 U	2.17 U	122 U	2.38 U
2-BUTANONE	2800000	20000	4.48 U	6.62 U	4.62 U	4.33 U	243 UJ	4.29 J
ACETONE	6100000	48000	8.97 U	13.2 U	9.23 U	8.67 U	270 J	14.6 J
BENZENE	1100	52	2.24 U	3.31 U	2.31 U	2.17 U	122 U	2.38 U
CHLOROBENZENE	29000	1360	2.24 U	3.31 U	2.31 U	2.17 U	122 U	2.38 U
CIS-1,2-DICHLOROETHENE	16000	420	2.24 U	3.31 U	9.93	11.7	122 U	49
ETHYLBENZENE	5400	15600	2.24 U	3.31 U	2.31 U	2.17 U	122 U	2.38 U
ISOPROPYLBENZENE	210000	12800	2.24 U	3.31 U	2.31 U	2.17 U	122 U	2.38 U
METHYL CYCLOHEXANE	NC	NC	2.24 U	3.31 U	2.31 U	2.17 U	122 U	6.28
METHYLENE CHLORIDE	56000	24	4.48 U	6.62 U	4.62 U	4.33 U	243 U	4.76 U
TETRACHLOROETHENE	22000	46	2.24 UJ	3.31 UJ	**53 [SG]**	**55.9 [SG]**	122 U	2.22 J
TOLUENE	500000	13800	2.24 U	3.31 U	2.31 U	2.17 U	122 U	2.38 U
TOTAL XYLENES	63000	196000	6.73 U	9.93 U	6.93 U	6.5 U	365 U	7.15 U
TRANS-1,2-DICHLOROETHENE	15000	580	2.24 U	3.31 U	2.31 U	2.17 U	122 U	2.38 U
TRICHLOROETHENE	910	36	2.24 U	3.31 U	4.11 J	4.77	122 U	2.06 J
VINYL CHLORIDE	60	13.8	2.24 U	3.31 U	2.31 U	2.17 U	122 UJ	**60.4 J[R][SG]**
SEMIVOLATILES (UG/KG)								
DIETHYL PHTHALATE	4900000	94000	193 U	226 U	NA	NA	NA	NA
PESTICIDES (UG/KG)								
BETA-BHC	270	2.6	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	1600	2800	NA	NA	NA	NA	NA	NA
METALS (MG/KG)								
ALUMINUM	7700	460000	NA	NA	NA	NA	NA	NA
ARSENIC	0.61	5.8	NA	NA	NA	NA	NA	NA
BARIUM	1500	1640	NA	NA	NA	NA	NA	NA
BERYLLIUM	16	64	NA	NA	NA	NA	NA	NA
CALCIUM	NC	NC	NA	NA	NA	NA	NA	NA
CHROMIUM	NC	3600000	NA	NA	NA	NA	NA	NA
COBALT	2.3	4.2	NA	NA	NA	NA	NA	NA
COPPER	310	920	NA	NA	NA	NA	NA	NA
IRON	5500	5400	NA	NA	NA	NA	NA	NA
LEAD	400	280	NA	NA	NA	NA	NA	NA
MAGNESIUM	NC	NC	NA	NA	NA	NA	NA	NA
MANGANESE	180	420	NA	NA	NA	NA	NA	NA
MERCURY	1	2	NA	NA	NA	NA	NA	NA
NICKEL	150	400	NA	NA	NA	NA	NA	NA
POTASSIUM	NC	NC	NA	NA	NA	NA	NA	NA
SELENIUM	39	5.2	NA	NA	NA	NA	NA	NA
VANADIUM	39	1260	NA	NA	NA	NA	NA	NA
ZINC	2300	5800	NA	NA	NA	NA	NA	NA

TABLE 5-3

CHEMICALS DETECTED IN SUBSURFACE SOIL SAMPLES
SWMU 11 RFI
NSA CRANE, CRANE INDIANA

LOCATION	Residential Direct Contact Screening Level (1)	Soil to Groundwater Screening Level (2)	11SB35		11SB36		11SB37	
SAMPLE ID			11SB350305	11SB350506	11SB360204	11SB360405	11SB370103	11SB370304
SAMPLE DATE			20111116	20111116	20111117	20111117	20111116	20111116
SAMPLE CODE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX			SO	SO	SO	SO	SO	SO
SAMPLE TYPE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX			SB	SB	SB	SB	SB	SB
TOP DEPTH			3	5	2	4	1	3
BOTTOM DEPTH	[R]	[SG]	5	6	4	5	3	4
VOLATILES (UG/KG)								
1,1-DICHLOROETHENE	24000	50	2.88 U	2.72 U	117 U	113 U	2.62 U	2.32 U
1,2-DICHLOROBENZENE	190000	11600	2.88 U	2.72 U	526	779 J	2.62 U	2.32 U
1,4-DICHLOROBENZENE	2400	1440	2.88 U	2.72 U	117 U	71.2 J	2.62 U	2.32 U
2-BUTANONE	2800000	20000	5.75 UJ	5.44 UJ	233 UJ	226 UJ	5.24 UJ	4.63 UJ
ACETONE	6100000	48000	11.5 UJ	6.24 J	466 UJ	453 UJ	10.5 UJ	9.26 UJ
BENZENE	1100	52	2.88 U	2.72 U	117 U	**146 J[SG]**	2.62 U	2.32 U
CHLOROBENZENE	29000	1360	2.88 U	2.72 U	619	**1670 J[SG]**	2.62 U	2.32 U
CIS-1,2-DICHLOROETHENE	16000	420	2.88 U	10.5	117 U	113 U	2.62 U	2.32 U
ETHYLBENZENE	5400	15600	2.88 U	2.72 U	117 U	113 U	2.62 U	2.32 U
ISOPROPYLBENZENE	210000	12800	2.88 U	2.72 U	117 U	113 U	2.62 U	2.32 U
METHYL CYCLOHEXANE	NC	NC	2.88 U	2.72 U	117 U	113 U	2.62 U	2.32 U
METHYLENE CHLORIDE	56000	24	5.75 U	5.44 U	233 U	226 U	5.24 U	4.63 U
TETRACHLOROETHENE	22000	46	2.48 J	9.47	117 U	113 U	2.62 U	2.32 U
TOLUENE	500000	13800	2.88 U	2.72 U	117 U	113 U	2.62 U	2.32 U
TOTAL XYLENES	63000	196000	8.63 U	8.16 U	350 U	340 U	7.85 U	6.95 U
TRANS-1,2-DICHLOROETHENE	15000	580	2.88 U	2.72 U	117 U	113 U	2.62 U	2.32 U
TRICHLOROETHENE	910	36	2.88 U	1.81 J	117 U	113 U	2.62 U	2.32 U
VINYL CHLORIDE	60	13.8	2.88 U	2.72 U	117 UJ	113 UJ	2.62 UJ	2.32 UJ
SEMIVOLATILES (UG/KG)								
DIETHYL PHTHALATE	4900000	94000	NA	NA	NA	NA	NA	NA
PESTICIDES (UG/KG)								
BETA-BHC	270	2.6	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	1600	2800	NA	NA	NA	NA	NA	NA
METALS (MG/KG)								
ALUMINUM	7700	460000	NA	NA	NA	NA	NA	NA
ARSENIC	0.61	5.8	NA	NA	NA	NA	NA	NA
BARIUM	1500	1640	NA	NA	NA	NA	NA	NA
BERYLLIUM	16	64	NA	NA	NA	NA	NA	NA
CALCIUM	NC	NC	NA	NA	NA	NA	NA	NA
CHROMIUM	NC	3600000	NA	NA	NA	NA	NA	NA
COBALT	2.3	4.2	NA	NA	NA	NA	NA	NA
COPPER	310	920	NA	NA	NA	NA	NA	NA
IRON	5500	5400	NA	NA	NA	NA	NA	NA
LEAD	400	280	NA	NA	NA	NA	NA	NA
MAGNESIUM	NC	NC	NA	NA	NA	NA	NA	NA
MANGANESE	180	420	NA	NA	NA	NA	NA	NA
MERCURY	1	2	NA	NA	NA	NA	NA	NA
NICKEL	150	400	NA	NA	NA	NA	NA	NA
POTASSIUM	NC	NC	NA	NA	NA	NA	NA	NA
SELENIUM	39	5.2	NA	NA	NA	NA	NA	NA
VANADIUM	39	1260	NA	NA	NA	NA	NA	NA
ZINC	2300	5800	NA	NA	NA	NA	NA	NA

TABLE 5-3

CHEMICALS DETECTED IN SUBSURFACE SOIL SAMPLES
SWMU 11 RFI
NSA CRANE, CRANE INDIANA

LOCATION	Residential Direct Contact Screening Level (1)	Soil to Groundwater Screening Level (2)	11SB38		11SB39		11SB40	
SAMPLE ID			11SB380406	11SB380607	11SB390406	11SB390708	11SB400305	11SB400506
SAMPLE DATE			20111115	20111115	20111115	20111115	20111115	20111115
SAMPLE CODE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX			SO	SO	SO	SO	SO	SO
SAMPLE TYPE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX			SB	SB	SB	SB	SB	SB
TOP DEPTH			4	6	4	7	3	5
BOTTOM DEPTH	[R]	[SG]	6	7	6	8	5	6
VOLATILES (UG/KG)								
1,1-DICHLOROETHENE	24000	50	3.9 U	3.42 U	2.8 U	3.64 U	157 U	465 U
1,2-DICHLOROBENZENE	190000	11600	100	243	9.91	3.46 J	157 U	465 U
1,4-DICHLOROBENZENE	2400	1440	3.63 J	8.1	2.8 U	3.64 U	157 U	465 U
2-BUTANONE	2800000	20000	7.79 U	6.84 U	2.87 U	7.27 U	314 U	929 U
ACETONE	6100000	48000	15.6 U	13.7 UJ	18.5 U	14.5 UJ	628 UJ	1860 UJ
BENZENE	1100	52	3.9 U	3.42 U	2.8 U	3.64 U	157 U	465 U
CHLOROBENZENE	29000	1360	8.57	13	2.8 U	3.64 U	157 U	465 U
CIS-1,2-DICHLOROETHENE	16000	420	47.6	45.6	2.8 U	6.23 J	**1020 [SG]**	**1700 J[SG]**
ETHYLBENZENE	5400	15600	3.9 U	3.42 U	2.8 U	3.64 U	157 U	465 U
ISOPROPYLBENZENE	210000	12800	3.9 U	3.42 U	2.8 U	3.64 U	157 U	465 U
METHYL CYCLOHEXANE	NC	NC	3.9 U	3.42 U	2.8 U	3.64 U	157 U	465 U
METHYLENE CHLORIDE	56000	24	7.79 U	6.84 U	5.61 U	7.27 U	**296 J[SG]**	**883 J[SG]**
TETRACHLOROETHENE	22000	46	28.6	**66.1 [SG]**	2.8 U	3.64 U	**2990 [SG]**	**31200 [R][SG]**
TOLUENE	500000	13800	3.9 U	3.42 U	2.8 U	3.64 U	157 U	465 U
TOTAL XYLENES	63000	196000	11.7 U	10.3 U	8.41 U	10.9 U	471 U	1390 U
TRANS-1,2-DICHLOROETHENE	15000	580	3.9 U	3.42 U	2.8 U	3.64 U	157 U	465 U
TRICHLOROETHENE	910	36	33.2	**45.3 [SG]**	2.8 U	3.64 U	**210 J[SG]**	**879 J[SG]**
VINYL CHLORIDE	60	13.8	3.9 U	3.42 U	2.8 U	3.64 U	157 U	465 U
SEMIVOLATILES (UG/KG)								
DIETHYL PHTHALATE	4900000	94000	NA	NA	NA	NA	NA	NA
PESTICIDES (UG/KG)								
BETA-BHC	270	2.6	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	1600	2800	NA	NA	NA	NA	NA	NA
METALS (MG/KG)								
ALUMINUM	7700	460000	NA	NA	NA	NA	NA	NA
ARSENIC	0.61	5.8	NA	NA	NA	NA	NA	NA
BARIUM	1500	1640	NA	NA	NA	NA	NA	NA
BERYLLIUM	16	64	NA	NA	NA	NA	NA	NA
CALCIUM	NC	NC	NA	NA	NA	NA	NA	NA
CHROMIUM	NC	3600000	NA	NA	NA	NA	NA	NA
COBALT	2.3	4.2	NA	NA	NA	NA	NA	NA
COPPER	310	920	NA	NA	NA	NA	NA	NA
IRON	5500	5400	NA	NA	NA	NA	NA	NA
LEAD	400	280	NA	NA	NA	NA	NA	NA
MAGNESIUM	NC	NC	NA	NA	NA	NA	NA	NA
MANGANESE	180	420	NA	NA	NA	NA	NA	NA
MERCURY	1	2	NA	NA	NA	NA	NA	NA
NICKEL	150	400	NA	NA	NA	NA	NA	NA
POTASSIUM	NC	NC	NA	NA	NA	NA	NA	NA
SELENIUM	39	5.2	NA	NA	NA	NA	NA	NA
VANADIUM	39	1260	NA	NA	NA	NA	NA	NA
ZINC	2300	5800	NA	NA	NA	NA	NA	NA

TABLE 5-3

CHEMICALS DETECTED IN SUBSURFACE SOIL SAMPLES
SWMU 11 RFI
NSA CRANE, CRANE INDIANA

LOCATION	Residential Direct Contact Screening Level (1)	Soil to Groundwater Screening Level (2)	11SB41		11SB42		11SB43	
SAMPLE ID			11SB410204	11SB410405	11SB420102	11SB420203	11SB430406	11SB430809
SAMPLE DATE			20111117	20111117	20111116	20111116	20111116	20111116
SAMPLE CODE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX			SO	SO	SO	SO	SO	SO
SAMPLE TYPE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX			SB	SB	SB	SB	SB	SB
TOP DEPTH			2	4	1	2	4	8
BOTTOM DEPTH	[R]	[SG]	4	5	2	3	6	9
VOLATILES (UG/KG)								
1,1-DICHLOROETHENE	24000	50	114 U	133 U	2.29 U	2.33 U	2.69 U	2.77 U
1,2-DICHLOROBENZENE	190000	11600	5870	5810	2.29 U	2.33 U	6.65	2.77 U
1,4-DICHLOROBENZENE	2400	1440	137 J	150 J	2.29 U	2.33 U	2.69 U	2.77 U
2-BUTANONE	2800000	20000	228 UJ	266 UJ	4.58 UJ	4.65 UJ	5.38 U	5.53 U
ACETONE	6100000	48000	456 UJ	532 UJ	9.16 UJ	9.3 UJ	11.1 J	6.89 J
BENZENE	1100	52	114 U	133 U	2.29 U	2.33 U	2.69 U	2.77 U
CHLOROBENZENE	29000	1360	183 J	364	2.29 U	2.33 U	2.69 U	2.77 U
CIS-1,2-DICHLOROETHENE	16000	420	156 J	112 J	2.29 U	2.33 U	2.69 U	44.4
ETHYLBENZENE	5400	15600	114 U	133 U	2.29 U	2.33 U	2.69 U	2.77 U
ISOPROPYLBENZENE	210000	12800	114 U	133 U	2.29 U	2.33 U	2.69 U	2.77 U
METHYL CYCLOHEXANE	NC	NC	114 U	133 U	2.29 U	2.33 U	2.69 U	2.77 U
METHYLENE CHLORIDE	56000	24	228 U	266 U	4.58 U	4.65 U	5.38 U	5.53 U
TETRACHLOROETHENE	22000	46	114 U	133 U	2.29 U	2.33 U	2.69 U	**230 J[SG]**
TOLUENE	500000	13800	114 U	133 U	2.29 U	2.33 U	2.69 U	2.77 U
TOTAL XYLENES	63000	196000	342 U	399 U	6.87 U	6.98 U	8.07 U	8.3 U
TRANS-1,2-DICHLOROETHENE	15000	580	114 U	133 U	2.29 U	2.33 U	2.69 U	2.77 U
TRICHLOROETHENE	910	36	**62.7 J[SG]**	133 U	2.29 U	2.33 U	2.69 U	**46.5 [SG]**
VINYL CHLORIDE	60	13.8	114 UJ	133 UJ	2.29 UJ	2.33 UJ	2.69 U	2.77 U
SEMIVOLATILES (UG/KG)								
DIETHYL PHTHALATE	4900000	94000	NA	NA	NA	NA	NA	NA
PESTICIDES (UG/KG)								
BETA-BHC	270	2.6	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	1600	2800	NA	NA	NA	NA	NA	NA
METALS (MG/KG)								
ALUMINUM	7700	460000	NA	NA	NA	NA	NA	NA
ARSENIC	0.61	5.8	NA	NA	NA	NA	NA	NA
BARIUM	1500	1640	NA	NA	NA	NA	NA	NA
BERYLLIUM	16	64	NA	NA	NA	NA	NA	NA
CALCIUM	NC	NC	NA	NA	NA	NA	NA	NA
CHROMIUM	NC	3600000	NA	NA	NA	NA	NA	NA
COBALT	2.3	4.2	NA	NA	NA	NA	NA	NA
COPPER	310	920	NA	NA	NA	NA	NA	NA
IRON	5500	5400	NA	NA	NA	NA	NA	NA
LEAD	400	280	NA	NA	NA	NA	NA	NA
MAGNESIUM	NC	NC	NA	NA	NA	NA	NA	NA
MANGANESE	180	420	NA	NA	NA	NA	NA	NA
MERCURY	1	2	NA	NA	NA	NA	NA	NA
NICKEL	150	400	NA	NA	NA	NA	NA	NA
POTASSIUM	NC	NC	NA	NA	NA	NA	NA	NA
SELENIUM	39	5.2	NA	NA	NA	NA	NA	NA
VANADIUM	39	1260	NA	NA	NA	NA	NA	NA
ZINC	2300	5800	NA	NA	NA	NA	NA	NA

TABLE 5-3

CHEMICALS DETECTED IN SUBSURFACE SOIL SAMPLES
SWMU 11 RFI
NSA CRANE, CRANE INDIANA

LOCATION	Residential Direct Contact Screening Level (1)	Soil to Groundwater Screening Level (2)	11SB44		11SB45		11SB46	
SAMPLE ID			11SB440406	11SB440607	11SB450204	11SB450506	11SB460305	11SB460506
SAMPLE DATE			20111116	20111116	20111116	20111116	20111117	20111117
SAMPLE CODE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX			SO	SO	SO	SO	SO	SO
SAMPLE TYPE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX			SB	SB	SB	SB	SB	SB
TOP DEPTH			4	6	2	5	3	5
BOTTOM DEPTH	[R]	[SG]	6	7	4	6	5	6
VOLATILES (UG/KG)								
1,1-DICHLOROETHENE	24000	50	2.32 U	2.45 U	136 U	2.25 U	2.28 U	108 U
1,2-DICHLOROBENZENE	190000	11600	19	3.41 J	136 U	2.25 U	2.46 J	108 U
1,4-DICHLOROBENZENE	2400	1440	2.32 U	2.45 U	136 U	2.25 U	2.28 U	108 U
2-BUTANONE	2800000	20000	4.64 UJ	4.9 U	272 U	2.76 J	4.55 UJ	215 UJ
ACETONE	6100000	48000	9.28 UJ	9.8 U	543 U	23.2	9.1 UJ	430 UJ
BENZENE	1100	52	2.32 U	2.45 U	136 U	2.25 U	2.28 U	108 U
CHLOROBENZENE	29000	1360	2.32 U	2.45 U	136 U	2.25 U	2.28 U	108 U
CIS-1,2-DICHLOROETHENE	16000	420	2.32 U	47	136 U	2.25 U	5.52	117 J
ETHYLBENZENE	5400	15600	2.32 U	2.45 U	136 U	6.21	2.28 U	108 U
ISOPROPYLBENZENE	210000	12800	2.32 U	2.45 UJ	136 UJ	1.38 J	2.28 U	108 U
METHYL CYCLOHEXANE	NC	NC	2.32 U	2.45 U	136 U	2.25 U	2.28 U	108 U
METHYLENE CHLORIDE	56000	24	4.64 U	4.9 U	272 U	4.5 U	4.55 U	215 U
TETRACHLOROETHENE	22000	46	3.64 J	26.3	136 U	2.25 U	7.57	**382 [SG]**
TOLUENE	500000	13800	2.32 U	2.45 U	136 U	1.28 J	2.28 U	108 U
TOTAL XYLENES	63000	196000	6.96 U	7.35 U	407 U	6.74 U	6.83 U	323 U
TRANS-1,2-DICHLOROETHENE	15000	580	2.32 U	2.45 U	136 U	2.25 U	2.28 U	108 U
TRICHLOROETHENE	910	36	1.95 J	9.85	136 U	2.25 U	4.95	**71.6 J[SG]**
VINYL CHLORIDE	60	13.8	2.32 UJ	2.45 U	136 U	1.71 J	2.28 UJ	108 UJ
SEMIVOLATILES (UG/KG)								
DIETHYL PHTHALATE	4900000	94000	NA	NA	NA	NA	NA	NA
PESTICIDES (UG/KG)								
BETA-BHC	270	2.6	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	1600	2800	NA	NA	NA	NA	NA	NA
METALS (MG/KG)								
ALUMINUM	7700	460000	NA	NA	NA	NA	NA	NA
ARSENIC	0.61	5.8	NA	NA	NA	NA	NA	NA
BARIUM	1500	1640	NA	NA	NA	NA	NA	NA
BERYLLIUM	16	64	NA	NA	NA	NA	NA	NA
CALCIUM	NC	NC	NA	NA	NA	NA	NA	NA
CHROMIUM	NC	3600000	NA	NA	NA	NA	NA	NA
COBALT	2.3	4.2	NA	NA	NA	NA	NA	NA
COPPER	310	920	NA	NA	NA	NA	NA	NA
IRON	5500	5400	NA	NA	NA	NA	NA	NA
LEAD	400	280	NA	NA	NA	NA	NA	NA
MAGNESIUM	NC	NC	NA	NA	NA	NA	NA	NA
MANGANESE	180	420	NA	NA	NA	NA	NA	NA
MERCURY	1	2	NA	NA	NA	NA	NA	NA
NICKEL	150	400	NA	NA	NA	NA	NA	NA
POTASSIUM	NC	NC	NA	NA	NA	NA	NA	NA
SELENIUM	39	5.2	NA	NA	NA	NA	NA	NA
VANADIUM	39	1260	NA	NA	NA	NA	NA	NA
ZINC	2300	5800	NA	NA	NA	NA	NA	NA

TABLE 5-3

CHEMICALS DETECTED IN SUBSURFACE SOIL SAMPLES
SWMU 11 RFI
NSA CRANE, CRANE INDIANA

LOCATION	Residential Direct Contact Screening Level (1)	Soil to Groundwater Screening Level (2)	11SB47		11SB48		11SB49	
SAMPLE ID			11SB470103	11SB470304	11SB480305	11SB480506	11SB490204	11SB490405
SAMPLE DATE			20111116	20111116	20111116	20111116	20111116	20111116
SAMPLE CODE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX			SO	SO	SO	SO	SO	SO
SAMPLE TYPE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX			SB	SB	SB	SB	SB	SB
TOP DEPTH			1	3	3	5	2	4
BOTTOM DEPTH	[R]	[SG]	3	4	5	6	4	5
VOLATILES (UG/KG)								
1,1-DICHLOROETHENE	24000	50	2.8 U	2.45 U	2.84 U	2.45 U	2.79 U	2.41 U
1,2-DICHLOROBENZENE	190000	11600	2.8 U	2.45 U	2.84 U	2.45 U	2.79 U	2.41 U
1,4-DICHLOROBENZENE	2400	1440	2.8 U	2.45 U	2.84 U	2.45 U	2.79 U	2.41 U
2-BUTANONE	2800000	20000	5.6 U	4.91 UJ	5.68 U	4.89 U	5.58 U	4.81 U
ACETONE	6100000	48000	11.2 U	9.81 UJ	20.5 J	9.78 U	11.2 U	9.63 U
BENZENE	1100	52	2.8 U	2.45 U	2.84 U	2.45 U	2.79 U	2.41 U
CHLOROBENZENE	29000	1360	2.8 U	2.45 U	2.84 U	2.45 U	2.79 U	2.41 U
CIS-1,2-DICHLOROETHENE	16000	420	2.8 U	2.45 U	2.84 U	2.45 U	2.79 U	2.41 U
ETHYLBENZENE	5400	15600	2.8 U	2.45 U	2.84 U	2.45 U	2.79 U	2.41 U
ISOPROPYLBENZENE	210000	12800	2.8 UJ	2.45 U	2.84 UJ	2.45 UJ	2.79 UJ	2.41 UJ
METHYL CYCLOHEXANE	NC	NC	2.8 U	2.45 U	2.84 U	2.45 U	2.79 U	2.41 U
METHYLENE CHLORIDE	56000	24	5.6 U	4.91 U	5.68 U	4.89 U	5.58 U	4.81 U
TETRACHLOROETHENE	22000	46	2.8 U	2.45 U	2.84 U	2.45 U	2.79 U	2.41 U
TOLUENE	500000	13800	2.8 U	2.45 U	2.84 U	2.45 U	2.79 U	2.41 U
TOTAL XYLENES	63000	196000	8.4 U	7.36 U	8.52 U	7.34 U	8.36 U	7.22 U
TRANS-1,2-DICHLOROETHENE	15000	580	2.8 U	2.45 U	2.84 U	2.45 U	2.79 U	2.41 U
TRICHLOROETHENE	910	36	2.8 U	2.45 U	2.84 U	2.45 U	2.79 U	2.41 U
VINYL CHLORIDE	60	13.8	2.8 U	2.45 UJ	2.84 U	2.45 U	2.79 U	2.41 U
SEMIVOLATILES (UG/KG)								
DIETHYL PHTHALATE	4900000	94000	NA	NA	NA	NA	NA	NA
PESTICIDES (UG/KG)								
BETA-BHC	270	2.6	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	1600	2800	NA	NA	NA	NA	NA	NA
METALS (MG/KG)								
ALUMINUM	7700	460000	NA	NA	NA	NA	NA	NA
ARSENIC	0.61	5.8	NA	NA	NA	NA	NA	NA
BARIUM	1500	1640	NA	NA	NA	NA	NA	NA
BERYLLIUM	16	64	NA	NA	NA	NA	NA	NA
CALCIUM	NC	NC	NA	NA	NA	NA	NA	NA
CHROMIUM	NC	3600000	NA	NA	NA	NA	NA	NA
COBALT	2.3	4.2	NA	NA	NA	NA	NA	NA
COPPER	310	920	NA	NA	NA	NA	NA	NA
IRON	5500	5400	NA	NA	NA	NA	NA	NA
LEAD	400	280	NA	NA	NA	NA	NA	NA
MAGNESIUM	NC	NC	NA	NA	NA	NA	NA	NA
MANGANESE	180	420	NA	NA	NA	NA	NA	NA
MERCURY	1	2	NA	NA	NA	NA	NA	NA
NICKEL	150	400	NA	NA	NA	NA	NA	NA
POTASSIUM	NC	NC	NA	NA	NA	NA	NA	NA
SELENIUM	39	5.2	NA	NA	NA	NA	NA	NA
VANADIUM	39	1260	NA	NA	NA	NA	NA	NA
ZINC	2300	5800	NA	NA	NA	NA	NA	NA

TABLE 5-3

CHEMICALS DETECTED IN SUBSURFACE SOIL SAMPLES
SWMU 11 RFI
NSA CRANE, CRANE INDIANA

LOCATION	Residential Direct Contact Screening Level (1)	Soil to Groundwater Screening Level (2)	11SB50		11SB51		11SB52	
SAMPLE ID			11SB500305	11SB500506	11SB51-0204	11SB51-0506	11SB52-0204	11SB52-0506
SAMPLE DATE			20111116	20111116	20121030	20121030	20121030	20121030
SAMPLE CODE			NORMAL	NORMAL	ORIG	NORMAL	NORMAL	NORMAL
MATRIX			SO	SO	SO	SO	SO	SO
SAMPLE TYPE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX			SB	SB	SB	SB	SB	SB
TOP DEPTH			3	5	2	5	2	5
BOTTOM DEPTH	[R]	[SG]	5	6	4	6	4	6
VOLATILES (UG/KG)								
1,1-DICHLOROETHENE	24000	50	2.5 U	2.22 U	2.59 U	2.39 U	1.67 J	2.4 U
1,2-DICHLOROBENZENE	190000	11600	2.5 U	2.22 U	48.3	9.56	13.7 J	39.9
1,4-DICHLOROBENZENE	2400	1440	2.5 U	2.22 U	2.59 U	2.39 U	2.48 UJ	2.4 U
2-BUTANONE	2800000	20000	4.99 UJ	4.44 U	5.19 U	4.79 U	4.52 J	4.81 U
ACETONE	6100000	48000	6.25 J	8.87 U	14 J	9.58 UJ	49.2 J	9.62 UJ
BENZENE	1100	52	2.5 U	2.22 U	2.59 U	2.39 U	2.48 U	2.4 U
CHLOROBENZENE	29000	1360	2.5 U	2.22 U	2.59 U	2.39 U	2.48 UJ	3.15 J
CIS-1,2-DICHLOROETHENE	16000	420	2.5 U	2.22 U	16.5	6.99	361	**647 [SG]**
ETHYLBENZENE	5400	15600	2.5 U	2.22 U	2.59 U	2.39 U	2.48 U	3.36 J
ISOPROPYLBENZENE	210000	12800	2.5 U	2.22 UJ	3.24 J	2.39 U	2.48 U	2.4 U
METHYL CYCLOHEXANE	NC	NC	2.5 U	2.22 U	2.59 U	2.39 U	2.48 U	2.4 U
METHYLENE CHLORIDE	56000	24	2.63 J	4.44 U	5.19 U	4.79 U	4.95 U	4.81 U
TETRACHLOROETHENE	22000	46	2.5 U	2.22 U	**74.9 [SG]**	20.3	**89 [SG]**	**1640 [SG]**
TOLUENE	500000	13800	2.5 U	2.22 U	2.59 U	2.39 U	2.27 J	7.04
TOTAL XYLENES	63000	196000	7.49 U	6.65 U	7.78 U	7.18 U	6.58 J	20.5
TRANS-1,2-DICHLOROETHENE	15000	580	2.5 U	2.22 U	2.59 U	2.39 U	14.6	2.4 U
TRICHLOROETHENE	910	36	2.5 U	2.22 U	32.8	4.9	**74.9 [SG]**	**632 [SG]**
VINYL CHLORIDE	60	13.8	2.5 UJ	2.22 U	3.61 J	2.5 J	**85 J[R][SG]**	**74 [R][SG]**
SEMIVOLATILES (UG/KG)								
DIETHYL PHTHALATE	4900000	94000	NA	NA	NA	NA	NA	NA
PESTICIDES (UG/KG)								
BETA-BHC	270	2.6	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	1600	2800	NA	NA	NA	NA	NA	NA
METALS (MG/KG)								
ALUMINUM	7700	460000	NA	NA	NA	NA	NA	NA
ARSENIC	0.61	5.8	NA	NA	NA	NA	NA	NA
BARIUM	1500	1640	NA	NA	NA	NA	NA	NA
BERYLLIUM	16	64	NA	NA	NA	NA	NA	NA
CALCIUM	NC	NC	NA	NA	NA	NA	NA	NA
CHROMIUM	NC	3600000	NA	NA	NA	NA	NA	NA
COBALT	2.3	4.2	NA	NA	NA	NA	NA	NA
COPPER	310	920	NA	NA	NA	NA	NA	NA
IRON	5500	5400	NA	NA	NA	NA	NA	NA
LEAD	400	280	NA	NA	NA	NA	NA	NA
MAGNESIUM	NC	NC	NA	NA	NA	NA	NA	NA
MANGANESE	180	420	NA	NA	NA	NA	NA	NA
MERCURY	1	2	NA	NA	NA	NA	NA	NA
NICKEL	150	400	NA	NA	NA	NA	NA	NA
POTASSIUM	NC	NC	NA	NA	NA	NA	NA	NA
SELENIUM	39	5.2	NA	NA	NA	NA	NA	NA
VANADIUM	39	1260	NA	NA	NA	NA	NA	NA
ZINC	2300	5800	NA	NA	NA	NA	NA	NA

TABLE 5-3

CHEMICALS DETECTED IN SUBSURFACE SOIL SAMPLES
SWMU 11 RFI
NSA CRANE, CRANE INDIANA

LOCATION	Residential Direct Contact Screening Level (1)	Soil to Groundwater Screening Level (2)	11SB53		11SB54		11SB55	
SAMPLE ID			11SB53-0204	11SB53-0506	11SB54-0204	11SB54-0405	11SB55-0406	11SB55-0607
SAMPLE DATE			20121030	20121030	20121030	20121030	20121030	20121030
SAMPLE CODE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX			SO	SO	SO	SO	SO	SO
SAMPLE TYPE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX			SB	SB	SB	SB	SB	SB
TOP DEPTH			2	5	2	4	4	6
BOTTOM DEPTH	[R]	[SG]	4	6	4	5	6	7
VOLATILES (UG/KG)								
1,1-DICHLOROETHENE	24000	50	2.55 U	2.59 U	2.24 U	2.3 U	2.3 U	2.44 U
1,2-DICHLOROBENZENE	190000	11600	165	1660	4.37 J	2.3 U	2.3 U	2.44 U
1,4-DICHLOROBENZENE	2400	1440	3.27 J	16.7	2.24 U	2.3 U	2.3 U	2.44 U
2-BUTANONE	2800000	20000	5.42 J	5.18 U	4.48 U	4.61 U	4.61 U	4.89 U
ACETONE	6100000	48000	49.1 J	5.34 J	5.96 J	7.22 J	9.21 UJ	9.77 UJ
BENZENE	1100	52	2.15 J	2.59 U	2.24 U	2.3 U	2.3 U	2.44 U
CHLOROBENZENE	29000	1360	8.56	33.8	2.24 U	2.3 U	2.3 U	2.44 U
CIS-1,2-DICHLOROETHENE	16000	420	178	111	4.99	8.96	2.3 U	2.44 U
ETHYLBENZENE	5400	15600	2.55 U	1.94 J	2.24 U	2.3 U	2.3 U	2.44 U
ISOPROPYLBENZENE	210000	12800	2.55 U	2.59 U	2.24 U	2.3 U	2.3 U	2.44 U
METHYL CYCLOHEXANE	NC	NC	2.55 U	2.59 U	5.35	5.01	2.3 U	2.44 U
METHYLENE CHLORIDE	56000	24	5.1 U	5.18 U	4.48 U	4.61 U	4.61 U	4.89 U
TETRACHLOROETHENE	22000	46	12.6	13.3	2.24 U	2.3 U	2.3 U	2.44 U
TOLUENE	500000	13800	1.77 J	2.59 U	2.24 U	2.3 U	2.3 U	2.44 U
TOTAL XYLENES	63000	196000	7.65 U	4.45 J	6.72 U	6.91 U	6.91 U	7.33 U
TRANS-1,2-DICHLOROETHENE	15000	580	8.82	2.59 U	2.24 U	2.3 U	2.3 U	2.44 U
TRICHLOROETHENE	910	36	**189 [SG]**	22.4	1.5 J	2.1 J	2.3 U	2.44 U
VINYL CHLORIDE	60	13.8	5.43 J	2.56 J	3.76 J	5.81 J	2.3 U	2.44 U
SEMIVOLATILES (UG/KG)								
DIETHYL PHTHALATE	4900000	94000	NA	NA	NA	NA	NA	NA
PESTICIDES (UG/KG)								
BETA-BHC	270	2.6	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	1600	2800	NA	NA	NA	NA	NA	NA
METALS (MG/KG)								
ALUMINUM	7700	460000	NA	NA	NA	NA	NA	NA
ARSENIC	0.61	5.8	NA	NA	NA	NA	NA	NA
BARIUM	1500	1640	NA	NA	NA	NA	NA	NA
BERYLLIUM	16	64	NA	NA	NA	NA	NA	NA
CALCIUM	NC	NC	NA	NA	NA	NA	NA	NA
CHROMIUM	NC	3600000	NA	NA	NA	NA	NA	NA
COBALT	2.3	4.2	NA	NA	NA	NA	NA	NA
COPPER	310	920	NA	NA	NA	NA	NA	NA
IRON	5500	5400	NA	NA	NA	NA	NA	NA
LEAD	400	280	NA	NA	NA	NA	NA	NA
MAGNESIUM	NC	NC	NA	NA	NA	NA	NA	NA
MANGANESE	180	420	NA	NA	NA	NA	NA	NA
MERCURY	1	2	NA	NA	NA	NA	NA	NA
NICKEL	150	400	NA	NA	NA	NA	NA	NA
POTASSIUM	NC	NC	NA	NA	NA	NA	NA	NA
SELENIUM	39	5.2	NA	NA	NA	NA	NA	NA
VANADIUM	39	1260	NA	NA	NA	NA	NA	NA
ZINC	2300	5800	NA	NA	NA	NA	NA	NA

TABLE 5-3

CHEMICALS DETECTED IN SUBSURFACE SOIL SAMPLES
SWMU 11 RFI
NSA CRANE, CRANE INDIANA

LOCATION	Residential Direct Contact Screening Level (1)	Soil to Groundwater Screening Level (2)	11SB56		11SB57		11SB58	
SAMPLE ID			11SB56-0406	11SB56-0708	11SB57-0406	11SB57-0607	11SB58-0305	11SB58-0506
SAMPLE DATE			20121030	20121030	20121030	20121030	20121030	20121030
SAMPLE CODE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX			SO	SO	SO	SO	SO	SO
SAMPLE TYPE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX			SB	SB	SB	SB	SB	SB
TOP DEPTH			4	7	4	6	3	5
BOTTOM DEPTH	[R]	[SG]	6	8	6	7	5	6
VOLATILES (UG/KG)								
1,1-DICHLOROETHENE	24000	50	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U
1,2-DICHLOROBENZENE	190000	11600	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U
1,4-DICHLOROBENZENE	2400	1440	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U
2-BUTANONE	2800000	20000	4.74 U	3.93 J	9.34 J	5.3 U	4.98 U	4.82 U
ACETONE	6100000	48000	4.87 J	26.3 J	36.7 J	15.2 J	9.96 UJ	9.65 UJ
BENZENE	1100	52	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U
CHLOROBENZENE	29000	1360	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U
CIS-1,2-DICHLOROETHENE	16000	420	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U
ETHYLBENZENE	5400	15600	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U
ISOPROPYLBENZENE	210000	12800	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U
METHYL CYCLOHEXANE	NC	NC	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U
METHYLENE CHLORIDE	56000	24	4.74 U	5.39 U	6.17 U	5.3 U	4.98 U	4.82 U
TETRACHLOROETHENE	22000	46	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U
TOLUENE	500000	13800	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U
TOTAL XYLENES	63000	196000	7.11 U	8.09 U	9.25 U	7.96 U	7.47 U	7.23 U
TRANS-1,2-DICHLOROETHENE	15000	580	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U
TRICHLOROETHENE	910	36	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U
VINYL CHLORIDE	60	13.8	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U
SEMIVOLATILES (UG/KG)								
DIETHYL PHTHALATE	4900000	94000	NA	NA	NA	NA	NA	NA
PESTICIDES (UG/KG)								
BETA-BHC	270	2.6	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	1600	2800	NA	NA	NA	NA	NA	NA
METALS (MG/KG)								
ALUMINUM	7700	460000	NA	NA	NA	NA	NA	NA
ARSENIC	0.61	5.8	NA	NA	NA	NA	NA	NA
BARIUM	1500	1640	NA	NA	NA	NA	NA	NA
BERYLLIUM	16	64	NA	NA	NA	NA	NA	NA
CALCIUM	NC	NC	NA	NA	NA	NA	NA	NA
CHROMIUM	NC	3600000	NA	NA	NA	NA	NA	NA
COBALT	2.3	4.2	NA	NA	NA	NA	NA	NA
COPPER	310	920	NA	NA	NA	NA	NA	NA
IRON	5500	5400	NA	NA	NA	NA	NA	NA
LEAD	400	280	NA	NA	NA	NA	NA	NA
MAGNESIUM	NC	NC	NA	NA	NA	NA	NA	NA
MANGANESE	180	420	NA	NA	NA	NA	NA	NA
MERCURY	1	2	NA	NA	NA	NA	NA	NA
NICKEL	150	400	NA	NA	NA	NA	NA	NA
POTASSIUM	NC	NC	NA	NA	NA	NA	NA	NA
SELENIUM	39	5.2	NA	NA	NA	NA	NA	NA
VANADIUM	39	1260	NA	NA	NA	NA	NA	NA
ZINC	2300	5800	NA	NA	NA	NA	NA	NA

TABLE 5-3

CHEMICALS DETECTED IN SUBSURFACE SOIL SAMPLES
SWMU 11 RFI
NSA CRANE, CRANE INDIANA

LOCATION	Residential Direct Contact Screening Level [1]	Soil to Groundwater Screening Level [2]	11SB59	11SB60		11SB61	
SAMPLE ID			11SB59-0204	11SB60-0204	11SB60-0405	11SB61-0810	11SB61-1011
SAMPLE DATE			20121030	20121129	20121129	20121129	20121129
SAMPLE CODE			NORMAL	ORIG	NORMAL	NORMAL	NORMAL
MATRIX			SO	SO	SO	SO	SO
SAMPLE TYPE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX			SB	SB	SB	SB	SB
TOP DEPTH			2	2	4	8	10
BOTTOM DEPTH	[R]	[SG]	4	4	5	10	11
VOLATILES (UG/KG)							
1,1-DICHLOROETHENE	24000	50	3.02 U	2.36 U	2.23 U	2.4 U	2.54 U
1,2-DICHLOROBENZENE	190000	11600	3.02 U	2.36 U	2.23 U	1.51 J	6.93
1,4-DICHLOROBENZENE	2400	1440	3.02 U	2.36 U	2.23 U	2.4 U	2.54 U
2-BUTANONE	2800000	20000	6.03 U	4.73 U	4.46 U	4.79 U	5.09 U
ACETONE	6100000	48000	12.1 UJ	9.45 U	8.92 U	90.3	10.2 U
BENZENE	1100	52	3.02 U	2.36 U	2.23 U	2.4 U	2.54 U
CHLOROBENZENE	29000	1360	3.02 U	2.36 U	2.23 U	2.4 U	2.54 U
CIS-1,2-DICHLOROETHENE	16000	420	3.02 U	2.36 U	2.23 U	9.98	15.2
ETHYLBENZENE	5400	15600	3.02 U	2.36 U	2.23 U	2.4 U	2.54 U
ISOPROPYLBENZENE	210000	12800	3.02 U	2.36 U	2.23 U	2.4 U	2.54 U
METHYL CYCLOHEXANE	NC	NC	3.02 U	2.36 U	2.23 U	2.4 U	2.54 U
METHYLENE CHLORIDE	56000	24	6.03 U	4.73 U	4.46 U	4.79 U	5.09 U
TETRACHLOROETHENE	22000	46	3.02 U	2.36 U	2.23 U	2.4 U	15.2
TOLUENE	500000	13800	3.02 U	2.36 U	2.23 U	2.4 U	2.54 U
TOTAL XYLENES	63000	196000	9.05 U	7.09 U	6.69 U	7.19 U	7.63 U
TRANS-1,2-DICHLOROETHENE	15000	580	3.02 U	2.36 U	2.23 U	2.08 J	2.54 U
TRICHLOROETHENE	910	36	3.02 U	2.36 U	2.23 U	14.5	7.72
VINYL CHLORIDE	60	13.8	3.02 U	2.36 U	2.23 U	2.4 U	1.58 J
SEMIVOLATILES (UG/KG)							
DIETHYL PHTHALATE	4900000	94000	NA	NA	NA	NA	NA
PESTICIDES (UG/KG)							
BETA-BHC	270	2.6	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	1600	2800	NA	NA	NA	NA	NA
METALS (MG/KG)							
ALUMINUM	7700	460000	NA	NA	NA	NA	NA
ARSENIC	0.61	5.8	NA	NA	NA	NA	NA
BARIUM	1500	1640	NA	NA	NA	NA	NA
BERYLLIUM	16	64	NA	NA	NA	NA	NA
CALCIUM	NC	NC	NA	NA	NA	NA	NA
CHROMIUM	NC	3600000	NA	NA	NA	NA	NA
COBALT	2.3	4.2	NA	NA	NA	NA	NA
COPPER	310	920	NA	NA	NA	NA	NA
IRON	5500	5400	NA	NA	NA	NA	NA
LEAD	400	280	NA	NA	NA	NA	NA
MAGNESIUM	NC	NC	NA	NA	NA	NA	NA
MANGANESE	180	420	NA	NA	NA	NA	NA
MERCURY	1	2	NA	NA	NA	NA	NA
NICKEL	150	400	NA	NA	NA	NA	NA
POTASSIUM	NC	NC	NA	NA	NA	NA	NA
SELENIUM	39	5.2	NA	NA	NA	NA	NA
VANADIUM	39	1260	NA	NA	NA	NA	NA
ZINC	2300	5800	NA	NA	NA	NA	NA

TABLE 5-3

CHEMICALS DETECTED IN SUBSURFACE SOIL SAMPLES
SWMU 11 RFI
NSA CRANE, CRANE INDIANA

LOCATION	Residential Direct Contact Screening Level (1)	Soil to Groundwater Screening Level (2)	11SB62		11SB63		11SB64	
SAMPLE ID			11SB62-0911	11SB62-1112	11SB63-0911	11SB63-1112	11SB64-0911	11SB64-1112
SAMPLE DATE			20121129	20121129	20121129	20121129	20121129	20121129
SAMPLE CODE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX			SO	SO	SO	SO	SO	SO
SAMPLE TYPE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX			SB	SB	SB	SB	SB	SB
TOP DEPTH			9	11	9	11	9	11
BOTTOM DEPTH	[R]	[SG]	11	12	11	12	11	12
VOLATILES (UG/KG)								
1,1-DICHLOROETHENE	24000	50	2.37 U	2.53 U	130 U	161 U	2.43 U	2.47 U
1,2-DICHLOROBENZENE	190000	11600	2.37 U	24.9	1190	2120	176 J	253
1,4-DICHLOROBENZENE	2400	1440	2.37 U	2.53 U	130 U	161 U	8.85	8.57
2-BUTANONE	2800000	20000	4.74 U	5.06 U	260 U	322 U	4.86 U	4.94 UJ
ACETONE	6100000	48000	28.4	10.1 U	521 UJ	643 UJ	31	8.99 J
BENZENE	1100	52	2.37 U	2.53 U	130 U	161 U	1.61 J	1.3 J
CHLOROBENZENE	29000	1360	2.37 U	2.53 U	130 U	81.7 J	18.8	20.8
CIS-1,2-DICHLOROETHENE	16000	420	6.69	40.9	141 J	186 J	92.4 J	156
ETHYLBENZENE	5400	15600	2.37 U	2.53 U	130 U	161 U	2.43 U	2.47 U
ISOPROPYLBENZENE	210000	12800	2.37 U	2.53 U	130 U	161 U	2.43 U	2.47 U
METHYL CYCLOHEXANE	NC	NC	2.37 U	2.53 U	130 U	161 U	2.43 U	2.47 U
METHYLENE CHLORIDE	56000	24	4.74 U	5.06 U	**205 J[SG]**	**250 J[SG]**	4.86 U	4.94 U
TETRACHLOROETHENE	22000	46	2.91 J	**117 [SG]**	130 U	**122 J[SG]**	2.43 U	**114 [SG]**
TOLUENE	500000	13800	2.37 U	2.53 U	130 U	161 U	2.9 J	2.47 U
TOTAL XYLENES	63000	196000	7.11 U	7.6 U	391 U	482 U	7.3 U	7.41 U
TRANS-1,2-DICHLOROETHENE	15000	580	1.66 J	2.53 U	130 U	161 U	75.6	3.98 J
TRICHLOROETHENE	910	36	21.5	**65 [SG]**	**172 J[SG]**	**152 J[SG]**	**51.6 [SG]**	**111 [SG]**
VINYL CHLORIDE	60	13.8	2.37 U	2.48 J	130 U	161 U	3.54 J	4.34 J
SEMIVOLATILES (UG/KG)								
DIETHYL PHTHALATE	4900000	94000	NA	NA	NA	NA	NA	NA
PESTICIDES (UG/KG)								
BETA-BHC	270	2.6	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	1600	2800	NA	NA	NA	NA	NA	NA
METALS (MG/KG)								
ALUMINUM	7700	460000	NA	NA	NA	NA	NA	NA
ARSENIC	0.61	5.8	NA	NA	NA	NA	NA	NA
BARIUM	1500	1640	NA	NA	NA	NA	NA	NA
BERYLLIUM	16	64	NA	NA	NA	NA	NA	NA
CALCIUM	NC	NC	NA	NA	NA	NA	NA	NA
CHROMIUM	NC	3600000	NA	NA	NA	NA	NA	NA
COBALT	2.3	4.2	NA	NA	NA	NA	NA	NA
COPPER	310	920	NA	NA	NA	NA	NA	NA
IRON	5500	5400	NA	NA	NA	NA	NA	NA
LEAD	400	280	NA	NA	NA	NA	NA	NA
MAGNESIUM	NC	NC	NA	NA	NA	NA	NA	NA
MANGANESE	180	420	NA	NA	NA	NA	NA	NA
MERCURY	1	2	NA	NA	NA	NA	NA	NA
NICKEL	150	400	NA	NA	NA	NA	NA	NA
POTASSIUM	NC	NC	NA	NA	NA	NA	NA	NA
SELENIUM	39	5.2	NA	NA	NA	NA	NA	NA
VANADIUM	39	1260	NA	NA	NA	NA	NA	NA
ZINC	2300	5800	NA	NA	NA	NA	NA	NA

TABLE 5-3

CHEMICALS DETECTED IN SUBSURFACE SOIL SAMPLES
SWMU 11 RFI
NSA CRANE, CRANE INDIANA

LOCATION	Residential Direct Contact Screening Level (1)	Soil to Groundwater Screening Level (2)	11SB65		11SB66		11SB67	
SAMPLE ID			11SB65-0911	11SB65-1112	11SB66-1315	11SB66-1516	11SB67-1416	11SB67-1617
SAMPLE DATE			20121129	20121129	20130123	20130123	20130123	20130123
SAMPLE CODE			NORMAL	NORMAL	NORMAL	ORIG	NORMAL	NORMAL
MATRIX			SO	SO	SO	SO	SO	SO
SAMPLE TYPE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX			SB	SB	SB	SB	SB	SB
TOP DEPTH			9	11	13	15	14	16
BOTTOM DEPTH	[R]	[SG]	11	12	15	16	16	17
VOLATILES (UG/KG)								
1,1-DICHLOROETHENE	24000	50	2.4 U	2.44 U	2.46 U	2.92 U	130 U	121 U
1,2-DICHLOROBENZENE	190000	11600	2.4 U	3.85 J	6.36	8.55	173 J	70.1 J
1,4-DICHLOROBENZENE	2400	1440	2.4 U	2.44 UJ	2.46 UJ	2.92 U	130 U	121 U
2-BUTANONE	2800000	20000	4.8 U	4.87 U	4.93 U	5.84 U	260 U	242 U
ACETONE	6100000	48000	50.8	9.74 UJ	16.2 J	11.7 UJ	520 UJ	483 UJ
BENZENE	1100	52	2.4 U	2.44 UJ	2.46 U	2.92 U	130 U	121 U
CHLOROBENZENE	29000	1360	2.4 U	2.44 UJ	2.46 UJ	2.92 U	130 U	121 U
CIS-1,2-DICHLOROETHENE	16000	420	39.2	16.6	18.5	25.1	**640 [SG]**	**627 [SG]**
ETHYLBENZENE	5400	15600	2.4 U	2.44 UJ	2.46 U	2.92 U	130 U	121 U
ISOPROPYLBENZENE	210000	12800	2.4 U	2.44 UJ	2.46 U	2.92 U	130 U	121 U
METHYL CYCLOHEXANE	NC	NC	6.93	2.44 U	2.46 U	2.92 U	130 U	121 U
METHYLENE CHLORIDE	56000	24	4.8 U	4.87 U	4.93 U	5.84 U	260 U	242 U
TETRACHLOROETHENE	22000	46	2.4 U	6.1	12.9	33.9	**803 [SG]**	**847 [SG]**
TOLUENE	500000	13800	2.4 U	2.44 UJ	2.46 U	2.92 U	130 U	121 U
TOTAL XYLENES	63000	196000	7.2 U	7.31 UJ	7.39 UJ	8.76 U	390 U	362 U
TRANS-1,2-DICHLOROETHENE	15000	580	3.54 J	2.44 U	2.46 U	2.92 U	130 U	121 U
TRICHLOROETHENE	910	36	3.99 J	7.78	9.45	16.3	**783 [SG]**	**555 [SG]**
VINYL CHLORIDE	60	13.8	5.04	2.42 J	4.34 J	5.21 J	**124 J[R][SG]**	**116 J[R][SG]**
SEMIVOLATILES (UG/KG)								
DIETHYL PHTHALATE	4900000	94000	NA	NA	NA	NA	NA	NA
PESTICIDES (UG/KG)								
BETA-BHC	270	2.6	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	1600	2800	NA	NA	NA	NA	NA	NA
METALS (MG/KG)								
ALUMINUM	7700	460000	NA	NA	NA	NA	NA	NA
ARSENIC	0.61	5.8	NA	NA	NA	NA	NA	NA
BARIUM	1500	1640	NA	NA	NA	NA	NA	NA
BERYLLIUM	16	64	NA	NA	NA	NA	NA	NA
CALCIUM	NC	NC	NA	NA	NA	NA	NA	NA
CHROMIUM	NC	3600000	NA	NA	NA	NA	NA	NA
COBALT	2.3	4.2	NA	NA	NA	NA	NA	NA
COPPER	310	920	NA	NA	NA	NA	NA	NA
IRON	5500	5400	NA	NA	NA	NA	NA	NA
LEAD	400	280	NA	NA	NA	NA	NA	NA
MAGNESIUM	NC	NC	NA	NA	NA	NA	NA	NA
MANGANESE	180	420	NA	NA	NA	NA	NA	NA
MERCURY	1	2	NA	NA	NA	NA	NA	NA
NICKEL	150	400	NA	NA	NA	NA	NA	NA
POTASSIUM	NC	NC	NA	NA	NA	NA	NA	NA
SELENIUM	39	5.2	NA	NA	NA	NA	NA	NA
VANADIUM	39	1260	NA	NA	NA	NA	NA	NA
ZINC	2300	5800	NA	NA	NA	NA	NA	NA

TABLE 5-3

CHEMICALS DETECTED IN SUBSURFACE SOIL SAMPLES
SWMU 11 RFI
NSA CRANE, CRANE INDIANA

LOCATION	Residential Direct Contact Screening Level (1)	Soil to Groundwater Screening Level (2)	11SB68		11SB69		11SB70	
SAMPLE ID			11SB68-1315	11SB68-1516	11SB69-1416	11SB69-1617	11SB70-1315	11SB70-1516
SAMPLE DATE			20130123	20130123	20130123	20130123	20130123	20130123
SAMPLE CODE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX			SO	SO	SO	SO	SO	SO
SAMPLE TYPE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX			SB	SB	SB	SB	SB	SB
TOP DEPTH			13	15	14	16	13	15
BOTTOM DEPTH	[R]	[SG]	15	16	16	17	15	16
VOLATILES (UG/KG)								
1,1-DICHLOROETHENE	24000	50	103 U	112 U	2.19 U	2.18 U	1.98 U	2.63 U
1,2-DICHLOROBENZENE	190000	11600	2750	3900	10.5	10.8	1.98 U	2.63 U
1,4-DICHLOROBENZENE	2400	1440	103 U	112 U	2.19 U	2.18 U	1.98 U	2.63 U
2-BUTANONE	2800000	20000	206 U	223 U	4.38 U	4.37 U	3.96 U	5.26 U
ACETONE	6100000	48000	412 UJ	447 UJ	17.7 J	8.73 UJ	13.2 J	10.5 UJ
BENZENE	1100	52	103 U	112 U	2.19 U	2.18 U	1.98 U	2.63 U
CHLOROBENZENE	29000	1360	57.3 J	88.9 J	10.5	7.12	1.02 J	2.63 U
CIS-1,2-DICHLOROETHENE	16000	420	**599 [SG]**	**706 [SG]**	7.72	17.9	1.98 U	2.63 U
ETHYLBENZENE	5400	15600	103 U	112 U	2.19 U	2.18 U	1.98 U	2.63 U
ISOPROPYLBENZENE	210000	12800	103 U	112 U	2.19 U	2.18 U	1.98 U	2.63 U
METHYL CYCLOHEXANE	NC	NC	103 U	112 U	2.19 U	1.59 J	1.98 U	2.63 U
METHYLENE CHLORIDE	56000	24	206 U	223 U	4.38 U	4.37 U	3.96 U	5.26 U
TETRACHLOROETHENE	22000	46	**427 [SG]**	**336 [SG]**	2.19 U	15.9	1.98 U	2.63 U
TOLUENE	500000	13800	103 U	112 U	2.19 U	2.18 U	1.98 U	2.63 U
TOTAL XYLENES	63000	196000	309 U	335 U	6.57 U	6.55 U	5.94 U	7.88 U
TRANS-1,2-DICHLOROETHENE	15000	580	103 U	112 U	2.19 U	2.18 U	1.98 U	2.63 U
TRICHLOROETHENE	910	36	**1290 [R][SG]**	**813 [SG]**	1.59 J	10.8	1.98 U	2.63 U
VINYL CHLORIDE	60	13.8	103 U	112 U	4.59 J	4.54 J	1.98 U	2.63 U
SEMIVOLATILES (UG/KG)								
DIETHYL PHTHALATE	4900000	94000	NA	NA	NA	NA	NA	NA
PESTICIDES (UG/KG)								
BETA-BHC	270	2.6	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	1600	2800	NA	NA	NA	NA	NA	NA
METALS (MG/KG)								
ALUMINUM	7700	460000	NA	NA	NA	NA	NA	NA
ARSENIC	0.61	5.8	NA	NA	NA	NA	NA	NA
BARIUM	1500	1640	NA	NA	NA	NA	NA	NA
BERYLLIUM	16	64	NA	NA	NA	NA	NA	NA
CALCIUM	NC	NC	NA	NA	NA	NA	NA	NA
CHROMIUM	NC	3600000	NA	NA	NA	NA	NA	NA
COBALT	2.3	4.2	NA	NA	NA	NA	NA	NA
COPPER	310	920	NA	NA	NA	NA	NA	NA
IRON	5500	5400	NA	NA	NA	NA	NA	NA
LEAD	400	280	NA	NA	NA	NA	NA	NA
MAGNESIUM	NC	NC	NA	NA	NA	NA	NA	NA
MANGANESE	180	420	NA	NA	NA	NA	NA	NA
MERCURY	1	2	NA	NA	NA	NA	NA	NA
NICKEL	150	400	NA	NA	NA	NA	NA	NA
POTASSIUM	NC	NC	NA	NA	NA	NA	NA	NA
SELENIUM	39	5.2	NA	NA	NA	NA	NA	NA
VANADIUM	39	1260	NA	NA	NA	NA	NA	NA
ZINC	2300	5800	NA	NA	NA	NA	NA	NA

TABLE 5-3

CHEMICALS DETECTED IN SUBSURFACE SOIL SAMPLES
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

Footnotes:
1 - Value presented is the lower of the USEPA Residential RSL (noncarcinogens have been adjusted by a factor of 10) (USEPA, 2013) and the IDEM 2013 Residential Direct Contact Risk-Screening Level (IDEM, 2013).
2 - Value presented in the following hierarchy: 1) EPA MCL Based SSL (representative of a DAF of 20) (USEPA, 2013), 2) EPA Risk-Bassed SSL (representative of a DAF of 20).

Acronyms:
DAF Dilution and Attenuation Factor
FOD Frequency of Detection
IDEM Indiana Department of Environmental Management
MCL Maximum Contaminant Level
mg/kg milligram per kilogram
NA not analyzed
NC no screening criteria available
RSL Regional Screening Level
SSL Soil Screening Level
ug/kg microgram per kilogram
USEPA United States Environmental Protection Agency

Data Qualifiers:
J Positive result is estimated.
U Chemical is not detected at the specified numerical limit
UJ Chemical is not detected and the specified numerical detection

Screening Level Qualifiers:
[R] Indicates exceedance of the Residential Direct Contact Screening Level
[SG] Indicates exceedance of the Soil to Groundwater Screening Level

TABLE 5-4

SUMMARY OF DESCRIPTIVE STATISTICS IN SUBSURFACE SOIL SAMPLES
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

Parameter	FOD	Minimum Detection	Maximum Detection	Sample ID of Maximum Detection	Range of Nondetects	Average of Detections	Overall Average	Standard Deviation	Residential Direct Contact Screening Level(1) [R]	No. of Samples > R	Soil to Groundwater Screening Level(2) [SG]	No. of Samples > SG
Volatile Organics (UG/KG)												
1,1-DICHLOROETHENE	2/83	1.67 J	1.9 J	11SB020406	1.98 - 465	1.79	14.4	33.7	24000	0	50	0
1,2-DICHLOROBENZENE	36/83	1.4 J	5870	11SB410204	1.98 - 465	723	320	1061	190000	0	11600	0
1,4-DICHLOROBENZENE	9/83	3.27 J	150 J	11SB410405	1.98 - 465	45.3	17.1	38.6	2400	0	1440	0
2-BUTANONE	6/83	2.76 J	9.34 J	11SB57-0406	2.87 - 929	5.04	29.0	67.2	2800000	0	20000	0
ACETONE	26/82	4.87 J	270 J	11SB340406	8.67 - 1860	31.9	64.0	134	6100000	0	48000	0
BENZENE	4/83	1.3 J	146 J	11SB360405	1.98 - 465	37.8	15.5	36.4	1100	0	52	1
CHLOROBENZENE	17/83	1.02 J	1670 J	11SB360405	2.17 - 465	188	47.6	199	29000	0	1360	1
CIS-1,2-DICHLOROETHENE	43/83	4.99	1700 J	11SB400506	1.98 - 136	197	106	260	16000	0	420	7
ETHYLBENZENE	3/83	1.94 J	6.21	11SB450506	1.98 - 465	3.84	14.5	33.6	5400	0	15600	0
ISOPROPYLBENZENE	2/83	1.38 J	3.24 J	11SB51-0204	1.98 - 465	2.31	14.5	33.7	210000	0	12800	0
METHYL CYCLOHEXANE	5/83	1.59 J	6.93	11SB65-0911	1.98 - 465	5.032	14.7	33.6	NC	0	NC	0
METHYLENE CHLORIDE	6/83	2.63 J	883 J	11SB400506	3.96 - 272	275	37.6	111	56000	0	24	4
TETRACHLOROETHENE	36/83	1.57 J	31200	11SB400506	1.98 - 136	1128	495	3435	22000	1	46	18
TOLUENE	6/83	1.28 J	10.6	11SB020406	1.98 - 465	4.31	14.7	33.6	500000	0	13800	0
TOTAL XYLENES	3/83	4.45 J	20.5	11SB52-0506	5.94 - 1390	10.5	43.5	101	63000	0	196000	0
TRANS-1,2-DICHLOROETHENE	8/83	1.45 J	75.6	11SB64-0911	1.98 - 465	14.0	15.7	34.2	15000	0	580	0
TRICHLOROETHENE	42/83	1.5 J	1290	11SB68-1315	1.98 - 136	163	86.5	223	910	1	36	20
VINYL CHLORIDE	23/83	1.58 J	154	11SB020406	1.98 - 465	29.4	20.8	40.7	60	6	13.8	6
Semivolatile Organics (UG/KG)												
DIETHYL PHTHALATE	1/7	300 J	300 J	11SB010406	186 - 226	300	128	76.1	4900000	0	94000	0
Pesticides (UG/KG)												
BETA-BHC	1/4	0.488 J	0.488 J	11SB030406	0.377 - 0.437	0.488	0.274	0.143	270	0	2.6	0
GAMMA-CHLORDANE	1/4	0.355 J	0.355 J	11SB030406	0.377 - 0.437	0.355	0.241	0.077	1600	0	2800	0
Inorganics (MG/KG)												
ALUMINUM	4/4	8150	15400	11SB020406	-	12462.5	12463	3142	7700	4	460000	0
ARSENIC	4/4	2.49	20.4	11SB020406	-	8.88	8.9	7.9	0.61	4	5.8	3
BARIUM	4/4	49.1	60.9	11SB030406	-	54.2	54.2	4.92	1500	0	1640	0
BERYLLIUM	4/4	0.392 J	0.827 J	11SB020406	-	0.586	0.586	0.180	16	0	64	0
CALCIUM	4/4	168 J	688	11SB030406	-	396	396	220	NC	0	NC	0
CHROMIUM	4/4	13.8	74.9	11SB020406	-	33.9	33.9	27.9	NC	0	3600000	0
COBALT	4/4	1.88	5.73	11SB040406	-	3.33	3.33	1.68	2.30	3	4.2	1
COPPER	4/4	6.05	12.7	11SB010406	-	9.0325	9.0	2.98	310	0	920	0
IRON	4/4	11400	75600	11SB020406	-	32275	32275	29240	5500	4	5400	4
LEAD	4/4	6.76	28.5 J	11SB020406	-	15.2	15.2	9.5	400	0	280	0
MAGNESIUM	4/4	792	1460	11SB010406	-	1046	1046	293	NC	0	NC	0
MANGANESE	4/4	12.5	593	11SB040406	-	195	195	268	180	1	420	1
MERCURY	2/4	0.0203 J	0.025 J	11SB040406	0.0337 - 0.0353	0.023	0.020	0.004	1	0	2	0

TABLE 5-4

SUMMARY OF DESCRIPTIVE STATISTICS IN SUBSURFACE SOIL SAMPLES
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

Parameter	FOD	Minimum Detection	Maximum Detection	Sample ID of Maximum Detection	Range of Nondetects	Average of Detections	Overall Average	Standard Deviation	Residential Direct Contact Screening Level[1] [R]	No. of Samples > R	Soil to Groundwater Screening Level[2] [SG]	No. of Samples > SG
NICKEL	4/4	5.71	9.71	11SB020406	-	7.89	7.89	2.04	150	0	400	0
POTASSIUM	4/4	294 J	643	11SB010406	-	457	457	148	NC	0	NC	0
SELENIUM	1/4	1.26 J	1.26 J	11SB020406	0.559 - 0.59	1.26	0.532	0.485	39	0	5.2	0
VANADIUM	4/4	17.6	86.2	11SB020406	-	42.3	42.3	30.1	39	**1**	1260	0
ZINC	4/4	11.1	27.1	11SB010406	-	17.4	17.4	7.7	2300	0	5800	0

Footnotes:
1 - Value presented is the lower of the USEPA Residential RSL (noncarcinogens have been adjusted by a factor of 10) (USEPA, 2013) and the IDEM 2013 Residential Direct Contact Risk-Screening Level (IDEM, 2013).
2 - Value presented in the following hierarchy: 1) EPA MCL Based SSL (representative of a DAF of 20) (USEPA, 2013), 2) EPA Risk-Bassed SSL (representative of a DAF of 20).

Acronyms:
DAF Dilution and Attenuation Factor
FOD Frequency of Detection
IDEM Indiana Department of Environmental Management
MCL Maximum Contaminant Level
mg/kg milligram per kilogram
NC no screening criteria available
RSL Regional Screening Level
SSL Soil Screening Level
ug/kg microgram per kilogram
USEPA United States Environmental Protection Agency

Associated Samples:

11SB010406	11SB360405	11SB440406	11SB51-0506	11SB68-1315
11SB020406	11SB370103	11SB440607	11SB52-0204	11SB68-1516
11SB030406	11SB370304	11SB450204	11SB52-0506	11SB69-1416
11SB040406	11SB380406	11SB450506	11SB53-0204	11SB69-1617
11SB250507	11SB380607	11SB460305	11SB53-0506	11SB70-1315
11SB260507	11SB390406	11SB460506	11SB54-0204	11SB70-1516
11SB270507	11SB390708	11SB470103	11SB63-1112	
11SB280507	11SB400305	11SB470304	11SB64-0911	
11SB330406	11SB400506	11SB480305	11SB64-1112	
11SB330607	11SB410204	11SB480506	11SB65-0911	
11SB340406	11SB410405	11SB490204	11SB65-1112	
11SB340708	11SB420102	11SB490405	11SB66-1315	
11SB350305	11SB420203	11SB500305	11SB66-1516	
11SB350506	11SB430406	11SB500506	11SB67-1416	
11SB360204	11SB430809	11SB51-0204	11SB67-1617	

TABLE 5-5

SUMMARY OF CHEMICALS DETECTED IN SEDIMENT
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION			11SD01		11SD02		11SD03	
SAMPLE ID			11SD010006	11SD010612	11SD020006	11SD020612	11SD030006	11SD030612
SAMPLE DATE		EPA	20110428	20110428	20110428	20110428	20110428	20110428
SAMPLE CODE		RSL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX	Sed	Residential	SD	SD	SD	SD	SD	SD
SAMPLE TYPE	Eco	Soil	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX	Criteria[1]	adjusted[2]	SD	SD	SD	SD	SD	SD
TOP DEPTH			0	0.5	0	0.5	0	0.5
BOTTOM DEPTH			0.5	1	0.5	1	0.5	1
DIOXINS/FURANS (NG/KG)								
1,2,3,4,6,7,8,9-OCDD	3.3	15000 C	NA	NA	2240 [E]	2710 [E]	NA	NA
1,2,3,4,6,7,8,9-OCDF	0.0129	15000 C	NA	NA	192 J [E]	219 [E]	NA	NA
1,2,3,4,6,7,8-HPCDD	3.3	450 C	NA	NA	243 J [E]	260 [E]	NA	NA
1,2,3,4,6,7,8-HPCDF	0.0129	450 C	NA	NA	35.3 J [E]	37.2 [E]	NA	NA
1,2,3,4,7,8,9-HPCDF	0.0129	450 C	NA	NA	2.15 J [E]	2.75 J [E]	NA	NA
1,2,3,4,7,8-HXCDD	3.3	45 C	NA	NA	4.87 [E]	4.48 J [E]	NA	NA
1,2,3,4,7,8-HXCDF	0.0129	45 C	NA	NA	1.09 J [E]	1.2 J [E]	NA	NA
1,2,3,6,7,8-HXCDD	3.3	45 C	NA	NA	7.26 [E]	8.28 [E]	NA	NA
1,2,3,6,7,8-HXCDF	0.0129	45 C	NA	NA	1.01 J [E]	1.07 J [E]	NA	NA
1,2,3,7,8,9-HXCDD	3.3	45 C	NA	NA	4.47 J [E]	4.62 J [E]	NA	NA
1,2,3,7,8-PECDD	3.3	4.5 C	NA	NA	1.38 J	1.08 J	NA	NA
1,2,3,7,8-PECDF	0.0129	150 C	NA	NA	1.02 J [E]	0.562 J [E]	NA	NA
2,3,4,6,7,8-HXCDF	0.0129	45 C	NA	NA	1.36 J [E]	1.15 J [E]	NA	NA
2,3,4,7,8-PECDF	0.0129	15 C	NA	NA	0.559 J [E]	0.48 J [E]	NA	NA
2,3,7,8-TCDD	0.12	4.5 C	NA	NA	0.494 J [E]	0.65 U	NA	NA
TEQ FISH	NA	NA	NA	NA	5.96	5.01	NA	NA
TEQ FISH HALFND	NA	NA	NA	NA	6.13	5.51	NA	NA
TEQ EQUIVALENTS	NA	NA	NA	NA	7.61	7.20	NA	NA
TEQ EQUIVALENTS - HALFND	NA	NA	NA	NA	7.80	7.72	NA	NA
TOTAL HPCDD	NC	94 C	NA	NA	487 J [R]	489 [R]	NA	NA
TOTAL HPCDF	NC	NC	NA	NA	147 J	150	NA	NA
TOTAL HXCDD	NC	NC	NA	NA	71.6 J	67.5	NA	NA
TOTAL HXCDF	NC	NC	NA	NA	31.8 J	33.7	NA	NA
TOTAL PECDD	NC	NC	NA	NA	9.64 J	9.47	NA	NA
TOTAL PECDF	NC	NC	NA	NA	9.89 J	7.86	NA	NA
TOTAL TCDD	NC	NC	NA	NA	0.607 U	0.65 U	NA	NA
TOTAL TCDF	NC	NC	NA	NA	2.1 U	1.94 U	NA	NA
METALS (MG/KG)								
ALUMINUM	NC	7700 N	7560	7950 [R]	6800 J	11300 [R]	6500	11100 [R]
ANTIMONY	2	3.1 N	1.15 UJ	0.637 J	1.04 U	0.971 U	1.05 U	0.929 U
ARSENIC	9.79	0.61 C	18.5 [R][E]	15.2 [R][E]	20.6 [R][E]	15.1 [R][E]	14.3 [R][E]	15 [R][E]
BARIUM	NC	1500 N	163	109	129	89.1	104	66.3
BERYLLIUM	NC	16 N	0.551 J	0.558	0.804	0.894	0.786	0.989
CADMIUM	0.99	7 N	2.6 J [E]	2.48 J [E]	0.95 J	0.338 J	0.554 J	0.195 J
CALCIUM	NC	NC	55500	33900	46000 J	1880	5160	3360
CHROMIUM	43.4	NC	85.1 [E]	132 [E]	67.4 [E]	44.9 [E]	66.7 [E]	42.3
COBALT	50	2.3 N	18.6 [R]	17.3 [R]	17.6 [R]	13.5 [R]	14.4 [R]	14.7 [R]

TABLE 5-5

SUMMARY OF CHEMICALS DETECTED IN SEDIMENT
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION			11SD01		11SD02		11SD03	
SAMPLE ID			11SD010006	11SD010612	11SD020006	11SD020612	11SD030006	11SD030612
SAMPLE DATE		EPA	20110428	20110428	20110428	20110428	20110428	20110428
SAMPLE CODE		RSL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX	Sed	Residential	SD	SD	SD	SD	SD	SD
SAMPLE TYPE	Eco	Soil	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX	Criteria[1]	adjusted[2]	SD	SD	SD	SD	SD	SD
TOP DEPTH			0	0.5	0	0.5	0	0.5
BOTTOM DEPTH			0.5	1	0.5	1	0.5	1
COPPER	31.6	310 N	26.6	26.7	12	10.1	13.4	10.3
IRON	20000	5500 N	17700 [R]	18000 [R]	22200 J [R][E]	31000 [R][E]	16300 [R]	31500 [R][E]
LEAD	35.8	400	139 [E]	148 [E]	79.6 J [E]	28.2	40.8 [E]	21.3
MAGNESIUM	NC	NC	3050	3760	1580 J	837	998	820
MANGANESE	460	180 N	2030 J [R][E]	1060 J [R][E]	2190 J [R][E]	915 [R][E]	1510 [R][E]	597 [R][E]
MERCURY	0.174	1 N	0.115	0.153	0.056	0.0591	0.0558	0.0337 J
NICKEL	22.7	150 N	12.6	13.2	11.7	14.5	10.7	14.4
POTASSIUM	NC	NC	435 J	442 J	338 J	423 J	335 J	418 J
SELENIUM	2	39 N	0.722 J	0.774	0.447 J	0.607 U	0.568 J	0.451 J
SODIUM	NC	NC	215 J	93.4 J	390 U	364 U	394 U	348 U
THALLIUM	NC	0.078 N	0.656 J [R]	0.278 U	0.742 J [R]	0.485 U	0.516 J [R]	0.464 U
VANADIUM	NC	39 N	19.7 J	20.9 J	25.8 J	39.1 [R]	23.4	43.1 [R]
ZINC	121	2300 N	357 [E]	392 [E]	220 J [E]	88	105	54.2
MISCELLANEOUS PARAMETERS (MG/KG)								
CYANIDE	0.0001	2.2 N	0.383 UJ	0.349 U	0.395 J [E]	0.201 J [E]	0.266 J [E]	0.298 U
TOTAL ORGANIC CARBON	NC	NC	14400	7560	11000	7070	23500	15600
PCBS (UG/KG)								
AROCLOR-1260	59.8	220 C	48.5	11.1 U	12.7 J	7.95 J	10.3 J	9.47 U
PESTICIDES (UG/KG)								
4,4'-DDD	4.88	2000 C	0.328 J	1.13 J	0.422 U	0.418 U	0.445 U	0.386 U
4,4'-DDE	3.16	1400 C	0.47 U	3.09 J	0.422 U	0.418 U	0.445 U	0.386 U
4,4'-DDT	4.16	1700 C	0.47 U	1.45 J	0.422 U	0.418 U	0.445 U	0.386 U
ALPHA-BHC	6	77 C	2.39	2.02 J	0.422 U	0.418 U	2.2	1.46
ENDRIN	2.22	1800 N	0.637 J	0.747 J	0.411 UJ	0.42 UJ	0.445 UJ	0.379 UJ
GAMMA-CHLORDANE	4.5	1600 C	1.32	2.3	0.623 J	0.182 J	0.445 U	0.386 U
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)								
2-METHYLNAPHTHALENE	20.2	23000 N	23.6 U	22.7 U	4.16 U	4.14 U	4.3 U	3.69 U
ACENAPHTHYLENE	5.87	340000 N	27 J [E]	22.7 U	7.96 J [E]	6.11 J [E]	6.72 J [E]	3.69 U
ANTHRACENE	57.2	1700000 N	28.6 J	20.7 J	8.52	7.63 J	6.96 J	3.69 U
BENZO(A)ANTHRACENE	108	150 C	107	56.3	18.7	21.9	29.6	3.69 U
BENZO(A)PYRENE	150	15 C	136 [R]	84.4 [R]	32.6 J [R]	30 [R]	36.3 [R]	5.92 J
BENZO(B)FLUORANTHENE	10400	150 C	298 [R]	121	84.8 J	48.3	62.8	11.9
BENZO(G,H,I)PERYLENE	170	170000 N	121	81.3	45.7 J	28.4	25.8	6.61 J
BENZO(K)FLUORANTHENE	240	1500 C	95.1	49.2	27.2 J	23.5	24.7	5.11 J
CHRYSENE	166	15000 C	279 [E]	99	64.5 J	35.9	40.3	3.69 U
DIBENZO(A,H)ANTHRACENE	33	15 C	29.7 J [R]	22.7 U	14.6	9.83	11.3	3.69 U
FLUORANTHENE	423	230000 N	594 [E]	183	52.8 J	43.6	46.8	9.72
INDENO(1,2,3-CD)PYRENE	200	150 C	102	63.6	39.3 J	22.6	26.1	5.41 J

TABLE 5-5

SUMMARY OF CHEMICALS DETECTED IN SEDIMENT
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION			**11SD01**		**11SD02**		**11SD03**	
SAMPLE ID			**11SD010006**	**11SD010612**	**11SD020006**	**11SD020612**	**11SD030006**	**11SD030612**
SAMPLE DATE		EPA	**20110428**	**20110428**	**20110428**	**20110428**	**20110428**	**20110428**
SAMPLE CODE		RSL	**NORMAL**	**NORMAL**	**NORMAL**	**NORMAL**	**NORMAL**	**NORMAL**
MATRIX	Sed	Residential	**SD**	**SD**	**SD**	**SD**	**SD**	**SD**
SAMPLE TYPE	Eco	Soil	**NORMAL**	**NORMAL**	**NORMAL**	**NORMAL**	**NORMAL**	**NORMAL**
SUBMATRIX	Criteria[1]	adjusted[2]	**SD**	**SD**	**SD**	**SD**	**SD**	**SD**
TOP DEPTH			**0**	**0.5**	**0**	**0.5**	**0**	**0.5**
BOTTOM DEPTH			**0.5**	**1**	**0.5**	**1**	**0.5**	**1**
NAPHTHALENE	176	3600 C	23.6 U	15.7 J	3.01 J	2.38 J	4.3 U	3.69 U
PHENANTHRENE	204	170000 N	153 J	96 J	24.5 J	16.4 J	18.9 J	4.6 J
PYRENE	195	170000 N	**468 [E]**	173	46.2 J	42.1	50.1	11

TABLE 5-5

SUMMARY OF CHEMICALS DETECTED IN SEDIMENT
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION			11SD04		11SD05	11SD06
SAMPLE ID			11SD040006	11SD040612	11SD050006	11SD060006
SAMPLE DATE		EPA	20110428	20110428	20111117	20111117
SAMPLE CODE		RSL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX	Sed	Residential	SD	SD	SD	SD
SAMPLE TYPE	Eco	Soil	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX	Criteria(1)	adjusted(2)	SD	SD	SD	SD
TOP DEPTH			0	0.5	0	0
BOTTOM DEPTH			0.5	1	0.5	0.5
DIOXINS/FURANS (NG/KG)						
1,2,3,4,6,7,8,9-OCDD	3.3	15000 C	NA	NA	480 [E]	2290 [E]
1,2,3,4,6,7,8,9-OCDF	0.0129	15000 C	NA	NA	39.4 [E]	176 [E]
1,2,3,4,6,7,8-HPCDD	3.3	450 C	NA	NA	56.5 [E]	290 [E]
1,2,3,4,6,7,8-HPCDF	0.0129	450 C	NA	NA	8.87 [E]	35.2 [E]
1,2,3,4,7,8,9-HPCDF	0.0129	450 C	NA	NA	3.26 U	1.98 J [E]
1,2,3,4,7,8-HXCDD	3.3	45 C	NA	NA	3.26 U	3.53 J [E]
1,2,3,4,7,8-HXCDF	0.0129	45 C	NA	NA	3.26 U	3.12 U
1,2,3,6,7,8-HXCDD	3.3	45 C	NA	NA	2.08 J	8.55 [E]
1,2,3,6,7,8-HXCDF	0.0129	45 C	NA	NA	3.26 U	3.12 U
1,2,3,7,8,9-HXCDD	3.3	45 C	NA	NA	3.26 U	4.42 J [E]
1,2,3,7,8-PECDD	3.3	4.5 C	NA	NA	3.26 U	3.12 U
1,2,3,7,8-PECDF	0.0129	150 C	NA	NA	3.26 U	3.12 U
2,3,4,6,7,8-HXCDF	0.0129	45 C	NA	NA	3.26 U	3.12 U
2,3,4,7,8-PECDF	0.0129	15 C	NA	NA	3.26 U	3.12 U
2,3,7,8-TCDD	0.12	4.5 C	NA	NA	0.65 U	0.657 J [E]
TEQ FISH	NA	NA	NA	NA	0.22	3.46
TEQ FISH HALFND	NA	NA	NA	NA	4.59	6.52
TEQ EQUIVALENTS	NA	NA	NA	NA	1.02	6.32
TEQ EQUIVALENTS - HALFND	NA	NA	NA	NA	4.54	9.05
TOTAL HPCDD	NC	94 C	NA	NA	111 [R]	622 [R]
TOTAL HPCDF	NC	NC	NA	NA	33	152
TOTAL HXCDD	NC	NC	NA	NA	13.8	73.1
TOTAL HXCDF	NC	NC	NA	NA	7.09	31.3
TOTAL PECDD	NC	NC	NA	NA	3.26 U	2.12 J
TOTAL PECDF	NC	NC	NA	NA	3.26 U	6.42
TOTAL TCDD	NC	NC	NA	NA	0.65 U	1.11
TOTAL TCDF	NC	NC	NA	NA	0.346 J	3.76
METALS (MG/KG)						
ALUMINUM	NC	7700 N	8000 [R]	8830 [R]	NA	NA
ANTIMONY	2	3.1 N	1.09 U	1.09 U	NA	NA
ARSENIC	9.79	0.61 C	18.1 [R][E]	27 [R][E]	NA	NA
BARIUM	NC	1500 N	114	255	NA	NA
BERYLLIUM	NC	16 N	0.94	1.21	NA	NA
CADMIUM	0.99	7 N	0.687 J	0.601 J	NA	NA
CALCIUM	NC	NC	4820	5550	NA	NA
CHROMIUM	43.4	NC	47.5 [E]	92.3 [E]	NA	NA
COBALT	50	2.3 N	18.8 [R]	28.3 [R]	NA	NA

TABLE 5-5

SUMMARY OF CHEMICALS DETECTED IN SEDIMENT
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION			11SD04		11SD05	11SD06
SAMPLE ID			11SD040006	11SD040612	11SD050006	11SD060006
SAMPLE DATE		EPA	20110428	20110428	20111117	20111117
SAMPLE CODE		RSL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX	Sed	Residential	SD	SD	SD	SD
SAMPLE TYPE	Eco	Soil	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX	Criteria(1)	adjusted(2)	SD	SD	SD	SD
TOP DEPTH			0	0.5	0	0
BOTTOM DEPTH			0.5	1	0.5	0.5
COPPER	31.6	310 N	13	19.7	NA	NA
IRON	20000	5500 N	**18600 [R]**	**37800 [R][E]**	NA	NA
LEAD	35.8	400	**41.3 [E]**	**44.1 [E]**	NA	NA
MAGNESIUM	NC	NC	1010	987	NA	NA
MANGANESE	460	180 N	**1730 [R][E]**	**4530 [R][E]**	NA	NA
MERCURY	0.174	1 N	0.0523	0.0388	NA	NA
NICKEL	22.7	150 N	12.8	16.6	NA	NA
POTASSIUM	NC	NC	370 J	381 J	NA	NA
SELENIUM	2	39 N	0.694 J	3.42 U	NA	NA
SODIUM	NC	NC	407 U	410 U	NA	NA
THALLIUM	NC	0.078 N	**0.487 J [R]**	2.73 U	NA	NA
VANADIUM	NC	39 N	24.5	**39.9 [R]**	NA	NA
ZINC	121	2300 N	**144 [E]**	**128 [E]**	NA	NA
MISCELLANEOUS PARAMETERS (MG/KG)						
CYANIDE	0.0001	2.2 N	0.357 U	**0.462 J [E]**	NA	NA
TOTAL ORGANIC CARBON	NC	NC	15000	12500	NA	NA
PCBS (UG/KG)						
AROCLOR-1260	59.8	220 C	11.2 U	10.9 U	NA	NA
PESTICIDES (UG/KG)						
4,4'-DDD	4.88	2000 C	0.457 U	0.447 U	NA	NA
4,4'-DDE	3.16	1400 C	0.457 U	0.447 U	NA	NA
4,4'-DDT	4.16	1700 C	0.457 U	0.447 U	NA	NA
ALPHA-BHC	6	77 C	2.02	1.61	NA	NA
ENDRIN	2.22	1800 N	0.448 UJ	0.459 UJ	NA	NA
GAMMA-CHLORDANE	4.5	1600 C	0.457 U	0.447 U	NA	NA
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)						
2-METHYLNAPHTHALENE	20.2	23000 N	4.45 U	2.85 J	NA	NA
ACENAPHTHYLENE	5.87	340000 N	4.45 U	4.49 J	NA	NA
ANTHRACENE	57.2	1700000 N	4.45 U	4.26 J	NA	NA
BENZO(A)ANTHRACENE	108	150 C	3.34 J	14.8	NA	NA
BENZO(A)PYRENE	150	15 C	5.01 J	**19.7 [R]**	NA	NA
BENZO(B)FLUORANTHENE	10400	150 C	7.48 J	38.1	NA	NA
BENZO(G,H,I)PERYLENE	170	170000 N	6.85 J	26.5	NA	NA
BENZO(K)FLUORANTHENE	240	1500 C	3.9 J	14.4	NA	NA
CHRYSENE	166	15000 C	5.68 J	39.3	NA	NA
DIBENZO(A,H)ANTHRACENE	33	15 C	4.45 U	14.5	NA	NA
FLUORANTHENE	423	230000 N	6.68 J	32.3	NA	NA
INDENO(1,2,3-CD)PYRENE	200	150 C	4.76 J	16.2	NA	NA

TABLE 5-5

SUMMARY OF CHEMICALS DETECTED IN SEDIMENT
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION			**11SD04**		**11SD05**	**11SD06**
SAMPLE ID			**11SD040006**	**11SD040612**	**11SD050006**	**11SD060006**
SAMPLE DATE		EPA	**20110428**	**20110428**	**20111117**	**20111117**
SAMPLE CODE		RSL	**NORMAL**	**NORMAL**	**NORMAL**	**NORMAL**
MATRIX	Sed	Residential	**SD**	**SD**	**SD**	**SD**
SAMPLE TYPE	Eco	Soil	**NORMAL**	**NORMAL**	**NORMAL**	**NORMAL**
SUBMATRIX	Criteria(1)	adjusted(2)	**SD**	**SD**	**SD**	**SD**
TOP DEPTH			**0**	**0.5**	**0**	**0**
BOTTOM DEPTH			**0.5**	**1**	**0.5**	**0.5**
NAPHTHALENE	176	3600 C	4.45 U	4.46 U	NA	NA
PHENANTHRENE	204	170000 N	3.25 J	9.75	NA	NA
PYRENE	195	170000 N	7.39 J	32.5	NA	NA

Shading indicates an exceedance of one or more criteria

Footnotes:

(1) USEPA Region 5 Ecological Sediment Screening Levels (USEPA, 2003), followed by USEPA Region 3 BTAG Freshwater Sediment Screening Levels (USEPA, 2006) if USEPA Region 5 value was not available.

(2) USEPA Residential Soil RSL Table, 2013. (Noncarcinogenic compounds are divided by 10 to correspond to a HI of 0.1).

(3) IDEM 2013 Residential Direct Contact Risk-Screening Level (IDEM, 2013)

Abbreviations:

C - Carcinogen

N - Noncarcinogen

TABLE 5-6

SUMMARY OF DESCRIPTIVE STATISTICS - SEDIMENT
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

Parameter	FOD	Minimum Detection	Maximum Detection	Sample ID of Maximum Detection	Range of Nondetects	Average of Positive Detections	Overall Average	Standard Deviation	Residential Direct Contact Screening Level (1) [R]	No. of Samples > R	Ecological Screening Level (3) [E]	No. of Samples > E
Dioxins/Furans (NG/KG)												
1,2,3,4,6,7,8,9-OCDD	4/4	480	2710	11SD020612	-	1930	1930	989.37691	15000	0	3.3	4
1,2,3,4,6,7,8,9-OCDF	4/4	39.4	219	11SD020612	-	156.6	156.6	80.123072	15000	0	0.0129	4
1,2,3,4,6,7,8-HPCDD	4/4	56.5	290	11SD060006	-	212.375	212.375	105.71769	450	0	3.3	4
1,2,3,4,6,7,8-HPCDF	4/4	8.87	37.2	11SD020612	-	29.1425	29.1425	13.546287	450	0	0.0129	4
1,2,3,4,7,8,9-HPCDF	3/4	1.98 J	2.75 J	11SD020612	3.26 - 3.26	2.29	2.1275	0.4680723	450	0	0.0129	3
1,2,3,4,7,8-HXCDD	3/4	3.53 J	4.87	11SD020006	3.26 - 3.26	4.29	3.6275	1.4456919	45	0	3.3	3
1,2,3,4,7,8-HXCDF	2/4	1.09 J	1.2 J	11SD020612	3.12 - 3.26	1.145	1.37	0.2652043	45	0	0.0129	2
1,2,3,6,7,8-HXCDD	4/4	2.08 J	8.55	11SD060006	-	6.5425	6.5425	3.0264212	45	0	3.3	3
1,2,3,6,7,8-HXCDF	2/4	1.01 J	1.07 J	11SD020612	3.12 - 3.26	1.04	1.3175	0.3226324	45	0	0.0129	2
1,2,3,7,8,9-HXCDD	3/4	4.42 J	4.62 J	11SD020612	3.26 - 3.26	4.50	3.785	1.439178	45	0	3.3	3
1,2,3,7,8-PECDD	2/4	1.08 J	1.38 J	11SD020006	3.12 - 3.26	1.23	1.4125	0.2454078	4.5	0	3.3	0
1,2,3,7,8-PECDF	2/4	0.562 J	1.02 J	11SD020006	3.12 - 3.26	0.791	1.193	0.5012478	150	0	0.0129	2
2,3,4,6,7,8-HXCDF	2/4	1.15 J	1.36 J	11SD020006	3.12 - 3.26	1.255	1.425	0.2161018	45	0	0.0129	2
2,3,4,7,8-PECDF	2/4	0.48 J	0.559 J	11SD020006	3.12 - 3.26	0.5195	1.05725	0.6224336	15	0	0.0129	2
2,3,7,8-TCDD	2/4	0.494 J	0.657 J	11SD060006	0.65 - 0.65	0.5755	0.45025	0.1592009	4.5	0	0.12	2
TEQ FISH	4/4	0.22	5.96	11SD020006	-	3.66326	3.66326	2.5179594	NA	NA	NA	NA
TEQ FISH HALFND	4/4	4.59	6.52	11SD060006	-	5.69	5.68739125	0.8430852	NA	NA	NA	NA
TEQ EQUIVALENTS	4/4	1.02	7.61	11SD020612	-	5.54	5.536895	3.0608456	NA	NA	NA	NA
TEQ EQUIVALENTS - HALFND	4/4	4.54	9.05	11SD060006	-	7.28	7.2751075	1.9243629	NA	NA	NA	NA
TOTAL HPCDD	4/4	111	622	11SD060006	-	427.25	427.25	220.09449	94	4	NC	NA
TOTAL HPCDF	4/4	33	152	11SD060006	-	120.5	120.5	58.369513	NC	NA	NC	NA
TOTAL HXCDD	4/4	13.8	73.1	11SD060006	-	56.5	56.5	28.564897	NC	NA	NC	NA
TOTAL HXCDF	4/4	7.09	33.7	11SD020612	-	25.9725	25.9725	12.630718	NC	NA	NC	NA
TOTAL PECDD	3/4	2.12 J	9.64 J	11SD020006	3.26 - 3.26	7.08	5.715	4.4391028	NC	NA	NC	NA
TOTAL PECDF	3/4	6.42	9.89 J	11SD020006	3.26 - 3.26	8.06	6.45	3.5144938	NC	NA	NC	NA
TOTAL TCDD	1/4	1.11	1.11	11SD060006	0.607 - 0.65	1.11	0.515875	0.396213	NC	NA	NC	NA
TOTAL TCDF	2/4	0.346 J	3.76	11SD060006	1.94 - 2.1	2.053	1.5315	1.5186339	NC	NA	NC	NA
Inorganics (MG/KG)												
ALUMINUM	8/8	6500	11300	11SD020612	-	8505	8505	1814.0247	7700	5	NC	0
ANTIMONY	1/8	0.637 J	0.637 J	11SD010612	0.929 - 1.15	0.637	0.537125	0.0533364	3.1	0	2	0
ARSENIC	8/8	14.3	27	11SD040612	-	17.975	17.975	4.2586886	0.61	8	9.79	8
BARIUM	8/8	66.3	255	11SD040612	-	128.675	128.675	58.314976	1500	0	NC	0
BERYLLIUM	8/8	0.551 J	1.21	11SD040612	-	0.8415	0.8415	0.220148	16	0	NC	0
CADMIUM	8/8	0.195 J	2.6 J	11SD010006	-	1.05	1.050625	0.9467804	7	0	0.99	2
CALCIUM	8/8	1880	55500	11SD010006	-	19521.25	19521.25	22013.992	NC	0	NC	0
CHROMIUM	8/8	42.3	132	11SD010612	-	72.275	72.275	30.352912	NC	0	43.4	7
COBALT	8/8	13.5	28.3	11SD040612	-	17.9	17.9	4.6561787	2.3	8	50	0
COPPER	8/8	10.1	26.7	11SD010612	-	16.475	16.475	6.9466847	310	0	31.6	0
IRON	8/8	16300	37800	11SD040612	-	24137.5	24137.5	8132.1123	5500	8	20000	4
LEAD	8/8	21.3	148	11SD010612	-	67.7875	67.7875	49.805434	400	0	35.8	6
MAGNESIUM	8/8	820	3760	11SD010612	-	1630.25	1630.25	1136.286	NC	0	NC	0
MANGANESE	8/8	597	4530	11SD040612	-	1820.25	1820.25	1226.0071	180	8	460	8
MERCURY	8/8	0.0337 J	0.153	11SD010612	-	0.07	0.0704625	0.0414611	1	0	0.174	0
NICKEL	8/8	10.7	16.6	11SD040612	-	13.3125	13.3125	1.8364854	150	0	22.7	0
POTASSIUM	8/8	335 J	442 J	11SD010612	-	392.75	392.75	42.680708	NC	0	NC	0
SELENIUM	6/8	0.447 J	0.774	11SD010612	0.607 - 3.42	0.61	0.7086875	0.4352567	39	0	2	0
SODIUM	2/8	93.4 J	215 J	11SD010006	348 - 410	154.2	183.1125	38.504747	NC	0	NC	0
THALLIUM	4/8	0.487 J	0.742 J	11SD020006	0.278 - 2.73	0.60	0.5474375	0.3931555	0.078	4	NC	0
VANADIUM	8/8	19.7 J	43.1	11SD030612	-	29.55	29.55	9.4955629	39	3	NC	0
ZINC	8/8	54.2	392	11SD010612	-	186.025	186.025	126.20688	2300	0	121	5

TABLE 5-6

SUMMARY OF DESCRIPTIVE STATISTICS - SEDIMENT
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

Parameter	FOD	Minimum Detection	Maximum Detection	Sample ID of Maximum Detection	Range of Nondetects	Average of Positive Detections	Overall Average	Standard Deviation	Residential Direct Contact Screening Level (1) [R]	No. of Samples > R	Ecological Screening Level (3) [E]	No. of Samples > E
Miscellaneous Parameters (MG/KG)												
CYANIDE	4/8	0.201 J	0.462 J	11SD040612	0.298 - 0.383	0.331	0.2521875	0.1152782	2.2	0	0.0001	4
TOTAL ORGANIC CARBON	8/8	7070	23500	11SD030006	-	13328.75	13328.75	5225.13	NC	NA	NC	NA
Polycyclic Aromatic Hydrocarbons (UG/KG)												
2-METHYLNAPHTHALENE	1/8	2.85 J	2.85 J	11SD040612	3.69 - 23.6	2.85	4.54625	4.3494883	23000	0	20.2	0
ACENAPHTHYLENE	5/8	4.49 J	27 J	11SD010006	3.69 - 22.7	10.456	8.4625	8.1000714	340000	0	5.87	4
ANTHRACENE	6/8	4.26 J	28.6 J	11SD010006	3.69 - 4.45	12.78	10.0925	9.5418829	1700000	0	57.2	0
BENZO(A)ANTHRACENE	7/8	3.34 J	107	11SD010006	3.69 - 3.69	35.95	31.685625	34.899691	150	0	108	0
BENZO(A)PYRENE	8/8	5.01 J	136	11SD010006	-	43.74125	43.74125	44.787866	15	6	150	0
BENZO(B)FLUORANTHENE	8/8	7.48 J	298	11SD010006	-	84.0475	84.0475	94.150398	150	1	10400	0
BENZO(G,H,I)PERYLENE	8/8	6.61 J	121	11SD010006	-	42.77	42.77	39.587266	170000	0	170	0
BENZO(K)FLUORANTHENE	8/8	3.9 J	95.1	11SD010006	-	30.38875	30.38875	29.827368	1500	0	240	0
CHRYSENE	7/8	5.68 J	279	11SD010006	3.69 - 3.69	80.53	70.690625	89.696306	15000	0	166	1
DIBENZO(A,H)ANTHRACENE	5/8	9.83	29.7 J	11SD010006	3.69 - 22.7	15.986	11.91875	8.7058538	15	1	33	0
FLUORANTHENE	8/8	6.68 J	594	11SD010006	-	121.1125	121.1125	198.94024	230000	0	423	1
INDENO(1,2,3-CD)PYRENE	8/8	4.76 J	102	11SD010006	-	35.00	34.99625	33.170309	150	0	200	0
NAPHTHALENE	3/8	2.38 J	15.7 J	11SD010612	3.69 - 23.6	7.03	5.1675	5.4087244	3600	0	176	0
PHENANTHRENE	8/8	3.25 J	153 J	11SD010006	-	40.8	40.8	54.328478	170000	0	204	0
PYRENE	8/8	7.39 J	468	11SD010006	-	103.78625	103.78625	156.03527	170000	0	195	1
PCB (UG/KG)												
AROCLOR-1260	4/8	7.95 J	48.5	11SD010006	9.47 - 11.2	19.8625	12.598125	14.77167	220	0	59.8	0
PEST (UG/KG)												
4,4'-DDD	2/8	0.328 J	1.13 J	11SD010612	0.386 - 0.457	0.729	0.3431875	0.3205764	2000	0	4.88	0
4,4'-DDE	1/8	3.09 J	3.09 J	11SD010612	0.386 - 0.47	3.09	0.5765625	1.0156667	1400	0	3.16	0
4,4'-DDT	1/8	1.45 J	1.45 J	11SD010612	0.386 - 0.47	1.45	0.3715625	0.4359517	1700	0	4.16	0
ALPHA-BHC	6/8	1.46	2.39	11SD010006	0.418 - 0.422	1.95	1.515	0.85882	77	0	6	0
ENDRIN	2/8	0.637 J	0.747 J	11SD010612	0.379 - 0.459	0.692	0.333125	0.2237961	1800	0	2.22	0
GAMMA-CHLORDANE	4/8	0.182 J	2.3	11SD010612	0.386 - 0.457	1.10625	0.6615625	0.7691603	1800	0	4.5	0

TABLE 5-7

CHEMICALS DETECTED IN GROUNDWATER SAMPLES
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION				**11MWT01**		**11MWT02**	
SAMPLE ID				**11MWT0101**	**11MWT0102**	**11MWT0201**	**11MWT0202**
SAMPLE DATE	EPA	Federal	EPA	**20111212**	**20121128**	**20111214**	**20121129**
SAMPLE CODE	Tapwater	MCL	Vapor	**NORMAL**	**NORMAL**	**NORMAL**	**NORMAL**
MATRIX	RSL		Intrusion	**GW**	**GW**	**GW**	**GW**
SAMPLE TYPE	[T]	[M]	[V]	**NORMAL**	**NORMAL**	**NORMAL**	**NORMAL**
VOLATILES (UG/L)							
1,2-DICHLOROBENZENE	28	600	270	0.5 U	0.5 U	0.5 U	0.5 U
ACETONE	1200	NC	2300000	5 U	5 U	3.4 J	5 U
BENZENE	0.39	5	1.4	0.5 U	0.5 U	**3.23 [T][V]**	0.5 U
CARBON DISULFIDE	72	NC	120	0.394 J	0.5 U	0.5 U	0.5 U
CHLOROFORM	0.19	80	0.71	0.5 U	0.5 U	**0.936 J[T][V]**	0.5 U
CIS-1,2-DICHLOROETHENE	2.8	70	NC	0.5 U	0.5 U	**27.6 [T]**	**5.1 [T]**
ETHYLBENZENE	1.3	700	3	0.5 U	0.5 U	0.43 J	0.5 U
TETRACHLOROETHENE	3.5	5	5.8	0.5 U	0.5 U	**25.5 [T][M][V]**	**11 [T][M][V]**
TOLUENE	86	1000	1900	100 U	0.5 U	3.87 J	0.5 U
TOTAL XYLENES	19	10000	49	0.5 U	0.5 U	0.884 J	0.5 U
TRANS-1,2-DICHLOROETHENE	8.6	100	38	0.5 U	0.5 U	0.361 J	0.5 U
TRICHLOROETHENE	0.26	5	0.52	0.5 U	0.5 U	**115 [T][M][V]**	**25.5 [T][M][V]**
VINYL CHLORIDE	0.015	2	0.14	0.5 U	0.5 U	**0.503 J[T][V]**	0.5 U
METALS (UG/L)							
ARSENIC	0.045	10	NC	NA	NA	NA	NA
BARIUM	290	2000	NC	NA	NA	NA	NA
DISSOLVED METALS (UG/L)							
ARSENIC	0.045	10	NC	NA	NA	NA	NA
BARIUM	290	2000	NC	NA	NA	NA	NA
CHROMIUM	NC	100	NC	NA	NA	NA	NA

TABLE 5-7

CHEMICALS DETECTED IN GROUNDWATER SAMPLES
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION				**11MWT03**		**11MWT04**	**11MWT05**
SAMPLE ID				**11MWT0301**	**11MWT0302**	**11MWT0401**	**11MWT0501**
SAMPLE DATE	EPA	Federal	EPA	**20111214**	**20121129**	**20111215**	**20121127**
SAMPLE CODE	Tapwater	MCL	Vapor	**NORMAL**	**NORMAL**	**NORMAL**	**ORIG**
MATRIX	RSL		Intrusion	**GW**	**GW**	**GW**	**GW**
SAMPLE TYPE	[T]	[M]	[V]	**NORMAL**	**NORMAL**	**NORMAL**	**NORMAL**
VOLATILES (UG/L)							
1,2-DICHLOROBENZENE	28	600	270	0.5 U	0.5 U	0.5 U	0.99 J
ACETONE	1200	NC	2300000	5 U	5 U	5 U	2.74 J
BENZENE	0.39	5	1.4	**1.4 [T]**	0.5 U	0.5 U	0.5 U
CARBON DISULFIDE	72	NC	120	0.5 U	0.5 U	0.5 U	1.32
CHLOROFORM	0.19	80	0.71	**1.29 [T][V]**	**0.63 J[T]**	0.5 U	0.5 U
CIS-1,2-DICHLOROETHENE	2.8	70	NC	0.5 U	0.5 U	0.5 U	**3.05 [T]**
ETHYLBENZENE	1.3	700	3	0.276 J	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	3.5	5	5.8	0.5 U	0.5 U	0.5 U	**5.54 [T][M]**
TOLUENE	86	1000	1900	2.04	0.5 U	0.286 J	0.42 J
TOTAL XYLENES	19	10000	49	0.563 J	0.5 U	0.5 U	0.5 U
TRANS-1,2-DICHLOROETHENE	8.6	100	38	0.5 U	0.5 U	0.5 U	0.5 U
TRICHLOROETHENE	0.26	5	0.52	0.255 J	0.5 U	0.5 U	**3.35 [T][V]**
VINYL CHLORIDE	0.015	2	0.14	0.5 U	0.5 U	0.5 U	0.5 U
METALS (UG/L)							
ARSENIC	0.045	10	NC	NA	NA	NA	NA
BARIUM	290	2000	NC	NA	NA	NA	NA
DISSOLVED METALS (UG/L)							
ARSENIC	0.045	10	NC	NA	NA	NA	NA
BARIUM	290	2000	NC	NA	NA	NA	NA
CHROMIUM	NC	100	NC	NA	NA	NA	NA

TABLE 5-7

CHEMICALS DETECTED IN GROUNDWATER SAMPLES
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION				**11MWT06**	**18CMWT001**	
SAMPLE ID				**11MWT0601**	**18CGWT001**	**18CMWT00102**
SAMPLE DATE	EPA	Federal	EPA	**20121127**	**20111217**	**20121128**
SAMPLE CODE	Tapwater	MCL	Vapor	**NORMAL**	**NORMAL**	**NORMAL**
MATRIX	RSL		Intrusion	**GW**	**GW**	**GW**
SAMPLE TYPE	[T]	[M]	[V]	**NORMAL**	**NORMAL**	**NORMAL**
VOLATILES (UG/L)						
1,2-DICHLOROBENZENE	28	600	270	0.5 U	0.5 U	0.5 U
ACETONE	1200	NC	2300000	3.9 J	5 U	5 U
BENZENE	0.39	5	1.4	0.5 U	0.5 U	0.5 U
CARBON DISULFIDE	72	NC	120	0.5 U	0.5 U	0.5 U
CHLOROFORM	0.19	80	0.71	**0.32 J[T]**	0.5 U	0.5 U
CIS-1,2-DICHLOROETHENE	2.8	70	NC	0.5 U	0.5 U	0.5 U
ETHYLBENZENE	1.3	700	3	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	3.5	5	5.8	0.5 U	0.5 U	0.5 U
TOLUENE	86	1000	1900	0.5 U	0.5 U	0.5 U
TOTAL XYLENES	19	10000	49	0.5 U	1.5 U	0.5 U
TRANS-1,2-DICHLOROETHENE	8.6	100	38	0.5 U	0.5 U	0.5 U
TRICHLOROETHENE	0.26	5	0.52	0.5 U	0.5 U	0.5 U
VINYL CHLORIDE	0.015	2	0.14	0.5 U	0.5 U	0.5 U
METALS (UG/L)						
ARSENIC	0.045	10	NC	NA	**1.79 J[T]**	NA
BARIUM	290	2000	NC	NA	14 J	NA
DISSOLVED METALS (UG/L)						
ARSENIC	0.045	10	NC	NA	**1.62 J[T]**	NA
BARIUM	290	2000	NC	NA	14.3	NA
CHROMIUM	NC	100	NC	NA	2.94	NA

TABLE 5-7

SUMMARY OF CHEMICALS DETECTED IN GROUNDWATER
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

Footnotes:
1 - Value presented is the USEPA Tapwater RSL (noncarcinogens have been adjusted by a factor of 10 to account for additive effects) (USEPA, 2013).
2 - Value presented is the Federal Maximum Contaminant Level (USEPA, 2013).
3 - Value presented are the Target groundwater concentration for Indoor Air (USEPA 2013) (noncarcinogens have been adjusted by a factor of 10 to account for additive effects).

Acronyms:
MCL Maximum Contaminant Level
NA not analyzed
NC no screening criteria available
RSL Regional Screening Level
ug/L micrograms per liter
USEPA United States Environmental Protection Agency

Data Qualifiers:
J Positive result is estimated.
U Chemical is not detected at the specified numerical limit
UJ Chemical is not detected and the specified numerical detection

Screening Level Qualifiers:
[M] Indicates exceedance of the Federal MCL
[T] Indicates exceedance of the USEPA Tapwater RSL
[V] Indicates exceedance of the USEPA Vapor Intrusion Values

TABLE 5-8

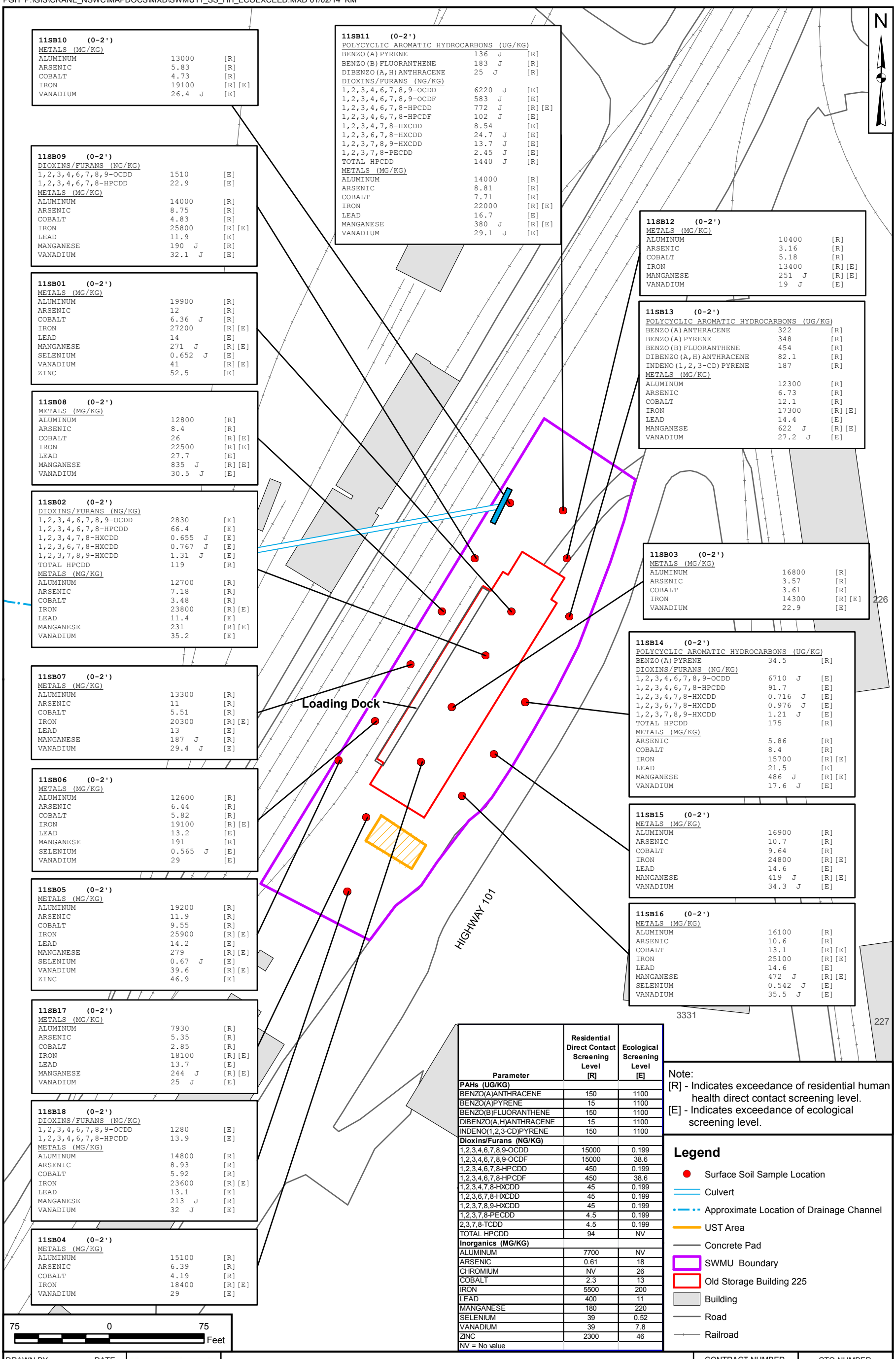
SUMMARY OF DESCRIPTIVE STATISTICS IN GROUNDWATER
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

Parameter	FOD	Minimum Detection	Maximum Detection	Sample ID of Maximum Detection	Range of Nondetects	Average of Detections	Overall Average	Standard Deviation	Tapwater RSL [T]	No. of Samples > T	Federal MCL [M]	No. of Samples > M	Vapor Intrusion Screening Value [V]	No. of Samples > V
Volatile Organics (UG/L)														
1,2-DICHLOROBENZENE	1/11	0.99 J	0.99 J	11MWT0501	0.5 - 0.5	0.99	0.317	0.223	28	0	600	0	270	0
ACETONE	3/11	2.74 J	3.9 J	11MWT0601	5 - 5	3.35	2.73	0.473	1200	0	NC	0	2300000	0
BENZENE	2/11	1.4	3.23	11MWT0201	0.5 - 0.5	2.32	0.625	0.930	0.39	**2**	5	0	1.4	**1**
CARBON DISULFIDE	2/11	0.394 J	1.32	11MWT0501	0.5 - 0.5	0.857	0.360	0.321	72	0	NC	0	120	0
CHLOROFORM	4/11	0.32 J	1.29	11MWT0301	0.5 - 0.5	0.794	0.448	0.357	0.19	**4**	80	0	0.71	**2**
CIS-1,2-DICHLOROETHENE	3/11	3.05	27.6	11MWT0201	0.5 - 0.5	11.9	3.43	8.17	2.8	**3**	70	0	NC	0
ETHYLBENZENE	2/11	0.276 J	0.43 J	11MWT0201	0.5 - 0.5	0.353	0.269	0.054	1.3	0	700	0	3	0
TETRACHLOROETHENE	3/11	5.54	25.5	11MWT0201	0.5 - 0.5	14.0	4.00	7.91	3.5	**3**	5	**3**	5.8	**2**
TOLUENE	4/11	0.286 J	3.87 J	11MWT0201	0.5 - 0.5	1.65	0.761	1.16	86	0	1000	0	1900	0
TOTAL XYLENES	2/11	0.563 J	0.884 J	11MWT0201	0.5 - 1.5	0.724	0.382	0.237	19	0	10000	0	49	0
TRANS-1,2-DICHLOROETHENE	1/11	0.361 J	0.361 J	11MWT0201	0.5 - 0.5	0.361	0.260	0.033	8.6	0	100	0	38	0
TRICHLOROETHENE	4/11	0.255 J	115	11MWT0201	0.5 - 0.5	36.0	13.3	34.6	0.26	**3**	5	**2**	0.52	**3**
VINYL CHLORIDE	1/11	0.503 J	0.503 J	11MWT0201	0.5 - 0.5	0.503	0.273	0.076	0.015	**1**	2	0	0.14	**1**
Inorganics (UG/L)														
ARSENIC	1/1	1.79 J	1.79 J	18CGWT001	-	1.79	1.79		0.045	**1**	10	0	NC	0
BARIUM	1/1	14 J	14 J	18CGWT001	-	14	14		290	0	2000	0	NC	0
Filtered Inorganics (UG/L)														
ARSENIC	1/1	1.62 J	1.62 J	18CGWT001	-	1.62	1.62		0.045	**1**	10	0	NC	0
BARIUM	1/1	14.3	14.3	18CGWT001	-	14.3	14.3		290	0	2000	0	NC	0
CHROMIUM	1/1	2.94	2.94	18CGWT001	-	2.94	2.94		NC	0	100	0	NC	0

Footnotes:
1 - Value presented is the USEPA Tapwater RSL (noncarcinogens have been adjusted by a factor of 10 to account for additive effects) (USEPA, 2013).
2 - Value presented is the Federal Maximum Contaminant Level (USEPA, 2013).
3 - Value presented are the Target groundwater concentration for Indoor Air (USEPA 2013) (noncarcinogens have been adjusted by a factor of 10 to account for additive effects).

Acronyms:
MCL Maximum Contaminant Level
NA not analyzed
NC no screening criteria available
RSL Regional Screening Level
ug/L micrograms per liter
USEPA United States Environmental Protection Agency

PGH P:\GIS\CRANE_NSWC\MAPDOCS\MXD\SWMU11_SS_HH_ECOEXCEED.MXD 01/02/14 KM



11SB10 (0-2')

METALS (MG/KG)		
ALUMINUM	13000	[R]
ARSENIC	5.83	[R]
COBALT	4.73	[R]
IRON	19100	[R][E]
VANADIUM	26.4 J	[E]

11SB09 (0-2')

DIOXINS/FURANS (NG/KG)		
1,2,3,4,6,7,8,9-OCDD	1510	[E]
1,2,3,4,6,7,8-HPCDD	22.9	[E]
METALS (MG/KG)		
ALUMINUM	14000	[R]
ARSENIC	8.75	[R]
COBALT	4.83	[R]
IRON	25800	[R][E]
LEAD	11.9	[E]
MANGANESE	190 J	[R]
VANADIUM	32.1 J	[E]

11SB01 (0-2')

METALS (MG/KG)		
ALUMINUM	19900	[R]
ARSENIC	12	[R]
COBALT	6.36 J	[R]
IRON	27200	[R][E]
LEAD	14	[E]
MANGANESE	271 J	[R][E]
SELENIUM	0.652 J	[E]
VANADIUM	41	[R][E]
ZINC	52.5	[E]

11SB08 (0-2')

METALS (MG/KG)		
ALUMINUM	12800	[R]
ARSENIC	8.4	[R]
COBALT	26	[R][E]
IRON	22500	[R][E]
LEAD	27.7	[E]
MANGANESE	835 J	[R][E]
VANADIUM	30.5 J	[E]

11SB02 (0-2')

DIOXINS/FURANS (NG/KG)		
1,2,3,4,6,7,8,9-OCDD	2830	[E]
1,2,3,4,6,7,8-HPCDD	66.4	[E]
1,2,3,4,7,8-HXCDD	0.655 J	[E]
1,2,3,6,7,8-HXCDD	0.767 J	[E]
1,2,3,7,8,9-HXCDD	1.31 J	[E]
TOTAL HPCDD	119	[R]
METALS (MG/KG)		
ALUMINUM	12700	[R]
ARSENIC	7.18	[R]
COBALT	3.48	[R]
IRON	23800	[R][E]
LEAD	11.4	[E]
MANGANESE	231	[R][E]
VANADIUM	35.2	[E]

11SB07 (0-2')

METALS (MG/KG)		
ALUMINUM	13300	[R]
ARSENIC	11	[R]
COBALT	5.51	[R]
IRON	20300	[R][E]
LEAD	13	[E]
MANGANESE	187 J	[R]
VANADIUM	29.4 J	[E]

11SB06 (0-2')

METALS (MG/KG)		
ALUMINUM	12600	[R]
ARSENIC	6.44	[R]
COBALT	5.82	[R]
IRON	19100	[R][E]
LEAD	13.2	[E]
MANGANESE	191	[R]
SELENIUM	0.565 J	[E]
VANADIUM	29	[E]

11SB05 (0-2')

METALS (MG/KG)		
ALUMINUM	19200	[R]
ARSENIC	11.9	[R]
COBALT	9.55	[R]
IRON	25900	[R][E]
LEAD	14.2	[E]
MANGANESE	279	[R][E]
SELENIUM	0.67 J	[E]
VANADIUM	39.6	[R][E]
ZINC	46.9	[E]

11SB17 (0-2')

METALS (MG/KG)		
ALUMINUM	7930	[R]
ARSENIC	5.35	[R]
COBALT	2.85	[R]
IRON	18100	[R][E]
LEAD	13.7	[E]
MANGANESE	244 J	[R][E]
VANADIUM	25 J	[E]

11SB18 (0-2')

DIOXINS/FURANS (NG/KG)		
1,2,3,4,6,7,8,9-OCDD	1280	[E]
1,2,3,4,6,7,8-HPCDD	13.9	[E]
METALS (MG/KG)		
ALUMINUM	14800	[R]
ARSENIC	8.93	[R]
COBALT	5.92	[R]
IRON	23600	[R][E]
LEAD	13.1	[E]
MANGANESE	213 J	[R]
VANADIUM	32 J	[E]

11SB04 (0-2')

METALS (MG/KG)		
ALUMINUM	15100	[R]
ARSENIC	6.39	[R]
COBALT	4.19	[R]
IRON	18400	[R][E]
VANADIUM	29	[E]

11SB11 (0-2')

POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)		
BENZO(A)PYRENE	136 J	[R]
BENZO(B)FLUORANTHENE	183 J	[R]
DIBENZO(A,H)ANTHRACENE	25 J	[R]
DIOXINS/FURANS (NG/KG)		
1,2,3,4,6,7,8,9-OCDD	6220 J	[E]
1,2,3,4,6,7,8,9-OCDF	583 J	[E]
1,2,3,4,6,7,8-HPCDD	772 J	[R][E]
1,2,3,4,6,7,8-HPCDF	102 J	[E]
1,2,3,4,7,8-HXCDD	8.54	[E]
1,2,3,6,7,8-HXCDD	24.7 J	[E]
1,2,3,7,8,9-HXCDD	13.7 J	[E]
1,2,3,7,8-PECDD	2.45 J	[E]
TOTAL HPCDD	1440 J	[R]
METALS (MG/KG)		
ALUMINUM	14000	[R]
ARSENIC	8.81	[R]
COBALT	7.71	[R]
IRON	22000	[R][E]
LEAD	16.7	[E]
MANGANESE	380 J	[R][E]
VANADIUM	29.1 J	[E]

11SB12 (0-2')

METALS (MG/KG)		
ALUMINUM	10400	[R]
ARSENIC	3.16	[R]
COBALT	5.18	[R]
IRON	13400	[R][E]
MANGANESE	251 J	[R][E]
VANADIUM	19 J	[E]

11SB13 (0-2')

POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)		
BENZO(A)ANTHRACENE	322	[R]
BENZO(A)PYRENE	348	[R]
BENZO(B)FLUORANTHENE	454	[R]
DIBENZO(A,H)ANTHRACENE	82.1	[R]
INDENO(1,2,3-CD)PYRENE	187	[R]
METALS (MG/KG)		
ALUMINUM	12300	[R]
ARSENIC	6.73	[R]
COBALT	12.1	[R]
IRON	17300	[R][E]
LEAD	14.4	[E]
MANGANESE	622 J	[R][E]
VANADIUM	27.2 J	[E]

11SB03 (0-2')

METALS (MG/KG)		
ALUMINUM	16800	[R]
ARSENIC	3.57	[R]
COBALT	3.61	[R]
IRON	14300	[R][E]
VANADIUM	22.9	[E]

11SB14 (0-2')

POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)		
BENZO(A)PYRENE	34.5	[R]
DIOXINS/FURANS (NG/KG)		
1,2,3,4,6,7,8,9-OCDD	6710 J	[E]
1,2,3,4,6,7,8-HPCDD	91.7	[E]
1,2,3,4,7,8-HXCDD	0.716 J	[E]
1,2,3,6,7,8-HXCDD	0.976 J	[E]
1,2,3,7,8,9-HXCDD	1.21 J	[E]
TOTAL HPCDD	175	[R]
METALS (MG/KG)		
ARSENIC	5.86	[R]
COBALT	8.4	[R]
IRON	15700	[R][E]
LEAD	21.5	[E]
MANGANESE	486 J	[R][E]
VANADIUM	17.6 J	[E]

11SB15 (0-2')

METALS (MG/KG)		
ALUMINUM	16900	[R]
ARSENIC	10.7	[R]
COBALT	9.64	[R]
IRON	24800	[R][E]
LEAD	14.6	[E]
MANGANESE	419 J	[R][E]
VANADIUM	34.3 J	[E]

11SB16 (0-2')

METALS (MG/KG)		
ALUMINUM	16100	[R]
ARSENIC	10.6	[R]
COBALT	13.1	[R][E]
IRON	25100	[R][E]
LEAD	14.6	[E]
MANGANESE	472 J	[R][E]
SELENIUM	0.542 J	[E]
VANADIUM	35.5 J	[E]

Parameter	Residential Direct Contact Screening Level [R]	Ecological Screening Level [E]
PAHs (UG/KG)		
BENZO(A)ANTHRACENE	150	1100
BENZO(A)PYRENE	15	1100
BENZO(B)FLUORANTHENE	150	1100
DIBENZO(A,H)ANTHRACENE	15	1100
INDENO(1,2,3-CD)PYRENE	150	1100
Dioxins/Furans (NG/KG)		
1,2,3,4,6,7,8,9-OCDD	15000	0.199
1,2,3,4,6,7,8,9-OCDF	15000	38.6
1,2,3,4,6,7,8-HPCDD	450	0.199
1,2,3,4,6,7,8-HPCDF	450	38.6
1,2,3,4,7,8-HXCDD	45	0.199
1,2,3,6,7,8-HXCDD	45	0.199
1,2,3,7,8,9-HXCDD	45	0.199
1,2,3,7,8-PECDD	4.5	0.199
2,3,7,8-TCDD	4.5	0.199
TOTAL HPCDD	94	NV
Inorganics (MG/KG)		
ALUMINUM	7700	NV
ARSENIC	0.61	18
CHROMIUM	NV	26
COBALT	2.3	13
IRON	5500	200
LEAD	400	11
MANGANESE	180	220
SELENIUM	39	0.52
VANADIUM	39	7.8
ZINC	2300	46
NV = No value		

Note:
[R] - Indicates exceedance of residential human health direct contact screening level.
[E] - Indicates exceedance of ecological screening level.

Legend

- Surface Soil Sample Location
- Culvert
- Approximate Location of Drainage Channel
- UST Area
- Concrete Pad
- SWMU Boundary
- Old Storage Building 225
- Building
- Road
- Railroad

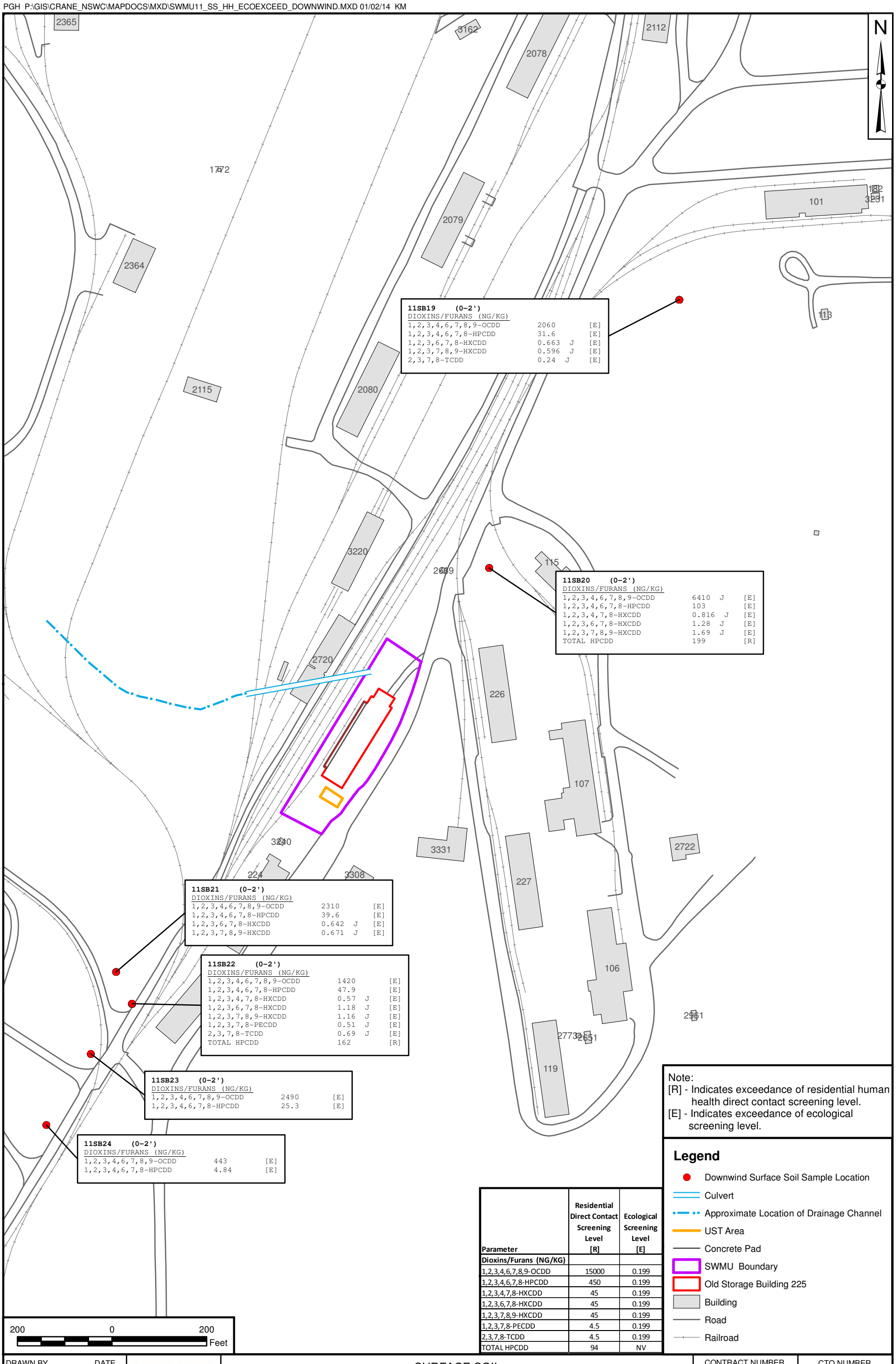
DRAWN BY	DATE
J. NOVAK	03/19/13
CHECKED BY	DATE
J. BUEL	01/02/14
REVISED BY	DATE
K. MOORE	01/02/14
SCALE	
AS NOTED	

NAVFAC

SURFACE SOIL
HUMAN HEALTH DIRECT CONTACT AND
ECOLOGICAL SCREENING LEVEL EXCEEDANCES - BUILDING 225 AREA
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

CONTRACT NUMBER	CTO NUMBER
112G02635	F27E
APPROVED BY	DATE
J. BUEL	12/30/13
APPROVED BY	DATE
—	—
FIGURE NO.	REV
5-1	0

PGH P:\GIS\CRANE_NSWC\MAPDOCS\MXD\SWMU11_SS_HH_ECOEXCEED_DOWNWIND.MXD 01/02/14 KM



Note:
[R] - Indicates exceedance of residential human health direct contact screening level.
[E] - Indicates exceedance of ecological screening level.

Parameter	Residential Direct Contact Screening Level [R]	Ecological Screening Level [E]
Dioxins/Furans (NG/KG)		
1,2,3,4,6,7,8,9-OCDD	15000	0.199
1,2,3,4,6,7,8-HPCDD	450	0.199
1,2,3,4,7,8-HXCDD	45	0.199
1,2,3,6,7,8-HXCDD	45	0.199
1,2,3,7,8,9-HXCDD	45	0.199
1,2,3,7,8-PECDD	4.5	0.199
2,3,7,8-TCDD	4.5	0.199
TOTAL HPCDD	94	NV

Legend

- Downwind Surface Soil Sample Location
- Culvert
- Approximate Location of Drainage Channel
- UST Area
- Concrete Pad
- SWMU Boundary
- Old Storage Building 225
- Building
- Road
- Railroad

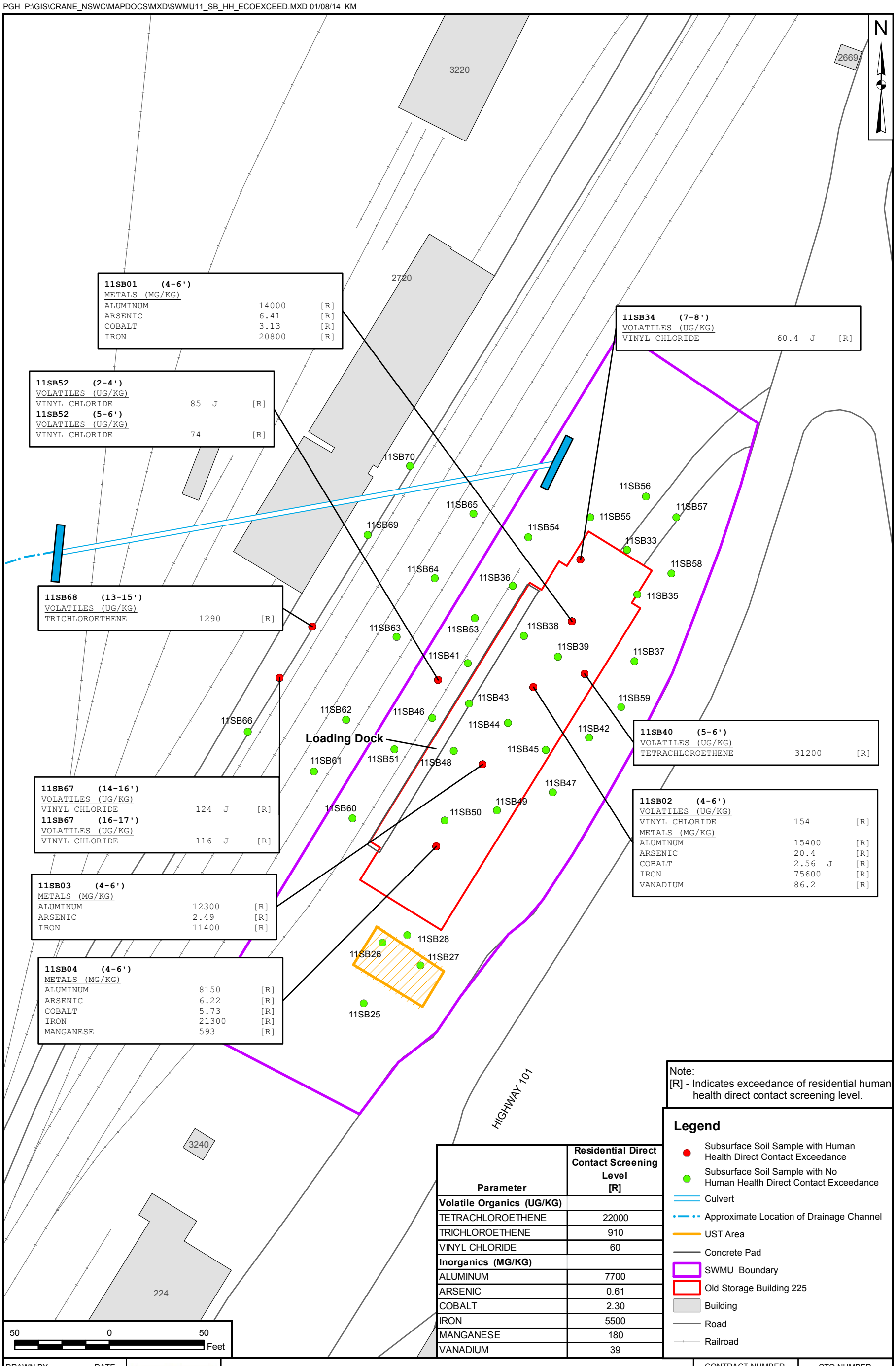
DRAWN BY	DATE
K. MOORE	12/27/13
CHECKED BY	DATE
J. BUEL	01/02/14
REVISED BY	DATE
—	—
SCALE	
AS NOTED	

NAVFAC

SURFACE SOIL
HUMAN HEALTH DIRECT CONTACT AND
ECOLOGICAL SCREENING LEVEL EXCEEDANCES - DOWNWIND AREA
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

CONTRACT NUMBER	CTO NUMBER
112G02635	F27E
APPROVED BY	DATE
J. BUEL	12/30/13
APPROVED BY	DATE
—	—
FIGURE NO.	REV
5-2	0

PGH P:\GIS\CRANE_NSWC\MAPDOCS\MXD\SWMU11_SB_HH_ECOEXCEED.MXD 01/08/14 KM



Note:
[R] - Indicates exceedance of residential human health direct contact screening level.

Parameter	Residential Direct Contact Screening Level [R]
Volatile Organics (UG/KG)	
TETRACHLOROETHENE	22000
TRICHLOROETHENE	910
VINYL CHLORIDE	60
Inorganics (MG/KG)	
ALUMINUM	7700
ARSENIC	0.61
COBALT	2.30
IRON	5500
MANGANESE	180
VANADIUM	39

Legend

- Subsurface Soil Sample with Human Health Direct Contact Exceedance
- Subsurface Soil Sample with No Human Health Direct Contact Exceedance
- Culvert
- Approximate Location of Drainage Channel
- UST Area
- Concrete Pad
- SWMU Boundary
- Old Storage Building 225
- Building
- Road
- Railroad

DRAWN BY	DATE
J. NOVAK	03/19/13
CHECKED BY	DATE
J. BUEL	01/08/14
REVISED BY	DATE
K. MOORE	01/08/14
SCALE	
AS NOTED	

NAVFAC

SUBSURFACE SOIL
HUMAN HEALTH DIRECT CONTACT SCREENING LEVEL EXCEEDANCES
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

CONTRACT NUMBER	CTO NUMBER
112G02635	F27E
APPROVED BY	DATE
J. BUEL	12/30/13
APPROVED BY	DATE
—	—
FIGURE NO.	REV
5-3	0

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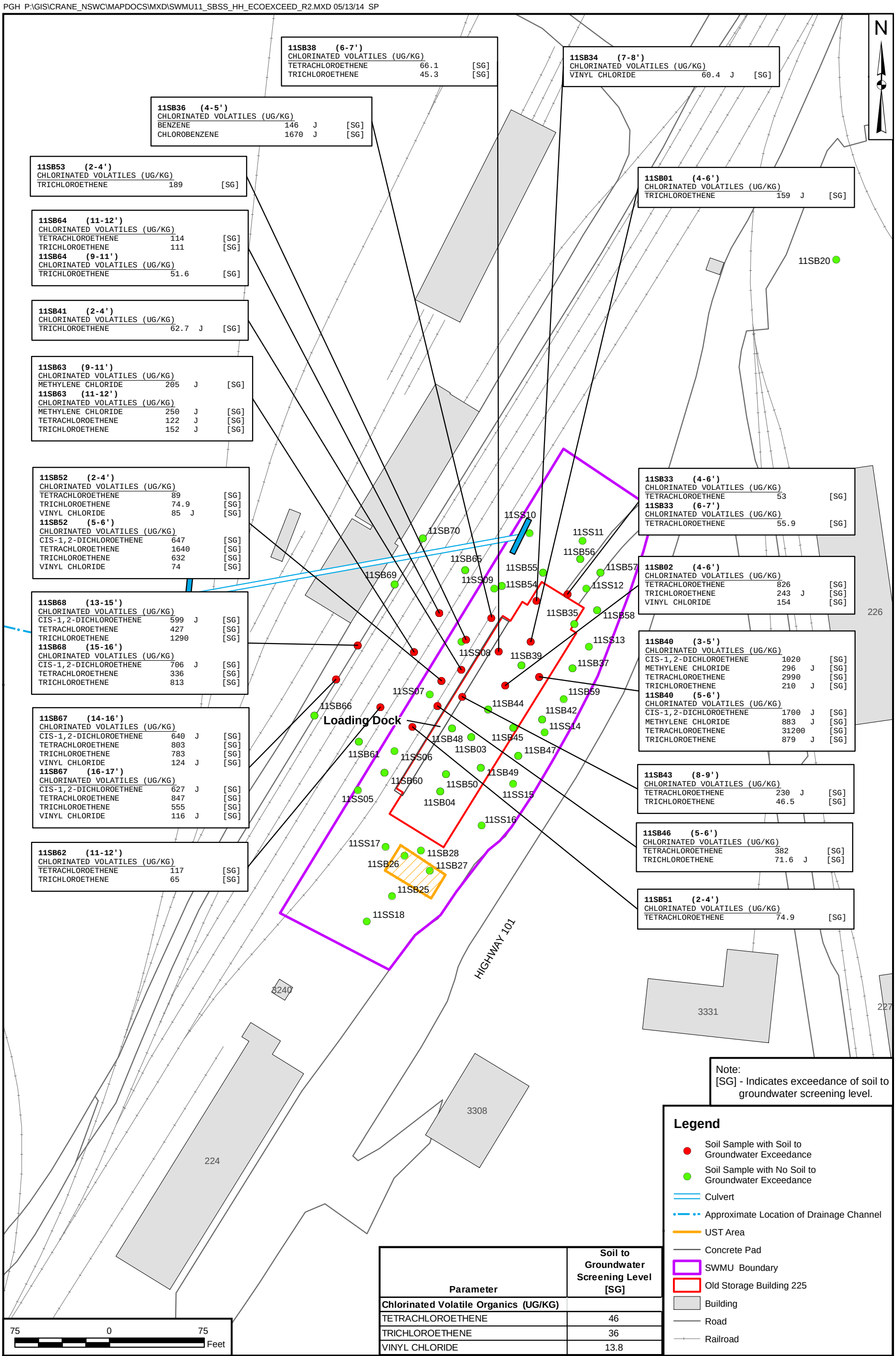

Note:
[SG] - Indicates exceedance of soil to groundwater screening level.

Legend

- Soil Sample with Soil to Groundwater Exceedance
- Soil Sample with No Soil to Groundwater Exceedance
- Culvert
- Approximate Location of Drainage Channel
- UST Area
- Concrete Pad
- SWMU Boundary
- Old Storage Building 225
- Building
- Road
- Railroad

Parameter	Soil to Groundwater Screening Level [SG]
Chlorinated Volatile Organics (UG/KG)	
TETRACHLOROETHENE	46
TRICHLOROETHENE	36
VINYL CHLORIDE	13.8

DRAWN BY J. NOVAK	DATE 03/19/13		
CHECKED BY J. BUEL	DATE 05/13/14		
REVISED BY S. PAXTON	DATE 05/13/14		
SCALE AS NOTED			

SOIL TO GROUNDWATER
SCREENING VALUE EXCEEDANCES FOR VOCs
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

CONTRACT NUMBER 112G02635	CTO NUMBER F27E
APPROVED BY J. BUEL	DATE 05/13/14
APPROVED BY —	DATE —
FIGURE NO. 5-4	REV 0

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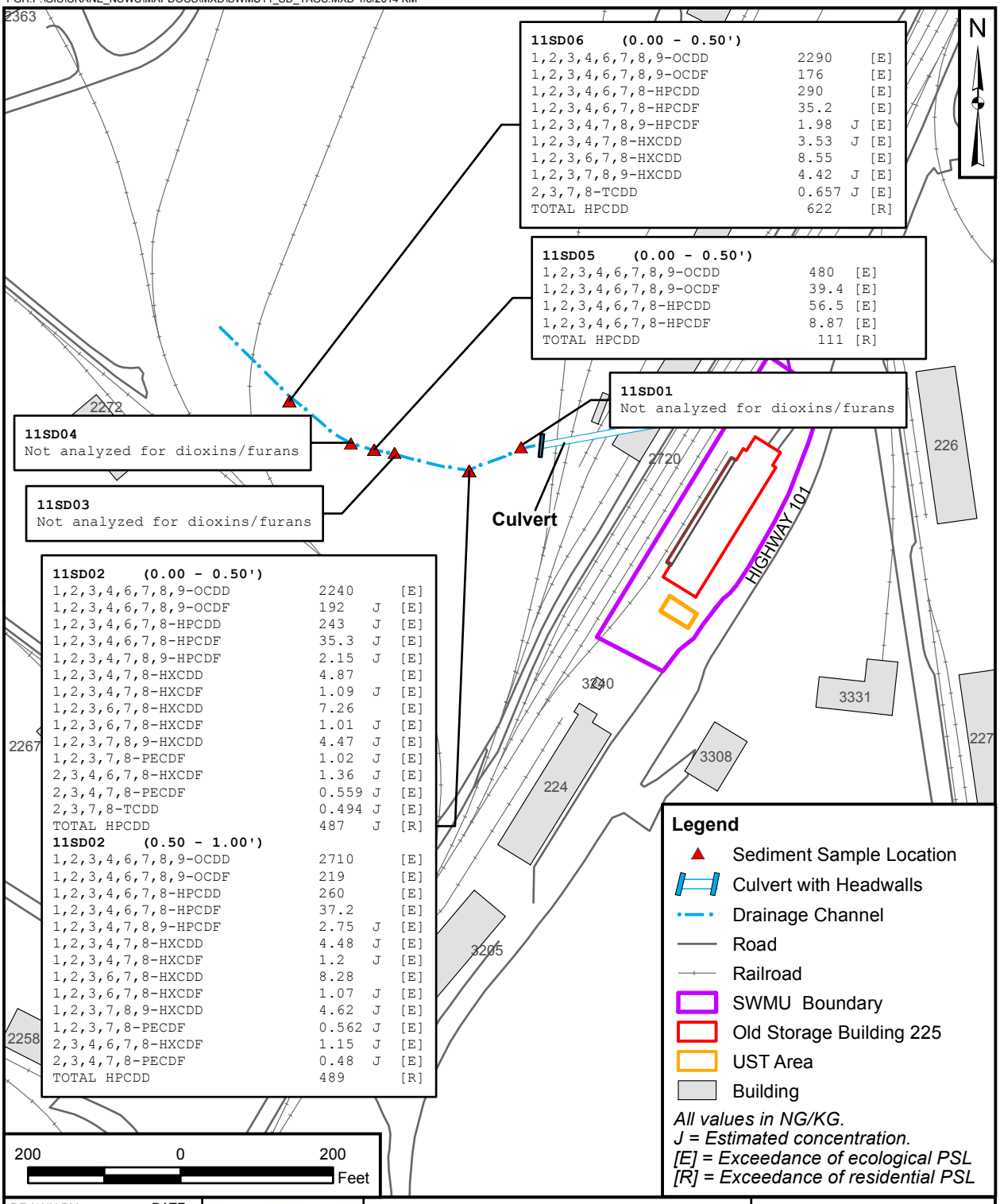
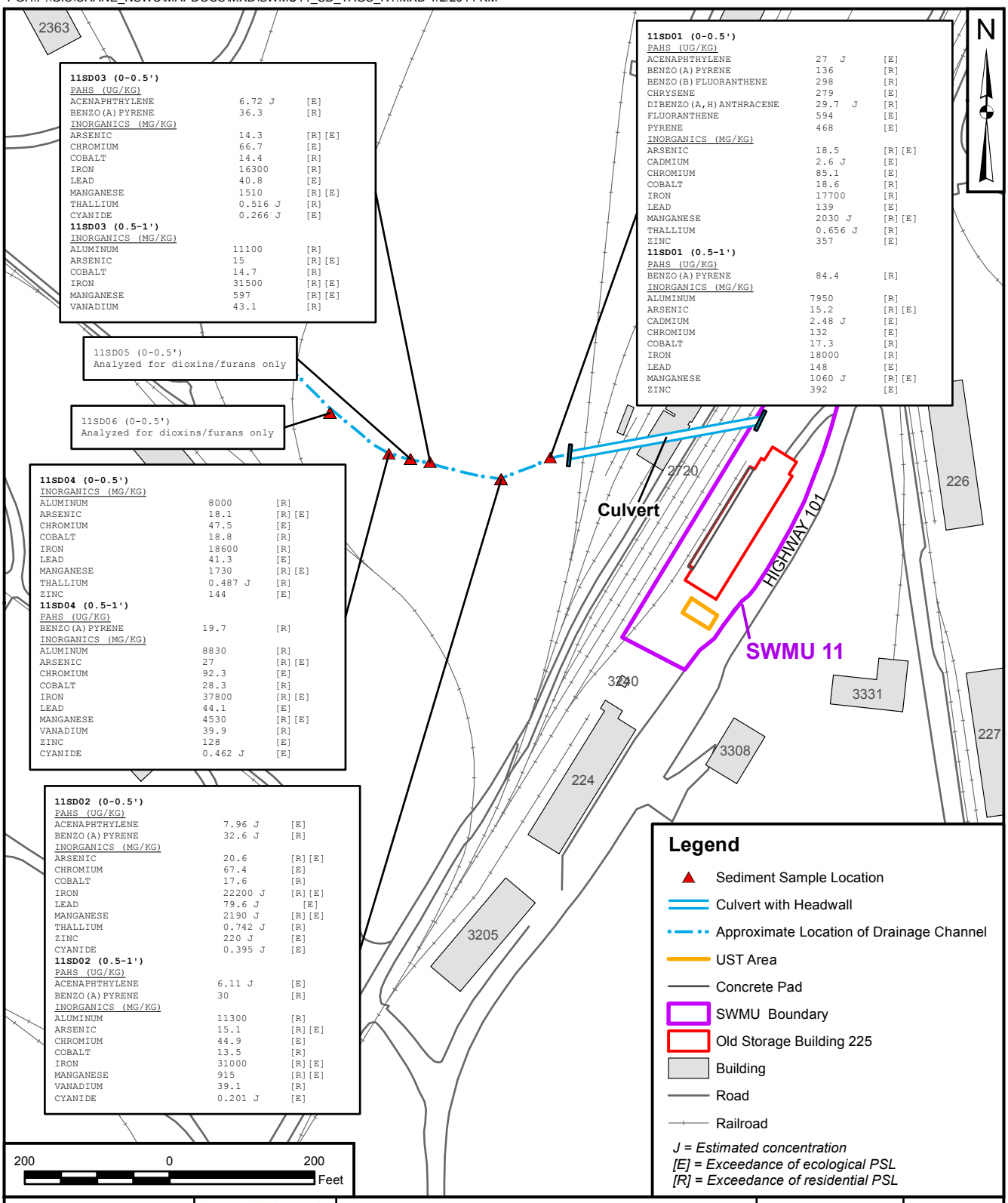


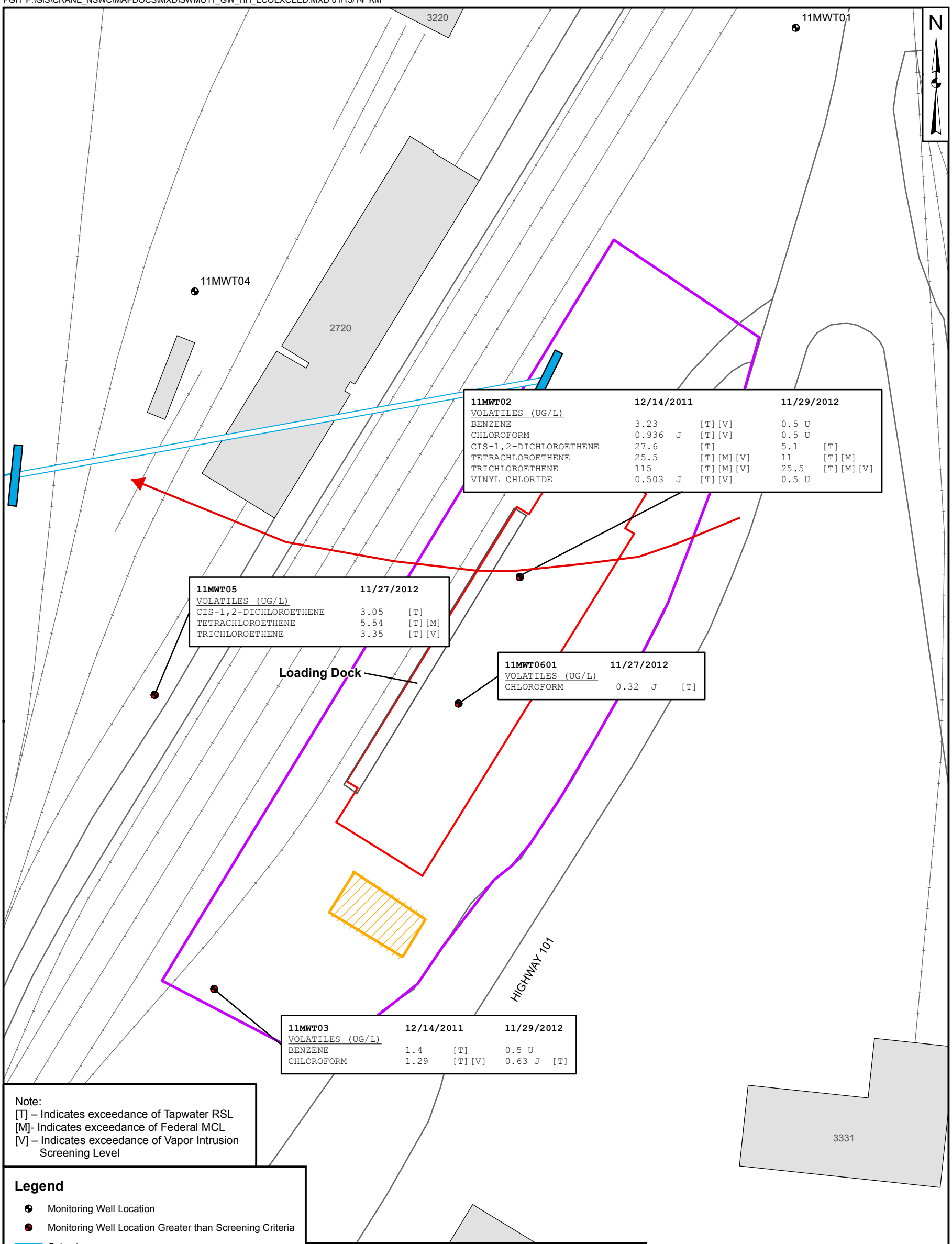
DRAWN BY	DATE			CONTRACT NUMBER CTO F27E	
C. TULLEY	03/20/12	SEDIMENT DIOXIN/FURAN CONCENTRATIONS ABOVE ECOLOGICAL AND HUMAN HEALTH PSLs		APPROVED BY	DATE
CHECKED BY	DATE			J. BUEL	12/30/13
J. BUEL	01/08/14	SWMU 11 - OLD STORAGE BUILDING 225		APPROVED BY	DATE
REVISED BY	DATE			—	—
K. MOORE	01/08/14	NSA CRANE		FIGURE NO.	REV
SCALE		CRANE, INDIANA		5-5	0
AS NOTED					

PGH:P:\GIS\CRANE_NSWC\MAPDOCS\MXD\SWMU11_SD_TAGS_R1.MXD 1/2/2014 KM



DRAWN BY	DATE			CONTRACT NUMBER	CTO NUMBER
C. TULLEY	3/20/12	NAVFAC	SEDIMENT METAL AND PAH CONCENTRATIONS ABOVE ECOLOGICAL AND HUMAN HEALTH PSLs SWMU 11 - OLD STORAGE BUILDING 225 NSA CRANE CRANE, INDIANA	2635	F27E
CHECKED BY	DATE			APPROVED BY	DATE
J. BUEL	01/02/14			J. BUEL	12/30/13
REVISED BY	DATE			APPROVED BY	DATE
K. MOORE	01/02/14			___	___
SCALE AS NOTED				FIGURE NO. 5-6	REV 0

PGH P:\GIS\CRANE_NSWC\MAPDOCS\MXD\SWMU11_GW_HH_ECOEXCEED.MXD 01/15/14 KM



Note:
[T] – Indicates exceedance of Tapwater RSL
[M]- Indicates exceedance of Federal MCL
[V] – Indicates exceedance of Vapor Intrusion Screening Level

Legend

- Monitoring Well Location
- Monitoring Well Location Greater than Screening Criteria
- Culvert
- Approximate Location of Drainage Channel
- UST Area
- Concrete Pad
- SWMU Boundary
- Old Storage Building 225
- Building
- Road
- Railroad
- Groundwater Flow Direction

Parameter	Tapwater RSL [T]	Federal MCL [M]	Vapor Intrusion Screening Value [V]
Volatile Organics (UG/L)			
BENZENE	0.39	5	1.4
CHLOROFORM	0.19	80	0.71
CIS-1,2-DICHLOROETHENE	2.8	70	NC
TETRACHLOROETHENE	3.5	5	5.8
TRICHLOROETHENE	0.26	5	0.52
VINYL CHLORIDE	0.015	2	0.14

DRAWN BY	DATE
J. NOVAK	03/19/13
CHECKED BY	DATE
J. BUEL	01/15/14
REVISED BY	DATE
K. MOORE	01/15/14
SCALE	
AS NOTED	

NAVFAC

VOLATILES IN GROUNDWATER
GREATER THAN SCREENING LEVELS
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

CONTRACT NUMBER	CTO NUMBER
112G02635	F27E
APPROVED BY	DATE
J. BUEL	12/30/13
APPROVED BY	DATE
—	—
FIGURE NO.	REV
5-7	0

6.0 CONTAMINANT FATE AND TRANSPORTATION ANALYSIS

Knowledge of a contaminant's potential to migrate and persist in an environmental medium is critical when evaluating the potential for a chemical to elicit an adverse human health or ecological effect. This section discusses the evaluation of contaminant fate and transport at SWMU 11 to provide an understanding of potential risks from contaminant migration. To support the evaluation, a discussion is provided of the physical and chemical properties of the contaminants associated with SWMU 11 sources and their potential persistence, migration, dispersion, and degradation pathways and the CSM of contaminant migration are provided.

6.1 PHYSICAL AND CHEMICAL PROPERTIES

Persistence of various classes of contaminants and their chemical and physical properties in soil-water environments are discussed in this section. Several chemical transformation mechanisms affect contaminant persistence, including hydrolysis, biodegradation, photolysis, and oxidation/reduction reactions. The following general classes of contaminants were identified in Section 5 as having been detected at SWMU 11 in one or more environmental matrices at concentrations exceeding human health or ecological PSLs:

- VOCs (including monocyclic aromatics and halogenated aliphatics)
- PAHs
- Pesticides
- Dioxins/furans
- Metals

6.1.1 VOCs

VOCs are generally more soluble in water than other chemicals and have a low capacity for retention by soil organic carbon. Therefore, VOCs are typically the most frequently detected organic chemicals in groundwater. These types of chemicals may migrate through the soil column after they are released by a spill event as infiltrating precipitation solubilizes them. Some fraction of these chemicals is retained by the soil, but most will continue migrating downward to the water table. At that time, migration occurs primarily laterally with the hydraulic gradient. Again, some portion of the chemical may be retained by the saturated soil. At SWMU 11, VOCs were released to surface soils, and VOCs were detected in surface and subsurface soil, and groundwater at the site.

6.1.1.1 Monocyclic Aromatics

Monocyclic aromatics (such as benzene), typically found in fuels, were detected at concentrations exceeding PSLs in subsurface soil and groundwater at SWMU 11. Several of these compounds have specific gravities less than that of water (e.g., benzene). If a large enough fuel spill occurs, these compounds may move through the soil column as a bulk liquid until they reach the water table. There, instead of going into solution, the majority of the release may remain as a discrete fuel layer (free product) on the water table surface, with some of the material going into solution at the water/fuel interface. However at SWMU 11, none of the concentrations were great enough to be indicative of free product.

Monocyclic aromatic compounds are not considered to be persistent in the environment, particularly in comparison to chemicals such as PAHs, pesticides, and dioxins/furans. Monocyclic aromatics are subject to degradation via the action of both soil and aquatic microorganisms. The biodegradation of these compounds in the soil matrix is dependent on the abundance of microorganisms, macronutrient availability, soil reaction (pH), temperature, etc.

These compounds are amenable to microbial degradation, although macronutrient availability at the site is not known. In the event that these compounds discharge to a surface water body, volatilization and biodegradation may occur relatively rapidly. Additional environmental degradation processes such as hydrolysis and photolysis are considered to be insignificant fate mechanisms for monocyclic aromatics in aquatic systems (USEPA, 1982).

6.1.1.2 Halogenated Aliphatics

Halogenated aliphatics (such as chloroform, cis-1,2-DCE, PCE, TCE, and VC) were detected in excess of PSLs in subsurface soil and/or groundwater at SWMU 11.

Reductive dechlorination of unsaturated chlorinated aliphatic hydrocarbons such as PCE and TCE occurs naturally through biotic (biological) and abiotic (chemical) processes, mainly under anaerobic conditions. Partial degradation daughter products include cis-1,2-DCE and VC, detection of which provides an indication that natural attenuation is occurring, such as is the case at SWMU 11. Biodegradation via reductive dechlorination ultimately converts PCE and TCE to ethene and dissolved chloride compounds.

Under certain conditions, volatilization is a significant fate process for halogenated aliphatic compounds. Volatilization is only significant at the air-soil or air-water interface. Compounds such as VC and chloroform volatilize rapidly to the atmosphere from soil or surface water due to low soil adsorption and

high vapor pressures. Adsorption is not considered an important fate for these types of compounds when compared to more hydrophobic compounds. Bioconcentration factors found in literature indicate that these compounds should not bioaccumulate.

Photolysis and oxidation reactions are not considered to be significant degradation mechanisms for this class of compounds. Limited hydrolysis of saturated aliphatics (i.e., alkanes) may occur, but it does not appear to be a significant degradation mechanism for unsaturated species (i.e., alkenes).

6.1.2 PAHs

Several PAHs were detected in excess of PSLs in surface soil and sediment at SWMU 11. PAHs are generally considered to be fairly immobile chemicals in the environment. PAHs are large molecules that have low solubilities, vapor pressures, and Henry's Law constants, and have high partitioning coefficients. The low molecular weight PAHs (e.g., acenaphthene, anthracene, fluorene, and phenanthrene) may volatilize from surface waters, whereas the higher molecular weight PAHs (e.g., benzo(a)pyrene and benzo(a)anthracene) are less likely to volatilize. PAHs in soil are much more likely to bind to soil and be transported via mass transport mechanisms than through dissolution. These compounds, when found in the surface soil, generally do not migrate vertically to a great extent. Instead, they are more likely to adhere to soil particles and be removed from the site via surface water runoff and erosional processes, especially when no pavement is present, or when erosion controls are not present, or when erosion controls are not functioning properly.

Bio-concentration of PAHs in aquatic organisms is greater for the higher molecular weight compounds than the lower molecular weight compounds. PAHs can be bioaccumulated from water, sediments, or lower organisms in the food chain. Bioaccumulation from water through biological membranes requires that the chemical in the surrounding water be available in dissolved form. Environmental factors that reduce the amount of a chemical in true solution will also reduce the rate of uptake of the chemical. Among the most important processes that reduce bioavailability are adsorption to suspended solids, adsorption to sediments, adsorption to humic acids and other macromolecules, formation of colloidal suspensions, chelation, complexation, and ionization. Some of the bound chemicals may be available to benthic organisms through ingestion or direct uptake from pore water.

PAHs are highly amenable to microbial degradation in soil and sediment. The rate of degradation is influenced by temperature, pH, oxygen concentrations, initial chemical concentrations, and moisture. Photolysis, hydrolysis, and oxidation are not important fate processes for the degradation of PAHs in soil [Agency for Toxic Substances and Disease Registry (ATSDR), 1989].

The most important fate processes for PAHs in water are photo-oxidation, chemical oxidation, and biodegradation. PAHs do not contain functional groups that are susceptible to hydrolytic reactions, and hydrolysis is considered an insignificant degradation mechanism. The rate of photodegradation is influenced by water depth, turbidity, and temperature. Benzo(a)pyrene, chrysene, fluorene, and pyrene are reported to be resistant to photodegradation. PAHs may also be oxidized by chlorination and ozonation, and they may be metabolized by microbes under oxygenated conditions (ATSDR, 1989).

6.1.3 Pesticides

One pesticide (alpha-BHC) was detected at a concentration exceeding the migration to groundwater PSL in one surface soil sample.

Whether pesticides are sprayed, dusted, or applied directly to the soil, soil is generally the ultimate sink for these chemicals. These compounds will remain in the soil and do not leach significantly. Surface soil runoff may carry pesticides to adjacent surface water bodies where they are likely to settle in the sediment. In water, they would not be expected to biodegrade or hydrolyze to any significant extent and will likely bioconcentrate in aquatic organisms.

Bioconcentration of pesticides in the food chain is another important fate mechanism. Hydrolysis, oxidation, and photolysis are not generally important fate mechanisms for pesticides in soil or water. Hydrolysis half-lives for several pesticides are reported in periods of months to years (USEPA, 1979).

6.1.4 Dioxins/Furans

Dioxin or furan congeners were detected in excess of human health and ecological PSLs in surface soil and sediment samples from SWMU 11.

Dioxin and furan congeners are usually released to the environment through emissions from incineration of municipal and chemical wastes, in exhaust from automobiles using leaded gasoline, and from improper disposal and/or burning of certain chlorinated chemical wastes. The formation of dioxin requires the presence of an organic chlorine source. The SWMU 11 dioxins were most likely formed during the inefficient combustion conditions that occurred during the 1976 fire. These conditions would have been favorable for dioxin formation (i.e., relatively low-temperature combustion of organic chlorinated compounds). These congeners are generally evaluated collectively in terms of total toxicity equivalents (TEQs), expressed in terms of the most toxic form of dioxin, 2,3,7,8-TCDD. If released to the atmosphere, vapor-phase TCDD may be degraded by reaction with hydroxyl radicals and direct photolysis. Particulate-phase TCDD may be physically removed from air by wet and dry deposition.

TCDD has low water solubility and, if released to water, will predominantly be associated with sediment and suspended material. TCDD near the water's surface may experience some photodegradation. Partitioning from the water column to sediment and suspended material will occur. Volatilization from the water column may be important, but adsorption to sediment will limit the overall rate by which TCDD is removed from water. The persistence half-life of TCDD in lakes has been estimated to be in excess of 1.5 years. Bioconcentration in aquatic organisms is expected to be significant. If released to soil, TCDD is not expected to leach to groundwater. Photodegradation on terrestrial surfaces may be an important transformation process.

Volatilization from soil surfaces during warm conditions may be a major removal mechanism. The persistence half-life of TCDD on soil surfaces may vary from less than 1 year to 3 years, but half-lives in soil interiors may be as long as 12 years. Screening studies have shown that TCDD is generally resistant to biodegradation. The major route of exposure to the general population results from incineration processes and exhausts from leaded gasoline engines (TOXNET, 2006). Most dioxin and furan congeners are less water soluble and have greater organic carbon partition coefficients (K_{oc}s) and octanol/water partition coefficients (K_{ow}s) than TCDD and are therefore likely to be more persistent than TCDD.

Dioxins/furans are of particular interest at SWMU 11 not only because of their potential formation as a combustion byproduct but also due to the large quantity (over 70,000 pounds) of PCP that was spilled and/or burned during the 1976 fire. Dioxins/furans are known micro-contaminants formed during the manufacturing process of technical-grade PCP (USEPA, 2008a).

6.1.5 Metals

Several metals were detected at concentrations exceeding human health and/or ecological PSLs in surface soil, subsurface soil, and/or sediment samples at SWMU 11. Because metals are naturally occurring substances, they were detected in all media in which they were analyzed for at SWMU 11, and many concentrations were generally within NSA Crane established background levels. Because metals tend to adhere to particulate matter (similar to PAHs), their release and migration patterns were found to be similar to these chemicals at SWMU 11.

The fate and transport of metals are controlled mainly by the mobility of soil particles and dissolution into water present in the immediate environment. Metals do not undergo degradation reactions that most organic chemicals do; therefore, they are considered to be persistent. The major fate mechanisms for metals are adsorption to the soil matrix and bioaccumulation. The mobility of metals is influenced primarily by their physical and chemical properties, in combination with the physical and chemical

characteristics of the soil matrix. Factors that assist in predicting the mobility of inorganic species are soil/pore water pH, soil/pore water Eh, and cation exchange capacity. The mobility of metals generally increases with decreasing soil pH and cation exchange capacity.

In some instances, metals are detected at such concentrations or in such forms (e.g., oxidation states) that they may migrate in solution. Metals are more mobile under acidic soil conditions. In these cases, it is possible for metals to migrate vertically through the soil column and reach the groundwater. Therefore, it is possible that metals detected in groundwater samples represent the total of dissolved metals and metals adhering to any suspended soil material that may be present in the samples.

6.2 CONCEPTUAL SITE MODEL OF CONTAMINANT MIGRATION

The primary source of contamination at SWMU 11 is the release of stored chemicals and combustion products due to the 1976 fire and firefighting efforts, as discussed in Section 1.0. The historical information indicates that releases occurred directly onto surface soil, with contaminant migration to subsurface soil and groundwater, as well as discharge along the drainage ditch and drainage channel west of the site. Contaminants from the fire and firefighting efforts can migrate via several pathways as discussed in Section 6.2.1.

VOCs were detected infrequently and at low concentrations (less than PSLs) in surface soil; however, several VOCs were detected at concentrations exceeding PSLs in subsurface soil and groundwater at SWMU 11. Leaching of the VOCs benzene, PCE, TCE, and chloroform (as well as VC, a breakdown product of larger chlorinated aliphatics such as PCE and TCE) from subsurface soil to groundwater has occurred in a localized area within SWMU 11 centered at the Building 225 pad where the chemicals spilled from and entered into the soil as a result of the fire and firefighting efforts. Once in groundwater, the contamination appears to be migrating to the west of the railroad tracks and south of Building 2720. The ground elevation decreases to the west and groundwater would be expected to be expressed as seeps before reaching the NSA Crane boundary. Decreases of chlorinated VOC concentrations would occur before the groundwater would be expressed as seeps. Additional decreases in chlorinated solvent concentrations would occur via volatilization once the groundwater seeps are exposed to air.

SVOCs (including PAHs), pesticides, and PCBs were detected infrequently in surface and subsurface soil and sediment samples at SWMU 11. Because PAHs, pesticides, and PCBs have relatively low solubilities and very high soil-water distribution coefficient (K_d) values, their mobility in soils is very limited.

Metals were detected frequently in surface and subsurface soil and sediment samples. However, metals are naturally occurring chemicals and the levels of many of the metals were consistent with established

Crane background levels and were generally less than applicable human health PSLs, with the exceptions of the metals discussed in Section 5.0. Although previous reports provided evidence that there were releases of zinc, copper and lead at the SWMU, elevated levels of these metals were not confirmed during the RFI.

Numerous dioxin and furan congeners were detected in excess of PSLs in surface soil and sediment samples at SWMU 11. These dioxin and furan congeners are likely to be present as a result of their formation during the combustion of chlorinated organics. Dioxins and furans are often found in environmental media as a result of natural (e.g., forest fires) and anthropogenic activities (i.e., they are by-products of various combustion and chemical processes). The octa- and hepta-chlorinated congeners are generally detected more frequently in background environmental media samples and at higher concentrations than the tetra-, penta-, and hexa-chlorinated congeners. Dioxins and furans are of particular interest at SWMU 11 because a large quantity (reportedly over 70,000 pounds) of PCP is assumed to have spilled and/or burned during the 1976 fire, and dioxins and furans are known micro-contaminants of formed during the manufacture of technical-grade PCP (USEPA, 2008a) and are also products of incomplete combustion in PCP fires. Therefore, based on the CSM at SWMU 11, detected concentrations of dioxins and furans in surface soil and sediment are likely attributable to the fire; however, concentrations were not as high as anticipated considering the fire. PCP and another SVOC micro-contaminant of PCP, hexachlorobenzene (HCB), were not detected in any of the soil or sediment samples; however, dioxins and furans are more persistent in nature than PCP and HCB and are measured at significantly lower detection limits due to their high toxicity.

6.2.1 Potential Contaminant Migration Pathways

Contamination at SWMU 11 is attributable to the release of stored chemicals and combustion products due to the 1976 fire and firefighting efforts. After release onto soil, the chemical contamination may have migrated from surface soil via erosion; via downward infiltration to subsurface soil and groundwater and transport with groundwater; via overland runoff to sediment; and via deposition of PCP-fire residuals such as ash and soot, which may have contained dioxins and furans due to incomplete combustion of organic materials.

The most notable contamination at SWMU 11 includes the halogenated aliphatics, including cis-1,2-DCE, PCE, TCE, and the degradation product VC, in subsurface soil and groundwater in the immediate vicinity of the Building 225 concrete slab, and this contamination has migrated west toward the railroad tracks (south of Building 2720). PCE was detected at a low concentration in surface soil below the building foundation; however, much greater PCE concentrations were detected in subsurface soil, demonstrating the downward migration tendency of halogenated aliphatics. Additionally, subsurface soil halogenated

aliphatic concentrations exceeded their respective migration to groundwater soil screening levels by at least an order of magnitude as shown in Table 5-3.

Benzene, chloroform, cis-1,2-DCE, PCE, TCE, and VC were detected in the groundwater sample from monitoring well 11MWT02, installed through the Building 225 concrete slab, in the first round of sampling. Benzene and chloroform were not detected in the second round and cis-1,2-DCE, PCE,TCE and VC were detected in the second round at significantly lower concentrations. Chloroform and benzene were detected in the 11MWT03 groundwater sample collected in the first round of sampling at low concentrations (i.e. less than MCLs). Benzene was not detected in the second round and chloroform was detected at a lower concentration than the first round and only slightly above the detection limit. Chloroform was detected in deeper groundwater at 11MWT06 in the only round of sampling that was conducted; however, concentrations are less than the MCL. The groundwater elevation map, Figure 4-8, shows 11MWT03 is at an approximately equal gradient to 11MWT02. Low concentrations of the chlorinated VOCs were detected in the monitoring well 11MWT05, which is downgradient and southwest of 11MWT02. VOCs were not detected in monitoring well 11MWT04, which is downgradient of 11MWT02.

The groundwater samples collected from RFI monitoring wells show limited VOC groundwater migration away from 11MWT02 toward 11MWT05. Based on the analytical results for 11MWT06, contamination has not migrated into deeper groundwater. Based on the presence of the degradation products cis-1,2-dichloroethethene and VC, degradation of PCE and TCE is occurring.

7.0 HUMAN HEALTH RISK ASSESSMENT

This section presents the HHRA for SWMU 11-Old Storage Building 225 at NSA Crane. The objective of the HHRA was to determine whether detected concentrations of chemicals within the study areas pose a significant threat to potential human receptors under current and/or future land use. The potential risks to human receptors were estimated based on the assumption that no actions were taken to control contaminant releases.

7.1 INTRODUCTION

The following guidance documents were used to develop the framework for the baseline HHRA:

- Risk Assessment Guidance for Superfund: Volume I, Human Health Evaluation Manual (Part A) (USEPA, 1989).
- Navy Policy on the Use of Background Chemical Levels (Navy, 2004).
- U.S. Navy Human Health Risk Assessment Guidance [Naval Facilities Engineering Command (NAVFAC), 2008]
- Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors (USEPA, 1991).
- Distribution of Preliminary Review Draft: Superfund's Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure (RME) (USEPA, 1993a).
- Exposure Factors Handbook. Office of Health and Environmental Assessment (USEPA, 1997a).
- Risk Assessment Guidance for Superfund: Volume 1 - Human Health Evaluation Manual (Part D, Standardized Planning, Reporting, and Review of Superfund Risk Assessments) (USEPA, 2001).
- Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment), Final Guidance (USEPA, 2004b).
- Guidelines for Carcinogen Risk Assessment (USEPA, 2005b).

- Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005c).

- Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual (Part F, Supplemental Guidance for Inhalation Risk Assessment) (USEPA, 2009).

- RISC. User's Guide and Technical Resource Guidance Document (IDEM, 2009).

- Remediation Closure Guide. (IDEM, 2012)

An HHRA consists of five components: data evaluation, exposure assessment, toxicity assessment, risk characterization, and uncertainty analysis. Sections 7.2 through 7.6 contain detailed discussions of the five components of the HHRA.

Three major aspects of chemical contamination and environmental fate and transport must be considered to evaluate potential risks: (1) contaminants with toxic characteristics must be found in environmental media and must be released by either natural processes or by human action; (2) potential exposure points must exist; and (3) human receptors must be present at the points of exposure. Risk is a function of both toxicity and exposure. If any one of these factors is absent for a site, the exposure route is regarded as incomplete, and no potential risks are considered to exist for human receptors.

7.2 DATA EVALUATION

Data evaluation, the first component of a baseline HHRA, is a medium-specific task involving the compilation and evaluation of analytical data. The main objective of the data evaluation is to develop a medium-specific list of COPCs that will be used to quantitatively determine potential human health risks for site media.

Data from samples collected during the RFI (April, November, and December 2011, October and November 2012, and January 2013) were used to assess risks to potential human receptors. Samples used in this HHRA are listed in Appendix G.1. The nature and extent of contamination is discussed in Section 5.

Typically, screening by risk-based concentrations is used to focus the risk assessment on meaningful chemicals (i.e., the COPCs) and exposure routes. As discussed in Section 1, releases of stored chemicals (e.g., PCP, paints, solvents), and various other items stored in Building 225, which was destroyed during a fire in 1976, are the potential sources of contaminants at SWMU 11. Because PCP

had been stored in the building, chlorinated dioxins and furans were analyzed for in surface soil samples collected from the Building 225 concrete slab area, drainage ditch, adjacent area, and downwind area and in sediment samples collected from the drainage channel. Soil samples collected from the Building 225 concrete slab area were analyzed for VOCs, SVOCs (including low level PAHs), pesticides, PCBs, metals, and cyanide. Soil samples collected from the drainage ditch and adjacent areas were analyzed for SVOCs (including low level PAHs), pesticides, PCBs, metals, and cyanide. Soil samples collected from the UST area were analyzed for VOCs and SVOCs (including low-level PAHs). Soil samples collected from the Building 2981 concrete tank area were analyzed for SVOCs (including low level PAHs), pesticides, metals, and cyanide. Sediment samples collected from the drainage channel were analyzed for SVOCs (including low level PAHs), pesticides, PCBs, metals, cyanide, and TOC. Groundwater samples were analyzed for VOCs.

Analytical data from the Building 225 concrete slab area, drainage ditch, adjacent area, downwind area, UST area, and Building 2981 concrete tank area were combined into one surface soil data set to select COPCs. Subsurface soil analytical results were also consolidated into one data set to select COPCs. For estimation of human health risks, surface soil in the Building 225 concrete slab area, drainage ditch, adjacent area, downwind area, and UST area were treated as one exposure unit (EU), and the downgradient area of the Building 2981 concrete tank area was treated separately because this area is located at a distance from the other areas comprising SWMU 11.

The following sections define the screening criteria used to determine the COPCs for SWMU 11 soils, groundwater, and sediments.

7.2.1 Derivation of Screening Criteria

Several types of screening levels were used to identify COPCs for SWMU 11. Screening concentrations based on USEPA RSLs (USEPA, 2013a) and IDEM screening levels (IDEM, 2013) were used, as well as other USEPA criteria. The risk-based USEPA RSL concentrations correspond to a hazard quotient (HQ) of 0.1 for noncarcinogens or an incremental lifetime cancer risk (ILCR) of $1x10^{-6}$ for carcinogens. It should be noted that the USEPA RSLs for noncarcinogens are based on a Hazard Index (HI) of 1. The USEPA RSL values for noncarcinogens were multiplied by 0.1 to account for potential cumulative effects of several chemicals affecting the same target area or producing the same adverse noncarcinogenic health effect.

The IDEM direct contact screening levels for soil are based on the USEPA RSLs; however the IDEM screening levels are not necessary the same as the RSLs. The IDEM screening levels for direct contact correspond to systemic HQ of 1 (for noncarcinogens) or an ILCR of $1x10^{-5}$ (for carcinogens). The USEPA

RSLs for carcinogens corresponds to an ILCR of $1x10^{-6}$. The IDEM screening levels for soil can also be based on the soil saturation limit or capped at 100,000 mg/kg. The screening levels used for each medium evaluated in the risk assessments are briefly discussed below.

7.2.1.1 Soil

Screening concentrations based on the following criteria were used to select COPCs for surface and subsurface soil:

- USEPA RSLs for Residential Soil (USEPA, 2013a).
- IDEM residential soil screening levels (IDEM, 2013)

Maximum chemical concentrations in soil were also compared to USEPA risk-based soil screening levels (SSLs) for groundwater protection and to IDEM screening levels for migration from soil to groundwater. The IDEM screening levels for migration from soil to groundwater are based on MCLs when available and are risk-based for chemicals that do not have MCLs. The SSLs and IDEM screening levels for migration from soil to groundwater were not used for the selection of COPCs for direct contact exposure; however, they do allow qualitative evaluation of the potential for chemical migration from soil to groundwater, which is discussed in the summary and conclusions section of this HHRA (Section 7.7).

Because of the different exposure scenarios for potential human receptors, COPCs were identified separately for surface and subsurface soil. Surface soil was defined as the first 2 feet of soil and subsurface soil was defined as soil deeper than the first 2 feet of soil.

7.2.1.2 Sediment

No specific screening levels exist for human exposure to sediment. COPCs were selected for sediment by comparing detected site concentrations to screening levels based on the following:

- USEPA RSLs for Residential Soil (USEPA, 2013a).
- IDEM residential soil screening levels (IDEM, 2013)

A chemical detected in sediments was selected as a COPC for sediment if the maximum detected concentration exceeded screening levels based on these values. The use of soil screening criteria for sediment COPC identification is regarded as a conservative approach because exposure to sediment is anticipated to be less intensive than exposure to soil.

The risk-based screening levels and health-based standards used in COPC selection for soil and sediment are presented in Table 7-1.

7.2.1.3 Groundwater

Screening concentrations based on the following criteria were used to select COPCs for groundwater:

- USEPA RSLs for Tapwater (USEPA, 2013a).
- USEPA Maximum Contaminant Levels (MCL) (USEPA, 2012a)
- USEPA Vapor Intrusion Screening Levels (VISL) (USEPA, 2013b).
- IDEM tap water screening levels for groundwater (IDEM, 2013)
- IDEM residential vapor exposure levels for groundwater (IDEM, 2013)

The risk-based screening levels used in COPC selection for exposure to groundwater are presented in Table 7-2.

7.2.1.4 Screening Levels for Chromium

Chromium speciation was not performed on the samples collected at SWMU 11. Therefore, the screening levels for hexavalent chromium were used as a conservative assumption for the selection of COPCs.

7.2.1.5 Screening Levels for Chlorinated Dioxins and Furans

The RSL for dioxin and furan congeners were based on the 2,3,7,8-TCDD RSL multiplied by the toxicity equivalent factor (TEF) for that congener relative to 2,3,7,8-TCDD. The 2,3,7,8-TCDD toxicity equivalent concentration (TEQ) for each sample was calculated as the sum of the TEFs multiplied by the concentrations of individual congeners.

7.2.1.6 Chemicals without Toxicity Criteria

Because of the lack of toxicity criteria, risk-based COPC screening levels are not available for some chemicals [e.g., acenaphthylene, benzo(g,h,i)perylene, and phenanthrene]. For COPC screening, acenaphthene was used as a surrogate for acenaphthylene and pyrene was selected as a surrogate for benzo(g,h,i)perylene and phenanthrene. Essential nutrients were not considered as COPCs, specifically calcium, magnesium, potassium, and sodium.

7.2.1.7 Site Data-to-Background Data Comparisons

Detected concentrations of inorganics in surface soil, subsurface soil, and sediment at SWMU 11 were compared to background data using various statistical tests in accordance with the Crane Basewide Background Soil Investigation Report (Tetra Tech, 2001). For groundwater, the background upper tolerance limits [(UTLs), representing 95 percent coverage of the groundwater population with 95-percent confidence] were used to determine whether metals are naturally occurring or are site-related contaminants. Background data for groundwater are described in the Final Basewide Pennsylvanian Bedrock Background Groundwater Study (Tetra Tech, 2013b). The statistical analysis of the background data set and comparisons of site concentrations to background concentrations were conducted in accordance with the following Navy and USEPA guidance:

- Guidance for Comparing Background and Chemical Concentrations in Soil for Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Sites (USEPA, 2002a).
- Guidance for Environmental Background Analysis, Volume I: Soil. (NAVFAC, 2002).
- Guidance for Environmental Background Analysis, Volume II: Sediment. (NAVFAC, 2003).

In the COPC selection process for SWMU 11, if the results of the background comparison evaluation indicated that SWMU 11 inorganic chemical concentrations did not exceed background concentrations, that chemical was not selected as a COPC and was not carried through the quantitative risk assessment. However, inorganic chemicals present at concentrations exceeding toxicity screening criteria but not selected as COPCs on the basis of background comparisons evaluations are further discussed in the uncertainty analysis section.

The results of the background comparison analysis for surface soil, subsurface soil, and sediment are presented in Appendix G.2. The graphical portion of this analysis consisted of visual inspection of boxplots, normal probability plots, and histograms, which are presented at the end of Appendix.G.2. Statistical hypothesis tests compared the central tendency (mean/median) concentrations and the right tails (largest values) of site and background data sets. Test Form II hypotheses were used, which invoke the initial assumption (null hypothesis) that site-wide concentrations are greater than background concentrations by at least two standard deviations. Site and background means were compared using the t-test if the data followed a normal distribution. Otherwise, the rank sums of site and background were compared using the Wilcoxon rank sum test or Gehan's test. In addition, the non-parametric slippage test and quantile test were applied to compare the right tails of the site and background data sets. In all statistical tests, the false positive probability (alpha) was set at 0.05, which is the likelihood that a test would erroneously conclude that site concentrations are less than background plus two standard deviations when the true site population mean is equal to the background population mean plus

two standard deviations. Further details and results for each statistical test are presented in Appendix G.2.

The elimination of chemicals as site-related COPCs on the basis of background comparisons follows Navy Policy on the Use of Background Chemical Levels (Navy, 2004). This document also presents the Navy's interpretation of the USEPA guidance provided in the document titled Role of Background in the CERCLA Cleanup Program (USEPA, 2002a) and details the methodology to be used in evaluating background under the Navy's Environmental Restoration and Base Realignment and Closure (BRAC) programs. Navy policy applies to both the screening-level and baseline risk assessments and requires the following:

1. A clear and concise understanding of chemicals released from a site thus ensuring that the Navy is focusing on remediating the release.

2. The use of background data in the screening-level risk assessment.

    a. The comparison of site chemical levels to risk-based screening criteria.
    b. The comparison of site chemical levels to background concentrations.
    c. The identification of site-related COPCs based on screening criteria comparisons and background comparisons. Site-related COPCs are those chemicals with concentrations exceeding risk-based screening criteria and background concentrations. To the extent possible, site-related COPCs are further evaluated quantitatively in the baseline risk assessment. (Non-site-related COPCs are further discussed in the risk characterization sections of the baseline risk assessments.)

3. The consideration of background in the baseline risk assessment.

    a. The calculation of risk estimates for site-related COPCs only.
    b. The further evaluation of non-site-related COPCs in the risk characterization section only (e.g., the qualitative evaluation of chemicals detected at concentrations exceeding screening criteria but less than background concentrations). The Navy considers this evaluation to be consistent with USEPA's Role of Background in the CERCLA Cleanup Program (USEPA, 2002a).

4. The selection of site cleanup remedial goals at levels not less than background levels. Additionally, cleanup levels should not be developed for chemicals not identified as chemicals of concern (COCs). As defined in the Navy guidance, COCs are site-related COPCs found to be the risk drivers in the baseline risk assessment and that may pose unacceptable human or ecological risks.

Details of the background comparison are presented in Appendix G.2. The surface soils at SWMU 11 are Zanesville-Udorthents Group and Wellston-Gilpin soils and were compared to soil Group 3, All Surface Soil (except Loess/Glacial), from the Basewide Background Soil Investigation Report (Tetra Tech, 2001). The subsurface soil at SWMU 11 was compared to soil Group 8, Pennsylvanian subsurface Clay and Silt, from the Basewide Background Soil Investigation Report (Tetra Tech, 2001). SWMU 11 sediment results were compared to background surface soil data because sediment was characterized as originating from the same geologic material as surface soil.

As shown in the background comparison tables in Appendix G.2, based on the results of the background comparisons for surface soil it can be concluded that site concentrations of arsenic, barium, cadmium, chromium, cobalt, lead, manganese, nickel, potassium, selenium, vanadium, and zinc are statistically similar to background concentrations.

For subsurface soil, it can be concluded that site concentrations of aluminum, barium, calcium, cobalt, copper, magnesium, manganese, mercury, nickel, potassium, and zinc at SWMU 11 are statistically similar to background.

For sediment, it can be concluded that site concentrations of aluminum, antimony, barium, cobalt, magnesium, manganese, nickel, potassium, selenium, and vanadium are statistically similar to background concentrations.

For groundwater, it can be concluded that concentrations of arsenic and barium observed in the upgradient SWMU 18 well are similar to basewide background concentrations.

7.2.2 Decision Rules for Establishing COPCs

The following decision rules were used to select initial lists of COPCs for SWMU 11:

- A chemical detected in soil was selected as a COPC for soil if any detected chemical concentration exceeded the screening levels for soils and, for inorganics, if the chemical was statistically greater than background (see Appendix G.2).

- A chemical detected in groundwater was selected as a COPC for groundwater if the maximum detected concentration exceeded screening levels for groundwater, and for inorganics, if the chemical was statistically greater than background.

- A chemical detected in sediment was selected as a COPC for sediment if the maximum detected concentration exceeded the screening level for sediment and, for inorganics, if the chemical was statistically greater than background (see Appendix G.2).

7.2.3 COPCs Selected for HHRA

COPCs were selected for surface soil, subsurface soil, groundwater, and sediment at SWMU 11 using the risk-\ based COPC screening levels described in Section 7.2.1. A discussion of the chemicals identified as COPCs and associated rationales for COPC selection are provided in the following subsections. A detailed discussion of nature and extent of contamination is presented in Section 5 and is not repeated in this section. COPC selection tables for each medium are presented as Tables 7-3 through 7-9. Chemicals retained as COPCs for SWMU 11 are presented in Table 7-10. The Risk Assessment Guidance for Superfund (RAGS) Part D tables for COPC selection are included in Appendix G.3. Both total and dissolved inorganic concentrations in groundwater are presented in the COPC selection tables. The dissolved inorganic concentrations are presented for information purposes only. In accordance with USEPA risk assessment guidance only the total groundwater concentrations were used to quantify risks from exposures to groundwater.

7.2.3.1 Surface Soil

A comparison of maximum detected surface soil concentrations at SWMU 11 to USEPA and IDEM screening levels for residential exposures to soil is presented in Table 7-3. The results of the background analysis from Appendix G.2 are also presented in Table 7-3. The following chemicals were detected in surface soil at maximum concentrations exceeding the direct contact risk-based COPC screening levels and were retained as COPCs for surface soil.

- PAHs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene)
- 2,3,7,8-TCDD TEQs
- Metals (aluminum and iron)

Concentrations of benzo(a)anthracene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, 2,3,7,8-TCDD TEQs, aluminum and iron exceeded screening criteria based on RSLs but were less than IDEM screening levels. Arsenic, chromium, cobalt, manganese, and vanadium were detected at concentrations greater than the screening levels in surface soil but were eliminated as COPCs because site concentrations were statistically similar to background concentrations.

A comparison of maximum detected surface soil concentrations to USEPA SSLs and IDEM screening levels for migration to groundwater is presented in Table 7-4. The following chemicals were detected at maximum concentrations exceeding COPC screening levels for migration from soil to groundwater and were retained as COPCs for migration from surface soil to groundwater.

- PAHs (benzo(a)anthracene, benzo(a)pyrene, and naphthalene)
- 2,3,7,8-TCDD TEQs
- Pesticides (alpha-BHC)
- Metals (iron)

Iron was detected at concentrations exceeding both USEPA SSLs and IDEM screening levels; concentrations of the other COPCs exceeded only USEPA SSLs. Concentrations of arsenic, chromium, cobalt, and manganese exceeded their respective screening levels, but were within site background levels; therefore, these substances were not retained as COPCs for migration from surface soil to groundwater.

7.2.3.2 Subsurface Soil

A comparison of maximum detected subsurface soil concentrations at SWMU 11 to screening levels based on USEPA RSLs and IDEM screening levels for residential exposures to soil is presented in Table 7-5. The results of the background analysis (Appendix G.2) are also presented in Table 7-5. The following chemicals were detected in subsurface soil at maximum concentrations exceeding direct contact risk-based COPC screening levels and were retained as COPCs for subsurface soil.

- VOCs (PCE, TCE, and VC)
- Metals (arsenic, chromium, iron, and vanadium)

Maximum concentrations PCE, TCE, VC, iron, and manganese exceeded USEPA RSLs, but were less than IDEM screening levels for direct contact. Aluminum, cobalt, and manganese were detected at concentrations greater than screening criteria in subsurface soil, but were eliminated as COPCs due to background concentrations.

A comparison of maximum detected subsurface soil concentrations to USEPA SSLs and IDEM screening levels for migration to groundwater is also presented in Table 7-6. The following chemicals were detected at maximum concentrations exceeding the COPC screening levels for migration from soil to groundwater and were retained as COPCs for migration from subsurface soil to groundwater:

- VOCs (1,2-dichlorobenzene, 1,4-dichlorobenzene, benzene, chlorobenzene, cis-1,2-DCE, methylene chloride, PCE, TCE, and VC)
- Metals (arsenic, chromium, and iron)

Concentrations of 1,2-dichlorobenzene and 1,4-dichlorobenzene exceeded USEPA SSLs for migration to groundwater, but did not exceed the IDEM screening levels. Concentrations of cobalt and manganese exceeded screening levels, but were within site background levels; therefore, these substances were not retained as COPCs for migration from surface soil to groundwater.

7.2.3.3 Sediment

A comparison of the maximum detected sediment concentration to screening levels based on the USEPA RSL for residential exposure to soil and IDEM screening levels for direct contact is presented in Table 7-7. The results of the background analysis from Appendix G.2 are also presented in Table 7-7. The following chemicals were detected in sediment at maximum concentrations exceeding the direct contact risk-based COPC screening levels and were retained as COPCs for sediment.

- PAHs (benzo(a)pyrene, benzo(b)fluoranthene, and dibenzo(a,h)anthracene)
- 2,3,7,8-TCDD TEQs
- Metals (arsenic, chromium, iron, and thallium)

Maximum concentrations of benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, 2,3,7,8-TCDD TEQ, iron, and thallium exceeded USEPA RSLs, but were less than IDEM screening levels for direct contact. Aluminum, cobalt, manganese, and vanadium were detected at concentrations greater than the screening levels for sediment, but were eliminated as COPCs due to background concentrations.

7.2.3.4 Groundwater

A comparison of maximum detected groundwater concentrations to screening levels based on RSLs and IDEM screening levels for tap water and USEPA MCLs is presented in Table 7-8. The following chemicals were detected at maximum concentrations exceeding the COPC screening levels for direct contact with groundwater and were retained as COPCs for groundwater.

- VOCs (benzene, chloroform, cis-1,2-DCE, PCE, TCE, and VC)

The maximum concentrations of benzene, chloroform, cis-1,2-DCE, and VC exceeded the USEPA RSLs, but were less than IDEM screening levels for groundwater.

A comparison of maximum detected groundwater VOC concentrations to USEPA VISLs and IDEM screening levels for chemical migration from groundwater through building foundations and into indoor air is presented in Table 7-9. The following chemicals were detected at maximum concentrations exceeding the COPC screening levels for groundwater for vapor intrusion into buildings and were retained as COPCs for the vapor intrusion pathway.

- VOCs (benzene, chloroform, PCE, TCE, and VC)

Maximum concentrations of benzene, chloroform, cis-1,2-DCE, and VC exceeded USEPA RSLs, but were less than IDEM screening levels for vapor intrusion.

7.2.3.5 Summary

COPC selection tables for each medium are presented in Tables 7-3 through 7-9. Chemicals retained as COPCs for SWMU 11 are provided in Table 7-10. Individual TCDD congeners are not shown in Table 7-10 or discussed in the text because they are accounted for in the HHRA by evaluating the 2,3,7,8-TCDD TEQ sum of all congeners.

7.3 EXPOSURE ASSESSMENT

This portion of the risk assessment defines and evaluates, quantitatively or qualitatively, the type and magnitude of human exposure to the chemicals present at or migrating from a site. The exposure assessment is designed to depict the physical setting of the site, to identify potentially exposed populations and applicable exposure pathways, to calculate concentrations of COPCs to which receptors might be exposed, and to estimate chemical intakes under the identified exposure scenarios.

Actual or potential exposures at SWMU 11 were determined based on the most likely pathways of contaminant release and transport, as well as human activity patterns. A complete exposure pathway has three components: a source of chemicals that can be released to the environment, a route of contaminant transport through an environmental medium, and an exposure or contact point for a human receptor.

7.3.1 Conceptual Site Model

This section discusses the CSM for SWMU 11. A CSM facilitates consistent and comprehensive evaluation of the potential risks to human health by creating a framework for identifying the pathways by which human receptors may come in contact with contaminated media resulting from source area(s)

releases. A CSM depicts the relationships among the following elements, which are necessary for defining complete exposure pathways:

- Site sources of contamination
- Contaminant release mechanisms and transport/migration pathways
- Exposure routes
- Potential receptors

The elements of the CSM (contaminant source, release mechanisms, transport/migration pathways, exposure routes, and potential receptors) establish the manner and degree to which a potential receptor may be exposed to chemicals present at the site. The degree of risk incurred by a potential receptor varies according to the means of exposure, the duration of exposure, and the specific chemical to which the receptor is exposed. An exposure, however long in duration, does not necessarily result in an "unacceptable" health or environmental risk, although risks generally increase with increased frequency and/or duration of exposure.

Details on the site background, physical setting, previous investigations, and hazard identification were presented in Section 1.0. Summarizing the information from Section 1, SWMU 11 covers approximately 1 acre and is located near the northwestern boundary of NSA Crane. The site consists of the concrete slab foundation of former Building 225, the adjacent concrete loading dock, a railroad siding spur adjacent to the loading dock, and grassed and paved areas surrounding the foundation. A drainage ditch is located on the northwestern side of the site between the railroad siding spur and the railroad tracks.

Figure 7-1 presents the human health CSM for SWMU 11. The elements of the CSM, including how they pertain to SWMU 11, are discussed below. Sources of contamination, contaminant release mechanisms, transport and migration pathways, exposure routes, and potential receptors are defined. Table 7-11 provides a site-specific summary of the potential receptors to be evaluated for SWMU 11. A summary of the exposure routes that will be addressed quantitatively for each human receptor is provided in Table 7-12.

7.3.1.1 Site Sources of Environmental Contamination

While Building 225 existed on site, it was used for storage of quantities of PCP, paints, sodium fluorescein dye, solvents (acetone, toluene, and methyl ethyl ketone), and other items including inks and wax paraffin. In 1976, Building 225 was destroyed by a fire. The fire extended to surrounding grass in the area. The fire has been attributed to the deterioration of containers which allowed contents to seep out onto cardboard containers and wooden pallets, causing spontaneous ignition. More than

600,000 gallons of water were used to extinguish the fire. After the fire, residual water ponding near the building was collected and transported to a concrete holding pond located approximately 1 mile southwest of the site. Much of the fire water runoff collected in a drainage ditch northwest of the site, flowed through a culvert into the drainage channel, and then discharged into Broom Branch and subsequently into First Creek.

Spills and releases associated with the 1976 fire are the sources of contamination at SWMU 11. Metals, VOCs, PAHs, PCP, and chlorinated dioxins and furans may have been released from the site as a result of the fire.

7.3.1.2 Potential Contaminant Release Mechanisms and Transport/Migration Pathways

Based on historical information, plausible contaminant release and migration mechanisms for SWMU 11 include the following:

- Transport of surface soil contaminants to subsurface soil and groundwater via infiltration, percolation, and migration within the groundwater.

- Overland runoff of surface waters, sediment, and surface soil.

- Although the primary airborne release of smoke and dusts containing combustion byproducts and other substances occurred during the 1976 fire, residual contamination may be released from surface soils via fugitive dust emissions or volatilization (and subsurface soils if construction/excavation activities occur).

7.3.1.3 Potential Current and Future Receptors of Concern and Exposure Pathways

NSA Crane is an active Naval base and will remain active for the foreseeable future. Current site users include industrial workers in buildings within the immediate area, maintenance workers (e.g., utilities), construction workers, and adolescent trespassers. However, because future land use is unknown, for purposes of completeness, the baseline risk assessment will also consider receptor exposure under residential and recreational land use scenarios. Based on current and potential future land use, the following potential receptors may be exposed to contaminated environmental media within the study area:

- **Industrial Workers** – A plausible receptor under current and future land use. This includes adult military or civilian personnel assigned to routine daily work tasks in the SWMU 11 area. This receptor could be exposed to surface soil (via incidental ingestion, dermal contact, and inhalation of fugitive

dusts or VOCs after volatilization). This receptor is expected to be exposed to surface soil on a more frequent basis than the maintenance or construction worker. This receptor may work inside a building located at or adjacent to SWMU 11, and may be exposed to vapor intrusion from groundwater to indoor air. It is anticipated that this receptor would not be routinely exposed via direct contact with groundwater or sediments. Although unlikely, exposures to subsurface soil were included to aid in future risk management decisions.

- **Maintenance Workers** – A plausible receptor under current and future land use. This receptor could be exposed to surface soil (via incidental ingestion, dermal contact, and inhalation of fugitive dusts or VOCs after volatilization). It is anticipated that this receptor would not be routinely exposed to direct contact with groundwater or sediments. Although unlikely, exposures to subsurface soil were included to aid in future risk management decisions.

- **Adolescent Trespassers** – A plausible receptor under current or future land use. Although access to the base is controlled, once inside the base, access to the study areas is not limited by any physical constraints. In addition, hunting activities are permitted at the base. Occasionally, individuals may trespass within the study areas. This receptor could be exposed to surface soil (via incidental ingestion, dermal contact, and inhalation of fugitive dusts or VOCs after volatilization) and sediment (via incidental ingestion and dermal contact). Although unlikely, exposures to subsurface soil were included to aid in future risk management decisions.

- **Construction Workers** – A plausible receptor under current and future land use. If excavation activities were to occur in the future, this receptor could be exposed to surface and subsurface soils (via incidental ingestion, dermal contact, and inhalation of fugitive dusts or VOCs after volatilization) and shallow groundwater (via dermal contact and inhalation of VOCs after volatilization), for example, pooling at the bottom of an excavation ditch. Routine exposure to sediment is not expected for the construction worker.

- **Recreational Users** – A plausible receptor under future land use. If NSA Crane were to close, the most likely scenario is that the property would be converted to a park. A recreational user may be exposed to potentially contaminated surface soil (via incidental ingestion, dermal contact, and inhalation of fugitive dusts or VOCs after volatilization) and sediment (via incidental ingestion and dermal contact). NSA Crane is not expected to close because principal base operations, the demilitarization of munitions, are critical to the support of the United States Naval fleet. Although unlikely, exposures to subsurface soil were included to aid in future risk management decisions. It is expected that this receptor would not be exposed via direct contact with groundwater.

- **On-Base Residents** – An unlikely receptor under future land use. Although this scenario is highly unlikely, a future residential scenario is typically evaluated in a risk assessment for decision-making purposes. For example, the need for deed restrictions at a site may be eliminated prior to site closure if minimal risks are estimated for residential receptors. It is assumed that a hypothetical resident may be exposed to surface soils (via incidental ingestion, dermal contract, and inhalation of fugitive dusts or VOCs after volatilization) and groundwater (via tap water ingestion, dermal contact, and inhalation during showering). This receptor may be exposed to inhalation of VOCs in indoor air associated with vapor intrusion from groundwater into a residential dwelling. Routine exposure to sediment is not expected for residents. Although unlikely, exposures to subsurface soil were included to aid in future risk management decisions.

Details regarding the assumed receptor characteristics (e.g., intake rate, frequency, duration of exposure) are defined in Section 7.3.4.

Surface water data were not collected for use in the human health risk assessment. Occasional contact with surface water, although possible for receptors who may also contact sediment, would not be likely to result in significant additional exposure to site contaminants because active contaminant releases from the source to surficial drainage pathways in the environment were over 35 years ago. Hence, soluble contaminants would have been washed away from surficial sediments long ago, which would then lead to direct contact with sediment representing the primary route of contact for a receptor.

Current and future industrial workers, maintenance workers, adolescent trespassers, and future recreational users or hypothetical residents are unlikely to be exposed to subsurface soil, although exposures to subsurface soil might occur if subsurface soil is brought to the surface as a result of excavation activities. A quantitative analysis of exposures to subsurface soil for these receptors was included to assist the risk managers tasked with making remedial decisions for SWMU 11.

7.3.2 Central Tendency Exposure vs. Reasonable Maximum Exposure

Traditionally, exposures evaluated in the HHRA were based on the concept of a RME only, which is defined as "the maximum exposure that is reasonably expected to occur at a site" (USEPA, 1989). However, subsequent risk assessment guidance (USEPA, 1992a) indicates the need to address an average case or central tendency exposure (CTE).

To provide a full characterization of potential exposure, both scenarios were evaluated in the HHRA for SWMU 11 whenever RME cancer risks exceeded the $1x10^{-4}$ to $1x10^{-6}$ "target risk range" or when the non-cancer hazard exceeded a reference value of 1, a level above which adverse effects cannot be ruled out

(see Section 7.5.3). The available guidance (USEPA, 1993a) concerning the evaluation of CTE is limited and at times vague. Therefore, professional judgment was exercised in some cases to select one-half of the RME value for certain parameters such as exposure frequencies when defining CTE conditions for a particular receptor at a site.

7.3.3 Exposure Point Concentrations

The exposure point concentration (EPC), which is calculated for COPCs only, is an estimate of the chemical concentration within an EU likely to be contacted over time by a receptor and is used to estimate exposure intakes. An EU is defined as the area typically encountered/traversed by a receptor under a particular land use scenario. For example, a residential lot size of ¼ to 2 acres is often used for the evaluation of a hypothetical future resident. However, the size of an EU is typically based on the distribution of chemical concentrations in a medium as well as on presumed receptor activity patterns. SWMU 11 was divided into two EUs for calculating risks, including the Building 225 Area and the Building 2981 Concrete Tank Area. Building 2981 Concrete Tank area was evaluated as a separate EU because it is located approximately 1 mile southwest of Building 225.

The following guidelines were used to calculate EPCs:

- If the datasets for surface soil, subsurface soil, groundwater, and sediment contained five or more samples and at least three detected samples then the 95-percent upper confidence limit (UCL) on the arithmetic mean, which was based on the distribution of the data set, was selected as the EPC. EPCs were calculated following USEPA's Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (USEPA, 2002a) and using USEPA's ProUCL software Version 5.0.00 (USEPA, 2013c). If ProUCL was unable to calculate an UCL then the maximum detected concentration was used as the EPC.

- If the datasets for surface soil, subsurface soil, groundwater, and sediment had four or fewer samples, then the maximum detected concentration was used as the EPC.

- Non-detected values were evaluated in accordance with the ProUCL guidance.

- The same EPCs were used for both the RME and CTE scenarios.

Table 7-13 summarizes the EPCs used in this HHRA. RAGS Part D Tables for the EPCs are presented in Appendix G.3. ProUCL Outputs are included in Appendix G.4.

7.3.4 Chemical Intake Estimation

The methodologies and techniques used to estimate exposure intakes are presented in this section. Intakes for the identified potential receptor groups were calculated using current USEPA risk assessment guidance and are presented in the risk assessment spreadsheets. Risk assessment results are presented using USEPA RAGS Part D table format. Assumptions regarding exposure are presented in Tables 7-14 and 7-15 for the RME and CTE scenarios, respectively. The exposure assumptions presented in Table 7-14 and 7-15 are based on current USEPA and IDEM risk assessment guidance.

Non-carcinogenic hazards were assessed by estimating a total annual exposure and, then converting the dose to an average daily intake. When compared to toxicity benchmarks, daily intake represents the rate of exposure and does not suggest incrementally increasing degrees of cumulative toxicity according to years of exposure duration. The intake incorporates terms describing the exposure time and/or frequency that represent the number of hours per day and the number of days per year that exposure occurs. The sum of exposures over 1 year was divided by 365 days of "averaging time" to convert the annual exposure to an average daily intake. Noncarcinogenic hazards for some exposure routes were generally greater for children than for adults because of differences in body weight and intake.

Carcinogenic risks, on the other hand, were estimated as incremental lifetime risks and, therefore, incorporate terms to sum exposures over an expected exposure duration (years of exposure), and then divide by the total days in a typical lifetime (70 years). The carcinogenic exposure model accounts for the probability of developing cancer increasing with every additional year of cumulative exposure.

7.3.4.1 Incidental Ingestion of Soil and Sediment

Direct physical contact with soil and sediment may result in the incidental ingestion of chemicals. Chemical intake for the incidental ingestion of soil and sediment is estimated in the following manner (USEPA, 1989):

$$\text{Intake} = \frac{(C_s)(RBA)(IR)(FI)(EF)(ED(CF)}{(BW)(AT)}$$

where:

Intake	=	intake of chemical from soil or sediment (mg/kg/day)
C_s	=	concentration of chemical in soil or sediment (mg/kg)
IR	=	ingestion rate (mg/day)
RBA	=	relative bioavailability (unitless)

FI	=	fraction ingested from contaminated source (dimensionless)
EF	=	exposure frequency (days/yr)
ED	=	exposure duration (yr)
CF	=	conversion factor (1×10^{-6} kg/mg)
BW	=	body weight (kg)
AT	=	averaging time (days);
		for non-carcinogens, AT = ED x 365 days/yr
		for carcinogens, AT = 70 yr x 365 days/yr

Most of the exposure assumptions used to estimate chemical intakes from incidental ingestion of soil were based on default assumptions described in standard USEPA guidance and are summarized in Tables 7-14 and 7-15. The following paragraphs briefly discuss the non-default receptor-specific exposure assumptions for incidental ingestion of soil that were used in the HHRA.

The selected exposure frequency assumptions consider anticipated receptor activities at SWMU 11. It is assumed that construction workers assigned to future excavation projects at SWMU 11 are exposed to soil for 5 days a week over 30 weeks (150 days a year) for 1 year under the RME scenario. The exposure frequency for the construction worker under the CTE scenario was assumed to be 50 percent of the RME or 75 days a year. Maintenance workers were assumed to be exposed two days a month (24 days a year) under the RME scenario and 1 day a month (12 days a year) under the CTE scenario. Child and adult recreational users were assumed to be exposed to soil 2 days a week during the warmer weather months (52 days a year) under the RME scenario and 1 day a week (26 days a year) under the CTE scenario. The adolescent trespasser is assumed to be exposed to soils on a somewhat less frequent basis (26 and 13 days per year for the RME and CTE case, respectively). A value of 0.6 was used for the relative bioavailability (RBA) for arsenic (USEPA, 2012b) and a value of 1 was used for all other chemicals.

7.3.4.2 Dermal Contact with Soil and Sediment

Direct physical contact with soil or sediment may result in the dermal absorption of chemicals. Exposure associated with dermal contact with soil or sediment is estimated in the following manner (USEPA, 1989):

$$\text{Intake} = \frac{(C_s)(SA)(AF)(ABS)(CF)(EF)(ED)}{(BW)(AT)}$$

where:

Intake	=	amount of chemical absorbed during contact with soil (mg/kg/day)
C_s	=	concentration of chemical in soil (mg/kg)
SA	=	skin surface area available for contact (cm^2/day)
AF	=	skin adherence factor (mg/cm^2)
ABS	=	absorption factor (dimensionless)
CF	=	conversion factor (1×10^{-6} kg/mg)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (year)
BW	=	body weight (kg)
AT	=	averaging time (days);
		for non-carcinogens, AT = ED x 365 days/year
		for carcinogens, AT = 70 years x 365 days/year

Most of the exposure assumptions used to estimate chemical intakes from dermal contact with soil were based on the default assumptions described in standard USEPA guidance and are summarized in Tables 7-14 and 7-15. The following paragraphs briefly discuss non-default receptor-specific exposure assumptions for dermal contact with soil that were used in the HHRA.

The exposed skin surface areas of the body available for dermal contact with soil were determined on a receptor-specific basis because they correspond with assumed human activities and clothing worn during exposure events. With the exception of the skin surface area recommended for adolescent trespassers, all of the skin surface areas presented in Tables 7-14 and 7-15 are based on USEPA default values. For an adolescent trespasser (7 to 16 years old), it was assumed that 25 percent of the body surface area was exposed to surface soil and sediment (i.e., 3,280 cm^2). This value represents the 50th-percentile areas presented in Table 4-6 of the Exposure Factors Handbook (USEPA, 1997a).

The same exposure frequencies and durations recommended for the evaluation of incidental ingestion of soil were used to estimate chemical intakes for dermal contact with soil. The soil adherence factors presented are those in Exhibits 3.3 and 3.5 of RAGS Part E. To the extent possible, chemical-specific dermal absorption factors provided in RAGS Part E were used to evaluate the COPCs for soil. However, dermal absorption factors are only available for the short list of chemicals in Exhibit 3-4 of RAGS Part E. In addition, as indicated in RAGS Part E, absorption factors for metals other than arsenic and cadmium have not been developed due to insufficient data to support default values. Therefore, ABS was set equal to zero for these chemicals and risks from dermal absorption of metals other than arsenic and cadmium from soil were not quantified in this risk assessment. The uncertainty associated with the

omission of these constituents is discussed in the uncertainty analysis. Tables 7-16 presents the ABS values used in this HHRA.

7.3.4.3 Inhalation of Air Containing Fugitive Dust/Volatiles Emitted from Soil

Intakes of both particulates and vapors/gases are calculated using the same equation, as follows (USEPA, 2009):

$$EC = \frac{(C_{air})(ET)(EF)(ED)}{AT \times 24\,hrs/day}$$

where:

EC	=	exposure concentration (mg/m^3)
C_{air}	=	concentration of chemical in air (mg/m^3)
ET	=	exposure time (hours/day)
EF	=	exposure frequency (days/yr)
ED	=	exposure duration (yr)
AT	=	averaging time (days);
	=	for non-carcinogens, AT = ED x 365 days/yr
	=	for carcinogens, AT = 70 yr x 365 days/yr

Some of the exposure assumptions used to estimate chemical intakes from inhalation of fugitive dusts/volatile emissions from surface and subsurface soil were based on default assumptions described in standard USEPA guidance and are shown in Tables 7-14 and 7-15. The same exposure frequencies and durations used to estimate incidental ingestion of soil intakes were used to estimate exposure via inhalation of fugitive dust/volatile emissions for surface and subsurface soil. Exposure time was assumed to be 24 hours per day for child and adult residents; 4 hours per day for child and adult recreational users, and the adolescent trespasser; and 8 hours per day for the maintenance worker, industrial worker; and the construction worker (USEPA, 1991).

The concentrations of chemicals in air resulting from emissions from soil are developed following procedures presented in USEPA Soil Screening Guidance (USEPA, 2002c). Chemical concentrations in air were calculated as follows:

$$C_{air} = C_{soil} \times \left[\frac{1}{PEF} + \frac{1}{VF}\right]$$

where:

C_{air}	=	chemical concentration in air (mg/m^3)
C_s	=	chemical concentration in soil (mg/Kg)
PEF	=	Particulate emission factor (m^3/kg)
VF	=	volatilization factor (m^3/kg)

If no volatile chemicals were retained as COPCs in surface and subsurface soil, then the above equation reduces to:

$$C_{air} = C_{soil} \times \left[\frac{1}{PEF}\right]$$

The particulate emissions factor (PEF) relates the concentration of the chemical in soil to the concentration of dust particles in air. A PEF value of $1.316 \times 10^{+9}$ was used for the HHRA of SWMU 11 soils (USEPA, 2002c; IDEM, 2009). Because air emissions resulting from fugitive dust emissions settings will be different than dust emissions generated during construction activities, a separate PEF was used for construction activities. The PEF for construction workers ($1.34 \times 10^{+6}$ m^3/kg) was calculated using the equations presented in the supplemental SSL guidance document (USEPA, 2002c). A sample calculation showing how the PEF for construction workers was calculated is presented in Appendix G.5.

Ambient air concentrations resulting from the volatilization of COPCs from soil are chemical dependent and were calculated using the following equation from USEPA's Soil Screening Guidance:

$$VF = \frac{Q/C \times (3.14 \times D_a \times T)^{0.5} \times 10^{-4}\ (m^2/cm^2)}{(2 \times \rho_b \times D_a)}$$

and

$$D_a = \frac{[(\theta_a^{10/3} \times D_i \times H' + \theta_w^{10/3} \times D_w)/n^2]}{\rho_b \times K_d + \theta_w + \theta_a \times H'}$$

where:

VF	=	volatilization factor (m^3-air/kg-soil)
Q/C	=	inverse of the mean concentration at the center of source (gm/m^2-sec per kg/m^3)
D_a	=	apparent diffusivity, chemical specific, (cm^2/sec)
T	=	exposure interval, exposure specific, (sec)
ρ_b	=	dry bulk soil particle density (g/cm^3)

θ_a	=	air-filled soil porosity (L_{air}/L_{soil})
D_i	=	diffusivity in air, chemical specific, (cm^2/sec)
n	=	total soil porosity (L_{pore}/L_{soil})
θ_w	=	water-filled soil porosity (L_{air}/L_{soil})
D_w	=	diffusivity in water, chemical specific, (cm^2/sec)
K_d	=	soil-water partition coefficient, chemical specific
H'	=	dimensionless Henry's law constant, chemical specific

Chemical properties were obtained from the current USEPA RSL table (USEPA, 2013a) and are presented in Table 7-17.

7.3.4.4 Dermal Contact with Groundwater

Direct physical contact with groundwater may result in the dermal absorption of chemicals. Hypothetical residents were assumed to be exposed via dermal contact with groundwater during daily showering. Construction workers were assumed to have incidental dermal contact with exposed groundwater while working in an excavation. Exposures associated with the dermal route are estimated in the following manner (USEPA, 2004b):

$$DAD = \frac{(DA_{event})(EV)(ED)(EF)(SA)}{(BW)(AT)}$$

where:

DAD	=	dermally absorbed dose of chemical from water (mg/kg/day)
DA_{event}	=	dermally absorbed dose per event (mg/cm^2-event)
EV	=	event frequency (events/day)
ED	=	exposure duration (yr)
EF	=	exposure frequency (days/yr)
SA	=	skin surface area available for contact (cm^2)
BW	=	body weight (kg)
AT	=	averaging time (days);
		for non-carcinogens, AT = ED x 365 days/yr
		for carcinogens, AT = 70 yrs x 365 days/yr

Most of the exposure assumptions used to estimate chemical intakes from dermal contact with groundwater were based on default assumptions described in standard USEPA guidance and are shown in Tables 7-14 and 7-15.

The absorbed dose per event (DA_{event}) was estimated using a non-steady-state approach for organic compounds and a traditional steady-state approach for inorganics. For organics, the following equations apply:

$$\text{If } t_{event} < t^*, \text{ then}: DA_{event} = (2)(K_p)(FA)(C_w)(CF)\left(\sqrt{\frac{6\,\tau\, t_{event}}{\pi}}\right)$$

$$\text{If } t_{event} > t^*, \text{ then}: DA_{event} = (K_p)(FA)(C_w)(CF)\left(\frac{t_{event}}{1+B} + 2\tau\left(\frac{1+3B+3B^2}{(1+B)^2}\right)\right)$$

where:

t_{event}	=	duration of event (hour/event)
t*	=	time to reach steady-state conditions (hour)
K_p	=	permeability coefficient from water through skin (cm/hour)
FA	=	chemical-specific fraction absorbed (dimensionless)
C_w	=	concentration of chemical in water (mg/L)
τ	=	lag time (hour)
π	=	Pi (dimensionless; equal to 3.1416)
CF	=	conversion factor (0.001 L/cm^3)
B	=	Dimensionless ratio of the permeability of the stratum corneum relative to the permeability across the viable epidermis (dimensionless)

Values for the chemical-specific parameters (t*, K_p, FA, τ, and B) were obtained from the current dermal guidance (USEPA, 2004b, Exhibit B-3) and are presented in Table 7-16. If published values were not available for a particular compound, they were calculated using equations provided in the USEPA dermal guidance.

The following steady-state equation was used to estimate DA_{event} for inorganics:

$$DA_{event} = (K_p)(C_W)(t_{event})$$

The dermal permeability coefficient (K_p) values recommended in the USEPA dermal guidance (USEPA, 2004b) were used to calculate DA_{event} for inorganic COPCs.

7.3.4.5 Ingestion of Groundwater

Ingestion of groundwater may occur if hypothetical future residents use groundwater from the site as a domestic water source. Exposures associated with ingestion were estimated in the following manner (USEPA, 1989):

$$Intake_{si} = \frac{(C_{wi})(IR)(EF)(ED)(CF)}{(BW)(AT)}$$

where:

$Intake_{si}$	=	intake of contaminant "i" from groundwater (mg/Kg/day)
C_{wi}	=	concentration of contaminant "i" in groundwater (µg/L)
IR	=	ingestion rate (L/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
CF	=	conversion factor (0.001 mg/µg)
BW	=	body weight (kg)
AT	=	averaging time (days);
		for noncarcinogens, AT = ED x 365 days/year;
		for carcinogens, AT = 70 years x 365 days/year

It was assumed adult residents and child residents would ingest 2 L/day and 1 L/day, respectively, (USEPA, 1991) of tap water under the RME scenario and 1.4 L/day and 0.74 L/day of tap water, respectively, under the CTE scenario (USEPA, 1993a and 1997a). The same exposure frequencies and durations used in the estimation of dermal intakes were used to estimate exposure via ingestion.

7.3.4.6 Inhalation of Volatiles in Groundwater

Since VOCs are present in groundwater at SWMU 11, groundwater exposure may also result in chemical intake through inhalation if groundwater is used as a domestic water supply or is exposed during construction activities. This exposure route is plausible for hypothetical residential receptors that may be exposed while showering, bathing, washing dishes, etc. and for construction workers contacting shallow groundwater during excavation activities. For residential receptors, chemical intakes from inhalation exposure while showering due to volatilization of COPCs in groundwater were estimated using a mass transfer model, developed specifically for this exposure route, in combination with an air intake estimation model. The mass transfer model accounts for inhalation during and after a shower while the receptor remains in a closed bathroom. The method used is as follows (USEPA, 1989; Foster and Chrostowski, 1987; USEPA, 2009):

$$EC = (S)(ET)(K)(EF)(ED)/(AT)(R_a)(CFs)$$

$$K = D_s + \frac{\exp(-R_a \times D_t)}{R_a} - \frac{\exp\left[R_a \times (D_s - D_t)\right]}{R_a}$$

where:

EC	=	exposure concentration (mg/m^3)
S	=	volatile chemical generation rate ($\mu g/m^3$-min-shower)
ET	=	exposure time (hours/day)
K	=	mass-transfer coefficient (min)
EF	=	exposure frequency (showers/yr)
ED	=	exposure duration (yr)
AT	=	averaging time or period of exposure (hours)
		for non-carcinogens, AT = ED×365 days per year×24 hours per day;
		for carcinogens, AT = 70 years×365 days per year x24 hours per day
R_a	=	air-exchange rate (min^{-1})
CFs	=	conversion factors ($1x10^{+3}$ µg/mg and 1,440 min/day)
D_S	=	shower duration (min)
D_t	=	total time in bathroom (min)

The estimated volatile chemical generation rate is based on two-phase film theory. The model uses contaminant-specific mass transfer coefficients, Henry's Law Constants, droplet diameter, drop time, viscosity, temperature, etc. A sample calculation is provided in Appendix G.5. The same exposure frequencies and durations used to estimate intake for dermal contact with groundwater were used to evaluate chemical intakes for inhalation of VOCs from domestic groundwater use.

Inhalation exposures for the construction worker were estimated using an air intake estimation model, as follows (USEPA, 2009):

$$EC = \frac{(C_{air})(ET)(EF)(ED)}{(AT)(24hrs/day)}$$

where:

EC	=	exposure concentration (mg/m^3)
C_{air}	=	chemical concentration in air (mg/m^3)
ET	=	exposure time (hours/day)
EF	=	exposure frequency (days/yr)
ED	=	exposure duration (yr)
AT	=	averaging time (days)
		for non-carcinogens, AT = ED×365 days per year
		for carcinogens, AT = 70 years×365 days per year

Construction workers may be exposed to COPCs that have volatilized from groundwater when an excavation exposes the shallow water table. The same exposure frequencies and times used to estimate intake from dermal contact with groundwater were used to evaluate intake from inhalation of VOCs from groundwater during construction.

No well-established models are available for estimating migration of volatiles from groundwater into a construction or utility trench. To estimate the EPCs for air in a construction trench, the HHRA used an approach suggested by the Virginia Department of Environmental Quality (VDEQ) (VDEQ, 2013), which is based on a combination of a vadose zone model (to estimate volatilization of gases from contaminated groundwater into a trench) and a box model (to estimate contaminant dispersion from the air inside the trench to the above-ground atmosphere). The VDEQ methodology is described in the following paragraphs.

The airborne concentration of a contaminant in a trench can be estimated using the following equation:

$$C_{air} = C_{GW} \times VF$$

where:

C_{air}	=	contaminant concentration in air in the trench (µg/m^3)
C_{GW}	=	concentration of contaminant in groundwater (µg/L)
VF	=	volatilization factor (L/m^3)

It was assumed that a construction project could excavate to 15 feet bgs or less. If the depth to groundwater at a site is less than 15 feet, the VDEQ model assumes that a worker would encounter groundwater when digging an excavation or trench. The worker would then be directly exposed to the groundwater. The worker would also be exposed to contaminants in the air inside the trench due to volatilization from groundwater pooling in the trench bottom.

The following equation is used to calculate the volatilization factor (VF) for a trench less than 15 feet deep:

$$VF = (Ki \times A \times F \times 10^{-3} \times 10^{4} \times 3{,}600)/(ACH \times V)$$

where:

Ki	=	contaminant's overall mass-transfer coefficient (cm/s)
A	=	trench area (m^2)
F	=	fraction of floor through which contaminant can enter (unitless)
ACH	=	air changes per hour (h^{-1}) = 360 h^{-1}
V	=	trench volume (m^3)
10^{-3}	=	conversion factor (L/cm^3)
10^4	=	conversion factor (cm^2/m^2)
3,600	=	conversion factor (seconds/hour)

Studies of urban canyons suggest that if the ratio of trench width, relative to wind direction and trench depth, is less than or equal to one, a circulation cell(s) will be created in the trench, limiting the degree of gas exchanged with the atmosphere. Thus, measured building ventilation rates lead to an assumption of two air changes per hour (ACH). If the width-to-depth ratio of the trench is greater than one, the air exchange between the trench and above-ground atmosphere is unrestricted, based on the ratio of trench depth to average wind speed, so the ACH is assumed to be 360. The exposure assessment in this HHRA assumes that the width-to-trench depth ratio is greater than one; thus, the ACH is set at 360.

K_i is calculated using the following equation:

$$K_i = 1/\{(1/k_iL) + [(RT)/(H_i\ k_iG)]\}$$

where:

K_i	=	containment's overall mass-transfer coefficient (cm/s)
k_iL	=	liquid-phase mass-transfer coefficient of i (cm/s)
R	=	ideal gas-constant (atm-m^3/mole-°K) = 8.2×10^{-5}
T	=	average system absolute-temperature (°K) (Default = 298°K)
H_i	=	Henry's Law Constant of i (atm-m^3/mole)
k_iG	=	gas-phase mass-transfer coefficient of i (cm/s)

Formulae for calculating k_iL and k_iG are as follows:

$$k_iL = (MWO_2/MW_i)^{0.5}\times(T/298)\times kL,O_2$$

where:

k_iL	=	liquid-phase mass-transfer coefficient of component i (cm/s)
MWO_2	=	molecular weight of oxygen (g/mole)
MW_i	=	molecular weight of component i (g/mole)

kL,O_2 = liquid-phase mass-transfer coefficient of oxygen at 25°C (cm/s) = 0.002 cm/s

$$k_iG = (MWH_2O/MW_i)^{0.335} \times (T/298)^{1.005 \times} kG,H_2O$$

where:

k_iG = gas-phase mass-transfer coefficient of component i (cm/s)

MWH_2O = molecular weight of water (g/mole)

kG,H_2O = gas-phase mass-transfer coefficient of water vapor at 25°C (cm/s) = 0.833 cm/s (USEPA, 1988)

Chemical properties were obtained from the USEPA RSL Table (USEPA, 2013a) and are presented in Table 7-17.

7.3.4.8 Inhalation of VOCs Associated with Vapor Intrusion from Groundwater into Buildings

Future industrial workers and hypothetical residents may be exposed to COPCs that have volatilized from groundwater and migrated through building foundations into indoor air. Indoor air concentrations resulting from vapor intrusion from groundwater were estimated using the Johnson and Ettinger volatilization model (USEPA, 2004c). The model assumes that volatile chemicals are emitted from groundwater, migrate through subsurface soil and then through cracks in the building foundation, and accumulate in air inside a building. The vapor intrusion pathway was evaluated for those chemicals detected at concentrations in groundwater exceeding the screening levels discussed in Section 7.2. The Johnson and Ettinger cannot calculate risks for mutagenic chemicals. Therefore, the Johnson and Ettinger model was used to estimated indoor air concentrations and risks were calculated using the methodology presented in Section 7.3.4.6.

In applying the Johnson and Ettinger model, slab-on-grade construction was assumed for the hypothetical building. Based on the boring and drilling logs, the soil type was determined to be silty clay. The depth to groundwater was estimated to be 6.9 feet bgs. This depth to groundwater may be somewhat conservative as groundwater was not encountered at this depth during the drilling of soil borings. However, groundwater was measured in the groundwater monitoring wells at approximately 5 to 9 feet bgs in fractured bedrock. The average groundwater temperature was assumed to be 13 degrees Celsius (°C) (USEPA, 2004c). The maximum detected concentrations in groundwater were used for volatile chemicals exceeding screening levels. Default values were used for the remaining model input parameters. Table 7-18 lists the input parameters used in the vapor intrusion modeling. Printouts of the vapor intrusion model are included in Appendix G.6.

There are no default input parameters for evaluating industrial exposures from vapor intrusion. The risks for industrial exposures via vapor intrusion depend on several factors including the building size, building layout, and air exchange rate. Without knowing these factors there will be high uncertainty associated with any estimated risks. Therefore, industrial exposures via vapor intrusion were not quantitatively evaluated in this HHRA. Risks for industrial workers are expected to be less than those estimated for hypothetical residents since industrial workers would be exposed to volatiles in indoor air on a less frequent basis than residential receptors. In addition, industrial facilities are typically larger than residential housing units and have larger air exchange rates which would result in lower indoor air concentrations.

7.3.4.9 Assessing Cancer Risks from Early Life Exposures

USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005c) recommends making adjustments to the toxicity of carcinogenic chemicals that act via the mutagenic mode of action when evaluating early-life exposures. The guidance recommends using age-dependent adjustment factors (ADAFs) combined with age-specific exposure estimates when assessing cancer risks. In the absence of chemical-specific data, the supplement guidance recommends the following default adjustments, which reflect the fact that cancer risks are generally higher from early-life exposures than from similar exposures later in life:

- For exposures before 2 years of age (i.e., spanning a 2-year interval from the first day of birth until a child's second birthday), a 10-fold adjustment.

- For exposures between 2 and 16 years of age (i.e., spanning a 14-year time interval from a child's second birthday until his or her sixteenth birthday), a three-fold adjustment.

- For exposures after 16 years of age, no adjustment.

The adjustments were applied using the same method as that used by USEPA in the development of RSLs. Children were evaluated as two age groups, ages 0 to 2 years and ages 2 to 6 years, and adults were evaluated as two age groups, ages 6 to 16, and ages greater than 16 years old. Using this approach, the intakes for child and adult recreational users and hypothetical residents were calculated as follows:

$$\text{Intake}_{\text{Child}} = \text{Intake}_{(\text{ages } 0 - 2 \text{ years})} \times 10 + \text{Intake}_{(\text{ages } 2 - 6 \text{ years})} \times 3$$

$$\text{Intake}_{\text{Adult}} = \text{Intake}_{(\text{ages } 6 - 16 \text{ years})} \times 3 + \text{Intake}_{(\text{ages} > 16 \text{ years})}$$

The intakes for adolescent trespassers were calculated as follows:

$$\text{Intake}_{\text{Adolescent}} = \text{Intake}_{(\text{age } 6 - 16 \text{ years})} \times 3$$

The above approach was used only for those chemicals that are identified as mutagenic in the USEPA screening table (e.g., chromium, carcinogenic PAHs and TCE). Sample calculations showing how this approach was applied are included in Appendix G.5.

7.3.4.10 Assessing Cancer Risks from Early Life Exposures to Vinyl Chloride

USEPA has categorized VC as a mutagen having enhanced carcinogenic potency during early life periods of exposure (USEPA, 2005c). Therefore, for VC, a second term is required in the risk calculation, which is not proportional to duration of exposure (non-prorated). The carcinogenic intake for VC is estimated as the sum of the non-prorated term and the prorated terms. For example, VC intake for ingestion of groundwater by a residential child was calculated as follows:

$$\text{Intake}_{\text{Child}} = \text{Non-Prorated Intake}_{(\text{ages } 0 - 2 \text{ years})} + \text{Prorated Intake}_{(\text{ages } 0 - 2 \text{ years})} + \text{Prorated Intake}_{(\text{ages } 2 - 6 \text{ years})}$$

$$\text{Intake}_{\text{child}} = \frac{(C_{wv})(IR)(CF)}{(BW)} + \frac{(C_{wv})(IR)(EF)(2\text{ yrs})(CF)}{(BW)(70\text{ yrs} \times 365\text{ days/yr})} + \frac{(C_{wv})(IR)(EF)(4\text{ yrs})(CF)}{(BW)(70\text{ yrs} \times 365\text{ days/yr})}$$

where:

C_{wv} = concentration of VC in groundwater (µg/L)
CF = conversion factor (0.001 mg/µg)
IR = ingestion rate (L/day)
EF = exposure frequency (days/yr)
BW = body weight (kg)

7.4 TOXICITY ASSESSMENT

The toxicity assessment weighs the evidence regarding the potential for exposure to chemicals to produce adverse effects in exposed receptors and, when possible, the assessment estimates the relationship between the exposure to a chemical and the increased likelihood and/or severity of adverse effects. Quantitative estimates of the relationship between the magnitude and type of exposures and the

severity or probability of human health effects are defined for the identified constituents of concern. Quantitative toxicity values determined during this component of the risk assessment are integrated with exposure assessment outputs to characterize the potential occurrence of adverse health effects for each receptor group.

The reference dose (RfD) is the toxicity value used to evaluate noncarcinogenic health effects for ingestion and dermal exposures. The reference concentration (RfC) is used to evaluate noncarcinogenic health effects for inhalation exposures. The RfD and RfC estimate a daily exposure level for a human population that is unlikely to pose an appreciable risk during a portion or for all of a human lifetime. It is based on a review of animal and/or human toxicity data, with adjustments for various data uncertainties. Carcinogenic effects are quantified using the cancer slope factor (CSF) for ingestion and dermal exposures, and using inhalation unit risks (IUR) for inhalation exposure that are plausible upper-bound estimates of the probability of the development of cancer per unit intake of the chemical over a lifetime. These are typically based on dose-response data from human and/or animal studies.

7.4.1 Toxicity Criteria for Oral and Inhalation Exposures

Oral RfDs and CSFs and inhalation RfCs and IURs used in this HHRA were obtained from the following primary USEPA literature sources (USEPA, 2003a):

- Tier 1 - Integrated Risk Information System (IRIS).

- Tier 2 - USEPA Provisional Peer Reviewed Toxicity Values (PPRTVs) – The Office of Research and Development/National Center for Environmental Assessment (NCEA) Superfund Health Risk Technical Support Center develops PPRTVs on a chemical-specific basis when requested by USEPA's Superfund program.

- Tier 3 - Other Toxicity Values – These sources include but are not limited to California Environmental Protection Agency (Cal EPA) toxicity values, ATSDR values, and the Annual Health Effects Assessment Summary Tables (HEAST) (USEPA, 1997b).

Although toxicity criteria can be found in several toxicological sources, USEPA's IRIS online database is the preferred source of toxicity values. This database is continuously updated, and the presented values have been verified by USEPA. The toxicity criteria for the constituents selected as COPCs are presented in Tables 7-19 through 7-22.

7.4.2 Toxicity Criteria for Dermal Exposure

RfDs and CSFs in the scientific literature are typically expressed as "administered" (i.e., not absorbed) doses. Therefore, these values are considered inappropriate for estimating risks associated with dermal exposures. Oral dose response parameters based on administered doses must be adjusted to absorbed doses before they can be compared to estimated dermal exposure intakes.

When oral absorption is essentially complete (i.e., 100 percent), an absorbed dose is equivalent to the administered dose, and therefore no toxicity adjustment is necessary. Conversely, when the gastrointestinal absorption of a chemical is poor (e.g., 1 percent), the absorbed dose is smaller than the administered dose; thus, toxicity factors based on absorbed dose should be adjusted to account for the difference in the absorbed dose relative to the administered dose. USEPA (2004b) recommends a 50 percent absorption cut-off to reflect the intrinsic variability in analyzing absorption studies. Therefore, the adjustment from administered to absorbed dose was only performed when the chemical specific gastrointestinal absorption efficiency was less than 50 percent. The adjustment from administered to absorbed dose was made using chemical specific gastrointestinal absorption efficiencies published in numerous sources of guidance [e.g., 2004b (the primary reference), IRIS, ATSDR toxicological profiles, etc.], using the following equations:

$$RfD_{dermal} = (RfD_{oral})(ABS_{GI})$$

$$CSF_{dermal} = (CSF_{oral}) \ / \ (ABS_{GI})$$

where:

ABS_{GI}	=	absorption efficiency in the gastrointestinal tract
RfD_{dermal}	=	RfD for the dermal route of exposure
RfD_{oral}	=	RfD for the oral route of exposure
CSF_{dermal}	=	CSF for the dermal route of exposure
CSF_{oral}	=	CSF of the oral route of exposure

As noted above, the preceding adjustment of the oral toxicity criteria (e.g., RfDs, CSFs) was necessary to allow quantitative evaluation of the dermal route of exposure in the baseline risk assessment. An explanation of this procedure and the need for this procedure are presented in Appendix A of USEPA RAGS Part A.

7.4.3 Toxicity Criteria for Chromium

Toxicity criteria are available for different forms of chromium (trivalent and hexavalent), where the hexavalent form is considered to be more toxic. In the absence of speciating the chromium into its different valence states, it is conservatively assumed that the all the chromium exists in its hexavalent form for the HHRA. Hexavalent chromium has carcinogenic and noncarcinogenic toxicity factors. However, hexavalent chromium is a carcinogen that acts via a mutagenic mode of action. USEPA Guidelines for Carcinogen Risk Assessment (2005b) and Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005c) specify the use of ADAFs for carcinogens that act via a mutagenic mode of action. No chemical-specific ADAF is available for hexavalent chromium; therefore, USEPA's default ADAFs are applied to the carcinogenic toxicity factors for hexavalent chromium. The following default ADAFs should be applied: 10 for ages 0 to 2, 3 for ages 2 to 16, and 1 (no adjustment) for ages 16 to 70. Noncarcinogenic effects are evaluated like all noncarcinogens in accordance with USEPA's risk assessment guidance (1989).

7.4.4 Toxicity Criteria for the Carcinogenic Effects of PAHs

Limited toxicity values are available to evaluate the carcinogenic effects from exposure to PAHs. The most extensively studied PAH is benzo(a)pyrene, which is classified by the USEPA as a probable human carcinogen. Although CSFs are available for benzo(a)pyrene, insufficient data are available to calculate CSFs for other carcinogenic PAHs. Toxic effects for these chemicals were evaluated using TEFs based on the potency of each compound relative to that of benzo(a)pyrene, as presented in current USEPA guidance (USEPA, 1993b). The TEFs are used to convert each individual carcinogenic PAH concentration into an equivalent concentration of benzo(a)pyrene.

Compound	TEF
Benzo(a)anthracene	0.1
Benzo(a)pyrene	1
Benzo(b)fluoranthene	0.1
Benzo(k)fluoranthene	0.01
Chrysene	0.001
Dibenzo(a,h)anthracene	1
Indeno(1,2,3-cd)pyrene	0.1

Carcinogenic PAHs acts via a mutagenic mode of action. USEPA Guidelines for Carcinogen Risk Assessment (2005b) and Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005c) specify the use of ADAFs for carcinogens that act via a mutagenic mode of action.

No chemical-specific ADAF is available for carcinogenic PAHs; therefore, USEPA's default ADAFs are applied to the carcinogenic intakes for the carcinogenic PAHs. The following default ADAFs were applied: 10 for ages 0 to 2, 3 for ages 2 to 16, and 1 (no adjustment) for ages 16 to 70.

7.4.5 Carcinogenicity of Chlorinated Dioxins/Furans

The cancer risk characterization for polychlorinated dibenzo-p-dioxin (PCDD) and polychlorinated dibenzofuran (PCDF) congeners was performed using TEFs that relate the toxicity of various congeners to the toxicity of 2,3,7,8-TCDD (USEPA, 1989). The TEF for an individual PCDD/PCDF congener is defined as the ratio of the oral carcinogenic slope factor for that congener relative to the slope factor for 2,3,7,8-TCDD. The TEFs for 2,3,7,8-substituted PCDDs/PCDFs have been published by the World Health Organization (van den Berg, et al., 2006) and accepted by USEPA (2010).

Compound	TEF
2,3,7,8-TCDD	1
1,2,3,7,8-PeCDD	1
1,2,3,4,7,8-HxCDD	0.1
1,2,3,6,7,8-HxCDD	0.1
1,2,3,7,8,9-HxCDD	0.1
1,2,3,4,6,7,8-HpCDD	0.01
OCDD	0.0003
2,3,7,8-tetrachlorodibenzofuran (TCDF)	0.1
1,2,3,7,8-pentachlordibenzofuran (PeCDF)	0.03
2,3,4,7,8-PeCDF	0.3
1,2,3,4,7,8-hexachlorodibenzofuran (HxCDF)	0.1
1,2,3,6,7,8-HxCDF	0.1
1,2,3,7,8,9-HxCDF	0.1
2,3,4,6,7,8-HxCDF	0.1
1,2,3,4,6,7,8-HpCDF	0.01
1,2,3,4,7,8,9-HpCDF	0.01
OCDF	0.0003

For each sample, the sum of congener concentrations after each congener was multiplied by its respective TEF and summed to produce a total 2,3,7,8-TCDD TEQ concentration. The maximum TEQ of all samples was screened against the RSL criterion for 2,3,7,8-TCDD to determine if dioxin was to be selected as a COPC. The UCL was then multiplied by the 2,3,7,8-TCDD cancer slope factor to yield an estimated cancer risk from exposures to all chlorinated dioxin and furan congeners present.

7.4.6 Toxicity Criteria for Trichloroethene

The toxicity factors for TCE were finalized by USEPA in September 2011. TCE has toxicity factors that address both carcinogenic and noncarcinogenic effects. Toxicological studies indicated that exposure to TCE increases the risk of kidney cancer, liver cancer, and non-Hodgkin's lymphoma. There is a sufficient weight of evidence to suggest that trichloroethene induced kidney tumors are a result of a mutagenic mode of action. USEPA Guidelines for Carcinogen Risk Assessment (2005b) and Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005c) specify the use of ADAFs for carcinogens that act via a mutagenic mode of action. However, the ADAFs will only be applied to a portion of the cancer slope factor and inhalation unit risk that is attributable to kidney-induced tumors.

The oral CSF for TCE is 4.6×10^{-2} $(mg/kg\text{-}day)^{-1}$ and the IUR is 4.1×10^{-6} $(\mu g/m^3)^{-1}$. For the kidney mutagenic endpoint, the oral CSF is 9.3×10^{-3} $(mg/kg\text{-}day)^{-1}$ and the IUR is 1×10^{-6} $(\mu g/m^3)^{-1}$. There are no chemical-specific ADAFs for the kidney mutagenic endpoint; therefore, the EPA's default ADAFs are applied to the carcinogenic toxicity factors for the kidney-related component of TCE's carcinogenic toxicity factors. The following default ADAFs should be applied: 10 for ages 0 to 2, 3 for ages 2 to 16, and 1 (no adjustment) for ages 16 to 70. For the liver cancer and non-Hodgkin's lymphoma endpoints, the oral CSF is 3.7×10^{-2} $(mg/kg\text{-}day)^{-1}$ and the IUR is 3×10^{-6} $(\mu g/m^3)^{-1}$. No ADAFs are applied to these values.

Noncarcinogenic effects are evaluated like all noncarcinogens in accordance with USEPA's risk assessment guidance (1989).

7.4.7 Toxicity Values for Construction Workers

Under the guidelines established by the Superfund program, exposures to construction workers of one year or less are classified as subchronic exposures. Risks for noncarcinogenic effects associated with subchronic exposures should incorporate toxicity values for subchronic and not chronic effects. Tables 7-19 and 7-20 display the available subchronic RfDs and RfCs that were used for the construction worker. Uncertainty associated with the lack of subchronic RfCs for some chemicals is discussed in Section 7.6.

7.4.8 Toxicity Criteria for Thallium

The USEPA RSLs for thallium were derived using PPRTVs. The oral reference dose presented in the RSL table for thallium was developed for the purposes of screening and is not appropriate for quantifying

risks (USEPA, 2012c). Therefore, the oral reference dose for thallium was not used to estimate risk in this HHRA.

7.5 RISK CHARACTERIZATION

This section provides a characterization of human health risks associated with potential exposures to COPCs at the SWMU 11. Potential risks (non-carcinogenic and carcinogenic) for human receptors resulting from exposures outlined in the exposure assessment were quantitatively determined and are discussed in this section. Sections 7.5.1 and 7.5.2 outline the methods used to quantitatively estimate the type and magnitude of potential risks for human receptors.

7.5.1 Noncarcinogenic Hazards

Noncarcinogenic hazards are technically not risks since a probability of health effects is not developed for noncarcinogens. Noncarcinogenic hazards were assessed using the concept of HQs and HIs. The HQ for a COPC is defined for ingestion and dermal exposures as the ratio of the estimated intake (mg/kg/day) to the RfD, while for inhalation exposures, the HQ is the ratio of the exposure concentration (mg/m^3) to the RfC, as follows:

$$\text{HQ-oral/dermal} = (\text{Estimated Exposure Intake}) / (\text{RfD})$$

$$\text{HQ-inhalation} = (\text{Estimated Exposure Concentration}) / (\text{RfC})$$

HIs are generated by summing individual HQs for COPCs. If the value of the total HI exceeds unity (1), the potential for noncarcinogenic health hazards associated with exposure to a particular chemical mixture cannot be ruled out (USEPA, 1986). In that case, a review of the target organ(s) affected by each chemical should be performed, which indicates the most sensitive toxic endpoints used to develop the associated RfDs for each substance. Target organ-specific HIs are evaluated for a receptor by summing the HQs for similar target organs. Since HIs for different organs are not truly additive, if each target organ-specific HI is less than 1, then adverse effects are not anticipated. The HI is not defined as a mathematical prediction of the severity of toxic effects; it is simply a numerical indicator of the possibility of the occurrence of noncarcinogenic (threshold) effects. Above an HI of 1, toxic effects would not necessarily occur but can no longer be ruled out. USEPA's goal of protection for noncancer hazards is an HI less than or equal to 1 for a target organ.

7.5.2 Carcinogenic Risks

ILCR estimates can be generated for each exposure pathway using the estimated intakes and published cancer toxicity factors. The ILCR for a COPC is defined for ingestion and dermal exposures and inhalation exposures as follows:

ILCR-oral/dermal = (Estimated Exposure Intake)(CSF)

ILCR-inhalation = (Estimated Exposure Concentration)(IUR)

The risk determined using these equations is defined as a unitless expression of an individual's increased likelihood of developing cancer over a lifetime as a result of a specific period and amount of exposure to carcinogenic chemicals. An ILCR of $1x10^{-6}$ indicates that the exposed receptor has a one in one million chance of developing cancer under the defined exposure scenario. Alternatively, such a risk may be interpreted as representing one additional case of cancer in an exposed population of 1,000,000 persons. The calculated cancer risks should be recognized as upper-limit estimates.

7.5.3 Comparison of Cancer Risk Estimates and Noncancer HIs to Reference Criteria

To interpret the estimates for cancer risks and noncancer HIs to aid risk managers in determining the need for remediation at a site, quantitative risk estimates were compared to typical reference criteria. A COPC exhibiting an HQ above 1, or otherwise contributing to a noncancer HI greater than 1 on the basis of a single target organ or effect indicates that there may be potential noncarcinogenic health risks associated with exposure. Only those chemicals that affect the same target organ(s) or exhibit similar critical effect(s) are regarded as truly additive. Consequently, it may be possible for a cumulative HI to exceed 1, but no adverse health effects are anticipated if the COPCs do not affect the same target organ or exhibit the same critical effect. However, remediation decisions are not made strictly based on HIs but are often further modified by other regulatory requirements such as chemical-specific clean-up goals.

USEPA has defined the range of $1x10^{-4}$ to $1x10^{-6}$ as the ILCR "target risk range" for most hazardous waste facilities addressed under CERCLA and RCRA. IDEM has defined this same risk range for the nondefault evaluation under their RISC program. Individual or cumulative ILCRs greater than $1x10^{-4}$ will typically not be considered as protective of human health and ILCRs less than $1x10^{-6}$ will typically be regarded as protective. Risk management decisions are necessary when the ILCR is within the $1x10^{-4}$ to $1x10^{-6}$ cancer risk range.

7.5.4 Results of the Risk Characterization

This section contains a summary of the results of the risk characterization for SWMU 11. Quantitative risk estimates for potential human receptors were developed for chemicals detected in surface and subsurface soil, groundwater, and sediment. Uncertainties associated with the risk estimates are discussed in Section 7.6. The methodology used to calculate the risks presented in this section is provided in Sections 7.3 and 7.4.

Potential cancer risks and noncander hazard indices were calculated for current and future exposures to industrial workers, maintenance workers, construction workers, and adolescent trespassers, and future exposures to child recreational users, adult recreational users, and hypothetical child and adult residents under the RME and CTE scenarios and are summarized in Tables 7-23 and 7-24 for SWMU 11 Building 225 Area and Tables 7-25 and 7-26 for IA 6. Table 7-27 presents the COCs. Sample calculations are presented in Appendix G.5, and the results of the risk assessment in RAGS Part D format are included in Appendix G.3.

7.5.4.1 Risk Characterization for Surface Soil at SWMU 11

HIs for all receptors exposed to surface soil at SWMU 11 under the RME and CTE scenarios were less than unity (1), indicating that adverse non-carcinogenic effects are not anticipated for these receptors under the defined exposure conditions.

ILCRs for all receptors exposed to surface soil at SWMU 11 under the RME and CTE scenarios were less than or within USEPA's and IDEM's target risk range of 10^{-4} to 10^{-6}.

7.5.4.2 Risk Characterization for B-2981 Concrete Tank Area Surface Soil

HIs for all receptors exposed to surface soil at IA 6 under the RME and CTE scenarios were less than unity (1), indicating that adverse non-carcinogenic effects are not anticipated for these receptors under the defined exposure conditions.

ILCRs for all receptors exposed to surface soil at IA 6 under the RME and CTE scenarios were less than or within USEPA's and IDEM's target risk range.

7.5.4.3 Risk Characterization for Subsurface Soil at SWMU 11

Under the RME scenario, cumulative HIs for all receptors exposed to subsurface soil at SWMU 11 with the exception of hypothetical child residents were less than or equal to unity (1), indicating that adverse

non-carcinogenic effects are not anticipated for these receptors under the defined exposure conditions. The HI for hypothetical child residents exposed to subsurface soil was 2, although as shown below the HQs for the individual target organs were all less than or equal to 1.

Hypothetical Child Resident	
Target Organ	**Hazard Quotient**
	Subsurface Soil
Cardiovascular System	0.6
Developmental	0.006
Gastrointestinal System	1
Kidney	0.3
Liver	0.05
Respiratory System	0.0005
None Specified	0.3
Skin	0.6
Neurotoxicity	0.03

Under the CTE scenario, HIs for all receptors exposed to subsurface soil at SWMU 11 were less than unity (1), indicating that adverse non-carcinogenic effects are not anticipated for these receptors under the defined exposure conditions.

ILCRs for all receptors under the RME scenario were less than or within USEPA's and IDEM's target risk range with the exception of the hypothetical child and lifelong resident. ILCRs for hypothetical child residents (ILCR = $2x10^{-4}$) and lifelong residents (ILCR = $3x10^{-4}$) exceeded USEPA's and IDEM's target risk range. Vinyl chloride, arsenic, and chromium were the major contributor to the ILCRs for exposures to subsurface soil. Chromium speciation was not performed on the subsurface soil samples; therefore chromium was evaluated as hexavalent chromium in this HHRA. If chromium is evaluated as trivalent chromium, then all ILCRs are within USEPA's and IDEM's target risk levels.

ILCRs for all receptors under the CTE scenario were less than or within USEPA's and IDEM's target risk range.

7.5.4.4 Risk Characterization for Sediment

HIs for all receptors exposed to sediment at SWMU 11 under the RME and CTE scenarios were less than unity (1), indicating that adverse non-carcinogenic effects are not anticipated for these receptors under the defined exposure conditions.

ILCRs for all receptors exposed to sediment at SWMU 11 under the RME and CTE scenarios were less than or within USEPA's and IDEM's target risk range of 10^{-4} to 10^{-6}.

7.5.4.5 Risk Characterization for Groundwater

HIs for construction worker exposed to groundwater under the RME and CTE scenarios were less than 1. HIs for hypothetical child and adult residents using groundwater as a potable water supply exceeded 1 under the RME and CTE scenarios. TCE and cis-1,2-DCE were the major contributors to the HI under the RME scenario. TCE was the major contributor to the HI under the CTE scenario.

ILCRs for construction workers and hypothetical adult residents exposed to groundwater under the RME scenario were less than or within USEPA's and IDEM's target risk range. The ILCR for hypothetical child residents (ILCR = $1x10^{-4}$) was equal to the upper bound of USEPA's and IDEM's target risk range. The ILCR for hypothetical lifelong residents (ILCR = $2x10^{-4}$) exceeded USEPA's and IDEM's target risk range. Benzene, TCE, and VC were the major contributors to the ILCR for hypothetical lifelong residents exposed to groundwater.

ILCRs for all receptors exposed to groundwater under the CTE scenario were less than or within USEPA's and IDEM's target risk range.

7.6 UNCERTAINTY ANALYSIS

There is uncertainty associated with all aspects of the baseline HHRA. A summary of the uncertainties, including a discussion of how they may affect the final risk numbers, is provided in this section.

Uncertainty in the selection of COPCs is related to the current status of the predictive databases, the grouping of samples, the numbers, types, and distributions of samples, and the procedures used to include or exclude constituents as COPCs. Uncertainty associated with the exposure assessment includes the values used as input variables for a given intake route or scenario, the assumptions made to determine EPCs, and the predictions regarding future land use and population characteristics. Uncertainty in the toxicity assessment includes the quality of the existing toxicity data needed to support dose-response relationships and the weight-of-evidence used to determine the carcinogenicity of COPCs. Uncertainty in risk characterization includes that associated with exposure to multiple chemicals and the cumulative uncertainty from combining conservative assumptions made in earlier steps of the risk assessment process.

Whereas there are various sources of uncertainty, the direction of uncertainty can be influenced by the assumptions made throughout the risk assessment, including selection of COPCs and selection of values for dose-response relationships. Throughout the entire risk assessment, assumptions are biased toward a margin of safety so that the final calculated risks are overestimated.

Generally, risk assessments carry two types of uncertainty: measurement and informational uncertainty. Measurement uncertainty refers to the usual variance that accompanies scientific measurements. For example, this type of uncertainty is associated with analytical data collected for each site. The risk assessment reflects the accumulated variances of the individual values used.

Informational uncertainty stems from inadequate availability of information needed to complete the toxicity and exposure assessments. Often, this gap is significant, such as the absence of information on the effects of human exposure to low doses of a chemical, on the biological mechanism of action of a chemical, or the behavior of a chemical in soil.

Once the risk assessment is complete, the results must be reviewed and evaluated to identify the type and magnitude of uncertainty involved. Reliance on results from a risk assessment without consideration of uncertainties, limitations, and assumptions inherent in the process can be misleading. For example, to account for uncertainties in the development of exposure assumptions, conservative estimates must be made to ensure that the particular assumptions made are protective of sensitive subpopulations or the maximum exposed individuals. If a number of conservative assumptions are combined in an exposure model, the resulting calculations can propagate the uncertainties associated with those assumptions, thereby producing a much larger uncertainty for the final results. This uncertainty is biased toward over predicting both carcinogenic and noncarcinogenic risks. Thus, both the results of the risk assessment and the uncertainties associated with those results must be considered when making risk management decisions.

This interpretation is especially relevant when the risks exceed the point of departure for defining "acceptable" risk. For example, when risks calculated using a high degree of uncertainty are less than an acceptable risk range (i.e., $1x10^{-6}$ to $1x10^{-4}$), the interpretation of no significant risk is typically straightforward. However, when risks calculated using a high degree of uncertainty exceed an acceptable risk level (i.e., $1x10^{-4}$); a conclusion can be difficult unless uncertainty is considered.

7.6.1 Uncertainty in Data Evaluation

The most significant issue related to uncertainty in the data evaluation are the usability of the existing database, the COPC screening levels used, and the absence of screening levels for a few chemicals

detected in site media. A brief discussion of the uncertainty in the data evaluation is provided in the remainder of this section.

Usability of Existing Databases

All the data used in the HHRA were validated as discussed in Section 3. A review of data quality is also provided in Section 3. The qualification of data during the formal data validation process is not expected to compromise the results of the baseline HHRA. Analytical data qualified as estimated were utilized, even though the reported positive concentrations or sample specific quantitation limits may be somewhat imprecise. The use of estimated data adds to the uncertainty associated with the risk assessment; however, the associated uncertainty is expected to be negligible compared to the other uncertainties inherent in the risk evaluation process (i.e., uncertainties with land uses, exposure scenarios, toxicological criteria, etc.). Because all data have been validated, the degree of uncertainty in the calculated risks associated with the analytical data is low.

COPC Screening Levels

The use of risk based screening values based on conservative land-use scenarios (i.e., residential land use for soil and ingestion of tap water for groundwater) corresponding to ILCRs of 10^{-6} and HIs of 0.1 ensured that all substances that contribute to significant risk from the site were evaluated. The elimination of chemicals present at concentrations that correspond to ILCRs less than 10^{-6} and HIs less than 0.1 would not affect the final conclusions of the risk assessment because those chemicals were not expected to cause a potential health concern at the detected concentrations.

Chemicals Without Established Screening Levels

Risk-based screening levels are currently not available for some constituents detected at SWMU 11 (e.g., acenaphthylene, benzo(g,h,i)perylene, and phenanthrene). In the COPC screening, acenaphthene was used as a surrogate for acenaphthylene and pyrene was used as a surrogate for benzo(g,h,i)perylene and phenanthrene. Applying toxicity values for one compound to another compound increases the uncertainty in the risk assessment both in regards to the selection of COPCs and the calculated risks. The direction of the bias is not known.

7.6.2 Uncertainty in the Exposure Assessment

Uncertainty in the exposure assessment arises because of determination of land use conditions, methods used to calculate EPCs, the selection of receptors and scenarios, the selection of exposure parameters

and use of modeling to estimate migration processes and biological uptake. Each of these topics is briefly discussed below.

Land Use

The current land use patterns at NSA Crane are well established, thereby limiting the uncertainty associated with land use assumptions. Land use near SWMU 11 is currently industrial. As long as NSA Crane remains open, maintenance workers, occupational workers, construction workers, and potential and infrequent trespassers are the only current and likely future receptors. To be conservative, risks to potential and future recreational users, and hypothetical residents were also estimated for the site.

Exposure Point Concentrations

Uncertainty is associated with the use of the 95-percent UCL on the mean concentration as the EPC. As a result of using the 95 percent UCL, the estimations of potential risk for the RME scenario are most likely overstated since this is a representation of the upper limit that potential receptors would be exposed to over the entire exposure period. ProUCL's decision process was employed to select the optimal type of 95 percent UCL for any given COPC in a data set. The goal of this decision process was to consider the individual characteristics of each data set, particularly the distributional shape, and select the most representative UCL calculation that is expected to have a high confidence (at least 95 percent chance) of being greater than the population's true mean. This approach lowers the chances of underestimation of the upper range of human health risks that could be associated with exposure to SWMU 11 media.

Exposure Routes and Receptor Identification

The determination of various receptor groups and exposure routes of potential concern was based on current land use observed at the site and the anticipated future land use. Therefore, the uncertainty associated with the selection of exposure routes and potential receptors is minimal because they are considered to be well defined.

Exposure Parameters

Each exposure factor (for RME and CTE scenarios) selected for use in the risk assessment has some associated uncertainty. Generally, exposure factors are based on surveys of physiological parameters and activity patterns from lifestyle profiles across the United States. The attributes studied in these surveys generally have a broad distribution. To avoid underestimation of exposure, in most cases, the USEPA guidelines (USEPA, 1991 and 1993a) on the RME receptor were applied, which specify the use

of the 95th percentile for many input parameters. Therefore, the selected values for the RME receptor represent the upper bound of the observed or expected habits of the majority of the population.

Many of the exposure parameters were determined from statistical analyses on human population characteristics. Often, the database used to estimate an exposure parameter (e.g., body weight) is quite large. In such cases, the exposure parameter estimate should have low variability.

Many of the exposure parameters used to calculate exposures and risks in this report are selected from a distribution of possible values, including USEPA guidance (USEPA, 1991 and 1993a) and dermal guidance (USEPA, 1997a and 2004b). For the RME scenario, the value representing the 95th percentile is often selected for a parameter to ensure that the assessment bounds the actual risks from a postulated exposure. This risk number is used in risk management decisions but does not indicate what a more average or typical exposure might be or what risk range might be expected for individuals in the exposed population.

Modeling Contaminant Transport Pathways and Biological Uptake

There are limitations to using various models and equations to estimate exposure pathway migration processes and biological uptake from a given exposure medium. The use of modeled concentrations (i.e., generated fugitive dust concentrations and generated volatile emissions) in place of monitored values may not be indicative of actual site conditions during exposure. Exposure to fugitive dust conservatively assumes that hypothetical residential receptors will be exposed to the same concentration indoors as outdoors (a very conservative assumption), that soils within an area have high erosion potential, that emissions can be estimated from annual wind speed and vegetative cover, and that dispersion concentrations can be estimated from source area and region-wide meteorological factors.

The model for dermal exposure to soil and sediment assumes that only a very thin, constant thickness layer of soil is available for contaminant transfer to the stratum corneum and that a constant amount of contaminant, proportional to the soil concentration, will be absorbed per unit area of skin and per exposure event. However, adherence to skin varies with such factors as particle size, soil type, and organic carbon content. As estimated by USEPA (USEPA, 2004b), the absorbed dermal dose could vary substantially from the model estimates, even assuming that activity patterns lead to the exposure duration applied in the experimental trials used to develop absorption factors. Because of the lack of reliable data regarding dermal absorption factors, the risk assessment provided default soil absorption factors for most substances, except a select few for which well-documented absorption factors are available.

Prediction of absorption rates for lipophilic compounds is difficult due to, among other reasons, the possibility of a second absorption pathway that depends on the lipid content of the stratum corneum at the application site. Experimental determination of absorption rates indicates that interspecies differences are considerable, which, along with other variability's related to condition and age of skin, differences in lag time, and site of application effects, yields appreciable uncertainty in estimated dermal exposures by using published chemical-specific permeation functions. In addition, literature data indicate a variation by as much as a factor of 300 in chemical absorption rates for skin in different anatomical areas of the body. It should also be noted that children generally have greater absorption rates than adults and their activity patterns often result in greater soil-to-skin adherence factors.

Modeling of outdoor (open trench) exposure to volatilization of compounds is associated with several uncertainties, including the effective air exchange rate between excavation pit air and the above-ground air, the VOC mass emission rates from groundwater seeps at the floor of the excavation, wind speed which affects mixing of air within the trench, the exposed surface area of the trench floor, and other physical properties.

Modeling vapor intrusion from groundwater to indoor air is associated with many types of uncertainties that can contribute to several orders of magnitude of uncertainty. As a result, models such as the Johnson and Ettinger model were intentionally designed to utilize very conservative default input parameters so that there would be a low chance of underestimating risks. The subsurface environment may or may not be homogeneous with uniform porosity and soil types assumed in the model. Air migration through foundation cracks into the basement of a residence by itself may be associated with several orders of magnitude of uncertainty. Depressurization effects and building air exchange rates also represent large sources of uncertainty. A summary of the uncertainties associated with the Johnson and Ettinger model has been published by USEPA (USEPA, 2005d). However, the results of Johnson and Ettinger vapor intrusion modeling are hypothetical because residential land use is not expected at or near SWMU 11, given the expectation of continued use of the land as a military base. However, the results of the vapor intrusion screening can be viewed as an upper bound to the potential inhalation exposures that might occur in an industrial setting, assuming that plausible land use might range from storage areas and maintenance buildings to offices.

Uncertainties exist in the exposure model for the inhalation of volatiles during showering such as chemical-specific rates of volatilization, droplet size, and droplet residence time in the shower. Most of the inputs into the models are considered conservative; therefore, the output may overestimate the exposure for this route.

Soil-to-groundwater prediction models are designed to be conservative and typically over predict the extent of future groundwater impacts. In particular, the fact that the storage of chemicals and the release of chemicals at SWMU 11 has not occurred since the 1976 fire could mean that surface soil and subsurface soil contaminants in the uncovered areas of the site have largely been depleted through weathering and precipitation over the years, leaving only lower levels of residual contaminants in soil that at this time that would not be likely to contribute to a large degree to leaching.

7.6.3 Uncertainty in the Toxicological Evaluation

Uncertainties associated with the toxicity assessment (determination of RfDs and CSFs and use of available criteria) are presented in this section.

Derivation of Toxicity Criteria

Uncertainty associated with the toxicity assessment is associated with hazard assessment and dose-response evaluations for the COPCs. The hazard assessment deals with characterizing the nature and strength of the evidence of causation or the likelihood that a chemical that induces adverse effects in animals will also induce adverse effects in humans. Hazard assessment of carcinogenicity is evaluated as a weight-of-evidence determination, using the USEPA methods. Positive animal cancer test data suggest that humans contain tissue(s) that may manifest a carcinogenic response; however, the animal data cannot necessarily be used to predict the target tissue in humans.

Uncertainty in hazard assessment arises from the nature and quality of the animal and human data. Uncertainty is reduced when similar effects are observed across species, strain, sex, and exposure route; when the magnitude of the response is clearly dose related; when pharmacokinetic data indicate a similar fate in humans and animals; when postulated mechanisms of toxicity are similar for humans and animals; and when the COC is structurally similar to other chemicals for which the toxicity is more completely characterized.

Uncertainty in the dose-response evaluation includes the determination of a CSF for the carcinogenic assessment. Uncertainty is introduced from interspecies (animal to human) extrapolation, which, in the absence of quantitative pharmacokinetic or mechanistic data, is usually based on consideration of interspecies differences in basal metabolic rate. Uncertainty also results from intraspecies variation. Most toxicity experiments are performed with animals that are very similar in age and genotype, so intragroup biological variation is minimal, but the human population of concern may reflect a great deal of heterogeneity, including unusual sensitivity or tolerance to the COPC. Even toxicity data from human occupational exposure reflect a bias because only those individuals sufficiently healthy to attend work

regularly (the "healthy worker effect") and those not unusually sensitive to the chemical are likely to be occupationally exposed. Finally, uncertainty arises from the quality of the key study from which the quantitative estimate is derived and the database. For cancer effects, the uncertainty associated with dose-response factors is mitigated by assuming the 95 percent upper bound for the slope factor. Another source of uncertainty in carcinogenic assessment is the method by which data from high doses in animal studies are extrapolated to the dose range expected for environmentally exposed humans. The linearized multistage model, which is used in nearly all quantitative estimations of human risk from animal data, is based on a non-threshold assumption of carcinogenesis. Evidence suggests, however, that epigenetic carcinogens, as well as many genotoxic carcinogens, have a threshold below which they are noncarcinogenic. Therefore, the use of the linearized multistage model is conservative for chemicals that exhibit a threshold for carcinogenicity.

Uncertainty Associated with Evaluation of the Dermal Exposure Pathway

According to RAGS Part E (USEPA, 2004b), risks for dermal absorption of chemicals in soil are quantitatively evaluated for arsenic, cadmium, chlordane, 2,4-dichlorophenoxyacetic acid, DDT, TCDD (and other dioxins), gamma-BHC, PAHs, PCBs, pentachlorophenol, and SVOCs only because of the limited information guidance available to evaluate dermal exposure to other constituents. Therefore, risks from dermal exposure to metals (except for arsenic) and VOCs in soil were not quantified in the risk assessment. Consequently, potential risks may have been underestimated by excluding these constituents from the dermal risk assessment calculations.

Use of Chronic Toxicity Values for Construction Workers

Under the guidelines established by the Superfund program, exposures to construction workers of one year or less are classified as subchronic exposures. Risks for noncarcinogenic effects associated with subchronic exposures should incorporate toxicity values for subchronic and not chronic effects. Subchronic toxicity values are not as widely available as chronic values. Subchronic toxicity values used in this HHRA were obtained from USEPA's PPRTV internet site if available. Also ATSDR Minimal Risk Levels (MRLs) were used as subchronic toxicity values when PPRTV values were not available. Chronic toxicity values were used when subchronic toxicity values were not available. Using chronic toxicity criteria to evaluate subchronic exposures for construction workers tends to overestimate potential noncarcinogenic risks.

7.6.4 Uncertainty in the Risk Characterization

Uncertainty in risk characterization resulted from assumptions made regarding additivity of effects from exposure to multiple COPCs from various exposure routes. High uncertainty exists when summing

noncancer risks for several substances across different exposure pathways. This assumes that each substance has a similar effect and/or mode of action. Even when compounds affect the same target organs, they may have different mechanisms of action or differ in their fate in the body, so additivity may not have been an appropriate assumption. However, the assumption of additivity was considered acceptable because in most cases it represented a conservative estimate of risk.

Risks to any individual may also have been overestimated by summing multiple assumed exposure pathway risks for any single receptor. Although every effort was made to develop reasonable scenarios, not all individual receptors may have been exposed via all pathways considered.

Also, the risk characterization did not consider antagonistic or synergistic effects. Little or no information was available to determine the potential for antagonism or synergism for the COPCs. Because chemical-specific interactions could not be predicted, the likelihood for risks to be over predicted or under predicted could not be defined, but the methodology used was based on current USEPA guidance.

7.7 SUMMARY AND CONCLUSIONS

This section summarizes the results of the baseline HHRA for SWMU 11 which was performed to characterize the potential risks to likely human receptors under current and potential future land use. Potential receptors evaluated in the HHRA under current land use include maintenance workers, industrial workers, construction works, and adolescent trespassers. Potential receptors evaluated under a future land use include child and adult recreational users, and hypothetical child and adult residents. Although future land use is likely to be the same as current land use, the potential future receptors were evaluated in the baseline HHRA primarily for decision-making purposes.

The selected COPCs at SWMU 11 that were retained for further evaluation in the HHRA are summarized in Table 7-10. Quantitative estimates of noncarcinogenic hazards and carcinogenic risks (HIs and ILCRs, respectively) were developed for potential human receptors. When grouped by target organ, HIs for all receptors were less than or equal to unity (1) for exposures to surface soil, subsurface soil, and sediment at SWMU 11, indicating that adverse non-carcinogenic effects are not anticipated for receptors exposed to these environmental media under the defined exposure conditions. The HI for the construction worker exposed to groundwater during excavation work was less than 1 and the RME and CTE HIs for the hypothetical child resident and the adult resident exposed to groundwater, assuming it is used for domestic purposes, exceeded one. Under these groundwater use conditions, cis-1,2-DCE and TCE were the major contributors to the HIs under the RME scenario and TCE was the major contributor to the HIs under the CTE scenario.

ILCRs for all receptors exposed to surface soil and sediment at SWMU 11 under the RME and CTE scenarios were less than or within USEPA's and IDEM's target risk range of 10^{-4} to 10^{-6}.

ILCRs for all receptors exposed to subsurface soil under the RME scenario were less than or within USEPA's and IDEM's target risk range of 10^{-4} to 10^{-6} with the exception of the hypothetical child and lifelong resident. Vinyl chloride, arsenic, and hexavalent chromium were the major contributors to the ILCRs for exposures to subsurface soil. Chromium speciation was not performed on the subsurface soil samples; therefore, chromium was initially evaluated as hexavalent chromium. However, because the CSM does not support the presence of hexavalent chromium at the site, risks associated with trivalent chromium were also completed in this HHRA. If chromium is evaluated as trivalent chromium, then all ILCRs are within USEPA's and IDEM's target risk levels. ILCRs for all receptors exposed to subsurface soil under the CTE scenario were less than or within USEPA's and IDEM's target risk range.

ILCRs for construction workers and hypothetical adult residents exposed to groundwater under the RME scenario were less than or within USEPA's and IDEM's target risk range. The ILCR for hypothetical child residents was equal to the upper bound of USEPA's and IDEM's target risk range. The ILCR for hypothetical lifelong residents exceeded USEPA's and IDEM's target risk range. Benzene, TCE, and VC were the major contributors to the ILCR for hypothetical lifelong residents exposed to groundwater. ILCRs for all receptors exposed to groundwater under the CTE scenario were less than or within USEPA's and IDEM's target risk range.

At the Building 2981 Concrete Tank Area, HIs for all receptors exposed to surface soil under the RME and CTE scenarios were less than unity (1), indicating that adverse non-carcinogenic effects are not anticipated for these receptors under the defined exposure conditions. ILCRs for all receptors exposed to surface soil at IA 6 under the RME and CTE scenarios were less than or within USEPA's and IDEM's target risk range of 10^{-4} to 10^{-6}.

Based on the results of this HHRA, no COCs were identified for surface soil and sediment. VC, arsenic, and chromium were identified as COCs for direct contact with subsurface soil only if it is assumed that chromium is present in the hexavalent form. Based on the CSM for the site, chromium is expected to be present in the trivalent state and no direct contact COCs are identified for the subsurface soils when chromium is present in the trivalent form. Benzene, cis-1,2-DCE, and VC were identified as COCs for direct contact with groundwater (Table 7-27). While no COCs were identified for vapor intrusion from groundwater based on estimated indoor air concentrations using the Johnson-Ettinger model, TCE in groundwater was retained as a COC for the groundwater to indoor air pathway because the site groundwater concentrations under the Building 225 slab were greater than the IDEM Vapor Exposure

Screening Levels for residential and commercial/industrial scenarios. IDEM does not accept the use of modeling to dismiss concerns regarding vapor intrusion (see Appendix I).

A qualitative analysis was completed to identify COCs for the migration to groundwater pathway (Table 7-28). While Tables 7-4 and 7-6 use the risk-based SSL to determine COPCs, these risk-based numbers are based on soil-to-groundwater prediction models designed to be conservative and typically over predict the extent of future groundwater impacts. For the qualitative evaluation of the soil to groundwater migration pathway, a multiple lines of evidence approach was used to identify chemicals that may migrate from the soil to groundwater in sufficient quantities to pose groundwater quality problems and these chemicals are retained as COCs for the soil to groundwater pathway. The multiple lines of evidence approach evaluated chemicals with consideration given to the following: exceedances of risk-based SSLs verses MCL-based SSLs (if available), frequency of detections/exceedances, magnitude of exceedances, background concentrations, chemical properties, and groundwater concentrations (when available.). As presented on Table 7-28, benzene, cis-1,2-DCE, PCE, TCE, and VC were retained as COCs for the soil to groundwater pathway at SWMU 11 because subsurface soil concentrations could represent a source of groundwater contamination (VOCs). Arsenic and iron were retained as COCs for the soil to groundwater pathway at SWMW 11 because of exceedance of soil to groundwater migration screening levels and groundwater data are not available to confirm whether migration has occurred.

TABLE 7-1

SCREENING CRITERIA USED IN SELECTION OF COPCS - SOIL/SEDIMENT
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

CAS No.	Chemical	USEPA Regional Screening Levels[1]		Indiana Department of Environmental Management[2]	
		Adjusted Direct Contact Residential	Protection of Groundwater	Soil Direct	Migration to Groundwater
Volatile Organic Compounds (ug/kg)					
75-35-4	1,1-Dichloroethene	24,000 N	1,860	340,000 N	50 M
95-50-1	1,2-Dichlorobenzene	190,000 N	5,400	380,000 S	12,000 M
106-46-7	1,4-Dichlorobenzene	2,400 C	8	34,000 C	1,400 M
78-93-3	2-Butanone	2,800,000 N	20,000	28,000,000 S	21,000 N
67-64-1	Acetone	6,100,000 N	48,000	85,000,000 N	49,000 N
71-43-2	Benzene	1,100 C	4	15,000 C	51 M
156-59-2	cis-1,2-Dichloroethene	16,000 N	164	220,000 N	410 M
108-90-7	Chlorobenzene	29,000 N	980	410,000 N	1,400 M
100-41-4	Ethylbenzene	5,400 C	30	76,000 C	16,000 M
98-82-8	Isopropylbenzene	210,000 N	12,800	270,000 S	13,000 N
108-87-2	Methyl Cyclohexane	NA	NA	NA	NA
75-09-2	Methylene Chloride	36,000 N[3]	50	500,000 N	25 M
127-18-4	Tetrachloroethene	8,600 N[3]	88	120,000 N	45 M
108-88-3	Toluene	500,000 N	11,800	820,000 S	14,000 M
156-60-5	trans-1,2-Dichloroethene	15,000 N	500	210,000 N	590 M
1330-20-7	Total Xylenes	63,000 N	3,800	260,000 S	200,000 M
79-01-6	Trichloroethene	440 N[3]	3.2	6,200 N	36 M
75-01-4	Vinyl Chloride	60 C	0.106	840 C	14 M
Semivolatile Organic Compounds (ug/kg)					
84-66-2	Diethyl Phthalate	4,900,000 N	94,000	69,000,000 N	90,000 N
Polycyclic Aromatic Hydrocarbons (ug/kg)					
91-57-6	2-Methylnaphthalene	23,000 N	2,800	320,000 N	2,800 N
83-32-9	Acenaphthene	340,000 N	82,000	4,800,000 N	82,000 N
208-96-8	Acenaphthylene	340,000 N[4]	82,000 [4]	NA	NA
120-12-7	Anthracene	1,700,000 N	840,000	24,000,000 N	860,000 N
56-55-3	Benzo(a)anthracene	150 C	200	2,100 C	2,100 C
50-32-8	Benzo(a)pyrene	15 C	70	210 C	4,700 M
205-99-2	Benzo(b)fluoranthene	150 C	700	2,100 C	7,000 C
191-24-2	Benzo(g,h,i)perylene	170,000 N[5]	190,000 [5]	NA	NA
207-08-9	Benzo(k)fluoranthene	1,500 C	7,000	21,000 C	68,000 C
218-01-9	Chrysene	15,000 C	22,000	210,000 C	210,000 C
53-70-3	Dibenzo(a,h)anthracene	15 C	220	210 C	2,200 C
206-44-0	Fluoranthene	230,000 N	1,400,000	3,200,000 N	1,400,000 N
86-73-7	Fluorene	230,000 N	80,000	3,200,000 N	81,000 N
193-39-5	Indeno(1,2,3-cd)pyrene	150 C	4,000	2,100 C	40,000 C
91-20-3	Naphthalene	3,600 C	9.4	50,000 C	92 C
85-01-8	Phenanthrene	170,000 N[5]	190,000 [5]	NA	NA
129-00-0	Pyrene	170,000 N	190,000	2,400,000 N	190,000 N
Pesticides (ug/kg)					
72-54-8	4,4'-DDD	2,000 C	128	28,000 C	1,300 C
72-55-9	4,4'-DDE	1,400 C	920	20,000 C	9,400 C
50-29-3	4,4'-DDT	1,700 C	1,340	24,000 C	13,000 C
319-84-6	alpha-BHC	77 C	0.72	1,100 C	7.2 C
319-85-7	beta-BHC	270 C	2.6	3,800 C	26 C
72-20-8	Endrin	1,800 N	1,360	25,000 N	1,600 M
58-89-9	gamma-BHC (Lindane)	520 C	4.2	7,300 C	23 M
5103-74-2	gamma-Chlordane	1,600 C[6]	260 [6]	22,000 C[6]	2,700 M[6]
72-43-5	Methoxychlor	31,000 N	30,000	430,000 N	43,000 M

TABLE 7-1

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SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

CAS No.	Chemical	USEPA Regional Screening Levels[1]		Indiana Department of Environmental Management[2]	
		Adjusted Direct Contact Residential	Protection of Groundwater	Soil Direct	Migration to Groundwater
Polychlorinated Biphenyls (ug/kg)					
11096-82-5	Aroclor-1260	220 C	480	3,100 C[7]	4,800 C[7]
Dioxins/Furans (ng/kg)					
3268-87-9	1,2,3,4,6,7,8,9-OCDD	15,000 C[8]	17,400 [8]	NA	NA
39001-02-0	1,2,3,4,6,7,8,9-OCDF	15,000 C[8]	17,400 [8]	NA	NA
35822-46-9	1,2,3,4,6,7,8-HPCDD	450 C[8]	520 [8]	NA	NA
67562-39-4	1,2,3,4,6,7,8-HPCDF	450 C[8]	520 [8]	NA	NA
55673-89-7	1,2,3,4,7,8,9-HPCDF	450 C[8]	520 [8]	NA	NA
39227-28-6	1,2,3,4,7,8-HXCDD	45 C[8]	52 [8]	NA	NA
70648-26-9	1,2,3,4,7,8-HXCDF	45 C[8]	52 [8]	NA	NA
57653-85-7	1,2,3,6,7,8-HXCDD	45 C[8]	52 [8]	NA	NA
57117-44-9	1,2,3,6,7,8-HXCDF	45 C[8]	52 [8]	NA	NA
19408-74-3	1,2,3,7,8,9-HXCDD	45 C[8]	52 [8]	NA	NA
72918-21-9	1,2,3,7,8,9-HXCDF	45 C[8]	52 [8]	NA	NA
40321-76-4	1,2,3,7,8-PECDD	4.5 C[8]	5.2 [8]	NA	NA
57117-41-6	1,2,3,7,8-PECDF	150 C[8]	174 [8]	NA	NA
60851-34-5	2,3,4,6,7,8-HXCDF	45 C[8]	52 [8]	NA	NA
57117-31-4	2,3,4,7,8-PECDF	15 C[8]	17.4 [8]	NA	NA
1746-01-6	2,3,7,8-TCDD	4.5 C	5.2	63 C	300 M
Metals (mg/kg)					
7429-90-5	Aluminum	7,700 N	460,000	100,000 L	480,000 N
7440-36-0	Antimony	3.1 N	5.4	43 N	5.4 N
7440-38-2	Arsenic	0.61 C	0.026	5.5 C	5.9 M
7440-39-3	Barium	1,500 N	2,400	21,000 N	1,700 M
7440-41-7	Beryllium	16 N	260	220 N	63 M
7440-43-9	Cadmium	7 N	10.4	98 N	7.5 M
7440-70-2	Calcium	NA	NA	NA	NA
7440-47-3	Chromium	0.29 C[9]	0.0118 [9]	4.1 C[9]	0.12 C[9]
7440-48-4	Cobalt	2.3 N	4.2	32 N	4.3 N
7440-50-8	Copper	310 N	440	4,300 N	920 M
7439-89-6	Iron	5,500 N	5,400	77,000 N	5,600 N
7439-92-1	Lead	400	280 [10]	400	270 M
7439-95-4	Magnesium	NA	NA	NA	NA
7439-96-5	Manganese	180 N	420	2,500 N	420 N
7439-97-6	Mercury	2.3 N[11]	0.66	32 N	2.1 M
7440-02-0	Nickel	150 N	400	2,100 N	390 N
7440-09-7	Potassium	NA	NA	NA	NA
7782-49-2	Selenium	39 N	8	550 N	5.3 M
7440-23-5	Sodium	NA	NA	NA	NA
7440-28-0	Thallium	0.078 N	0.22	1.1 N	2.9 M
7440-62-2	Vanadium	39 N	1,260	550 N	1,600 N
7440-66-6	Zinc	2,300 N	5,800	32,000 N	5,900 N
57-12-5	Cyanide	2.2 N	0.28	31 N	40 M

TABLE 7-1

SCREENING CRITERIA USED IN SELECTION OF COPCS - SOIL/SEDIMENT
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

1 - USEPA Regional Screening Levels, Novemner, 2013. The noncarcinogenic values (denoted with a "N" flag) are the RSL divided by 10 to correspond to a target hazard quotient of 0.1. Carcinogenic values (denoted with a "C" flag) represent an incremental cancer risk of 1.0E-06. Protection of groundwater values are risk-based SSLs multiplied by 20 to correspond to a dilution attenuation factor (DAF) of 20.
2 - IDEM Closure Guide, March 1, 2013.
3 - One-tenth the noncarcinogenic level is less than the carcinogenic level; therefore, the noncarcinogenic screening level is presented.
4 - Value is for acenaphthene.
5 - Value is for pyrene.
6 - Value is for chlordane.
7 - Value is for PCBs.
8 - Value is derived by multiplying the criteria for 2,3,7,8-TCDD by World Health Organization Toxicity Equivalency Factor.
9 - Value is for hexavalent chromium.
10 - Value is MCL based soil screening level.
11 - Value is for mercuric chloride (and other mercury salts).

C - Carcinogenic.
CAS = Chemical Abstracts Service.
IDEM = Indiana Department of Environmental Management.
L = Capped at 100,000 mg/kg.
M - Maximum contaminant level.
mg/kg = Milligram per kilogram.
N - Noncarcinogenic.
ng/kg = Nanogram per kilogram
S = Soil saturation limit.
SSL = Soil screening level.
ug/kg = Microgram per kilogram.
USEPA = United States Environmental Protection Agency.

TABLE 7-2

SCREENING CRITERIA USED IN SELECTION OF COPCS - GROUNDWATER
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

CAS No.	Parameter	Adjusted USEPA Regional Screening Level[1] Tap Water	USEPA Maximum Contaminant Level[2]	Adjusted USEPA Groundwater Volatilization Criteria[3]	IDEM Groundwater[4]	
					Tap Water	Vapor Exposure
Volatile Organic Compounds (ug/L)						
95-50-1	1,2-Dichlorobenzene	28 N	600	270 N	600 M	NA
67-64-1	Acetone	1,200 N	NA	2,300,000 N	12,000 N	NA
71-43-2	Benzene	0.39 C	5	1.4 C	5 M	24 C
75-15-0	Carbon Disulfide	72 N	NA	120 N	720 N	NA
67-66-3	Chloroform	0.19 C	80	0.71 C	80 M	NA
156-59-2	cis-1,2-Dichloroethene	2.8 N	70	NA	70 M	NA
100-41-4	Ethylbenzene	1.3 C	700	3 C	700 M	NA
127-18-4	Tetrachloroethene	3.5 N[5]	5	5.8 N[5]	5 M	110 N
108-88-3	Toluene	86 N	1,000	1,900 N	1,000 M	NA
1330-20-7	Total Xylenes	19 N	10,000	49 N	10,000 M	NA
156-60-5	trans-1,2-Dichloroethene	8.6 N	100	38 N	100 M	NA
79-01-6	Trichloroethene	0.26 N[5]	5	0.52 N[5]	5 M	9.1 N
75-01-4	Vinyl Chloride	0.015 C	2	0.14 C	2 M	2 C
Metals (ug/L)						
7440-38-2	Arsenic	0.045 C	10	NA	10 M	NA
7440-39-3	Barium	290 N	2,000	NA	2,000 M	NA
7440-47-3	Chromium	0.031 C[6]	100 [7]	NA	0.31 C[6]	NA

Notes:
1 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, November, 2013. [Cancer benchmark value = 1E-06, Hazard index (HI) = 0.1].
2 - 2012 Edition of the Drinking Water Standards and Health Advisories (USEPA, April 2012).
3 - USEPA Vapor Intrusion Screening Level (VISL) Calculator, Version 3.1. June 2013 RSLs. Values correspond to a target cancer risk level of 1E-6 or HI = 0.1 and an attenuation factor of 0.001.
4 - IDEM Closure Guide, March 1, 2013.
5 - Ten percent of the noncarcinogenic value is less than the carcinogenic value, therefore the noncarcinogenic value is presented.
6 - Values are for hexavalent chromium.
7 - Value is for total chromium.

C = Carcinogenic.
CAS = Chemical Abstracts Service.
IDEM = Indiana Department of Environmental Management.
M = Maximum Contaminant Level.
N = Noncarcinogenic.
ug/L = Microgram per liter.
USEPA = United States Environmental Protection Agency.

TABLE 7-3

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH SURFACE SOIL
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[1]	Concentration Used for Screening[2]	Similar to Background?[3]	Adjusted USEPA RSL Residential Soil[4]	IDEM Residential Soil[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
SWMU 11	**Volatile Organic Compounds**													
	95-50-1	1,2-Dichlorobenzene	1.42 J	1.42 J	ug/kg	11SB030002	1/4	2.51 - 2.98	1.42	NA	190,000 N	380,000 S	No	BSL
	78-93-3	2-Butanone	3.68 J	3.68 J	ug/kg	11SB040002	1/4	5.03 - 5.62	3.68	NA	2,800,000 N	28,000,000 S	No	BSL
	67-64-1	Acetone	14.6 J	25.8	ug/kg	11SB040002	2/3	10.1 - 10.1	25.8	NA	6,100,000 N	85,000,000 N	No	BSL
	156-59-2	cis-1,2-Dichloroethene	2.19 J	3.27 J	ug/kg	11SB020002	2/4	2.81 - 2.98	3.27	NA	16,000 N	220,000 N	No	BSL
	127-18-4	Tetrachloroethene	1.36 J	1.36 J	ug/kg	11SB010002	1/4	2.74 - 2.98	1.36	NA	8,600 N[7]	120,000 N	No	BSL
	Semivolatile Organic Compounds													
	84-66-2	Diethyl Phthalate	4440	4440	ug/kg	11SB020002	1/22	189 - 222	4440	NA	4,900,000 N	69,000,000 N	No	BSL
	Polycyclic Aromatic Hydrocarbons													
	91-57-6	2-Methylnaphthalene	2.52 J	10.8 J	ug/kg	11SS130002	3/22	3.77 - 4.43	10.8	NA	23,000 N	320,000 N	No	BSL
	83-32-9	Acenaphthene	2.57 J	17.2 J	ug/kg	11SS110002	2/22	3.85 - 19.2	17.2	NA	340,000 N	4,800,000 N	No	BSL
	208-96-8	Acenaphthylene	3.57 J	86.9	ug/kg	11SS130002	7/22	3.85 - 4.43	86.9	NA	340,000 N[8]	NA	No	BSL
	120-12-7	Anthracene	3.9 J	52.3	ug/kg	11SS130002	6/22	3.85 - 4.43	52.3	NA	1,700,000 N	24,000,000 N	No	BSL
	56-55-3	**Benzo(a)anthracene**	5.49 J	322	ug/kg	11SS130002	8/22	3.85 - 4.43	322	NA	**150 C**	2,100 C	**Yes**	ASL
	50-32-8	**Benzo(a)pyrene**	3.9 J	348	ug/kg	11SS130002	8/22	3.85 - 4.43	348	NA	**15 C**	**210 C**	**Yes**	ASL
	205-99-2	**Benzo(b)fluoranthene**	3.63 J	454	ug/kg	11SS130002	10/22	3.85 - 4.43	454	NA	**150 C**	2,100 C	**Yes**	ASL
	191-24-2	Benzo(g,h,i)perylene	2.71 J	234	ug/kg	11SS130002	9/22	3.85 - 4.43	234	NA	170,000 N[9]	NA	No	BSL
	207-08-9	Benzo(k)fluoranthene	2.59 J	202	ug/kg	11SS130002	9/22	3.85 - 4.43	202	NA	1,500 C	21,000 C	No	BSL
	218-01-9	Chrysene	3.09 J	427	ug/kg	11SS130002	9/22	3.85 - 4.43	427	NA	15,000 C	210,000 C	No	BSL
	53-70-3	**Dibenzo(a,h)anthracene**	9.15	82.1	ug/kg	11SS130002	6/22	3.85 - 4.43	82.1	NA	**15 C**	210 C	**Yes**	ASL
	206-44-0	Fluoranthene	2.67 J	454	ug/kg	11SS130002	10/22	3.85 - 4.43	454	NA	230,000 N	3,200,000 N	No	BSL
	86-73-7	Fluorene	3.25 J	16.1 J	ug/kg	11SS130002	4/22	3.85 - 4.43	16.1	NA	230,000 N	3,200,000 N	No	BSL
	193-39-5	**Indeno(1,2,3-cd)pyrene**	2.08 J	187	ug/kg	11SS130002	10/22	3.85 - 4.43	187	NA	**150 C**	2,100 C	**Yes**	ASL
	91-20-3	Naphthalene	2.26 J	14.4 J	ug/kg	11SS130002	5/22	3.85 - 4.43	14.4	NA	3,600 C	50,000 C	No	BSL
	85-01-8	Phenanthrene	2.24 J	301 J	ug/kg	11SS110002	10/22	3.85 - 4.43	301	NA	170,000 N[9]	NA	No	BSL
	129-00-0	Pyrene	2.46 J	417 J	ug/kg	11SS130002	11/22	3.85 - 4.43	417	NA	170,000 N	2,400,000 N	No	BSL
	Pesticides													
	72-55-9	4,4'-DDE	1.4 J	1.4 J	ug/kg	11SS140002	1/22	0.39 - 0.462	1.4	NA	1,400 C	20,000 C	No	BSL
	319-84-6	alpha-BHC	0.226 J	0.93	ug/kg	11SS080002	2/22	0.39 - 0.431	0.93	NA	77 C	1,100 C	No	BSL
	319-85-7	beta-BHC	0.221 J	0.265 J	ug/kg	11SB020002	2/22	0.39 - 0.462	0.265	NA	270 C	3,800 C	No	BSL
	58-89-9	gamma-BHC (Lindane)	2.27 J	2.27 J	ug/kg	11SS130002	1/22	0.39 - 0.462	2.27	NA	520 C	7,300 C	No	BSL
	5103-74-2	gamma-Chlordane	0.244 J	1.25 J	ug/kg	11SS070002	6/22	0.39 - 0.462	1.25	NA	1,600 C[10]	22,000 C[10]	No	BSL
	72-43-5	Methoxychlor	1.01 J	1.01 J	ug/kg	11SS120002	1/22	0.383 - 0.462	1.01	NA	31,000 N	430,000 N	No	BSL
	Dioxins/Furans													
	3268-87-9	1,2,3,4,6,7,8,9-OCDD	443	6,710 J	ng/kg	11SS140002	11/11	-	6,710	NA	15,000 C[11]	NA	No	BSL
	39001-02-0	1,2,3,4,6,7,8,9-OCDF	1.14 J	583 J	ng/kg	11SS110002	8/11	6.22 - 6.36	583	NA	15,000 C[11]	NA	No	BSL
	35822-46-9	**1,2,3,4,6,7,8-HPCDD**	4.84	772 J	ng/kg	11SS110002	11/11	-	772	NA	**450 C[11]**	NA	**Yes**	ASL
	67562-39-4	1,2,3,4,6,7,8-HPCDF	0.244 J	102 J	ng/kg	11SS110002	8/11	3.12 - 3.19	102	NA	450 C[11]	NA	No	BSL
	55673-89-7	1,2,3,4,7,8,9-HPCDF	0.329 J	7.82	ng/kg	11SS110002	3/11	3.12 - 3.28	7.82	NA	450 C[11]	NA	No	BSL
	39227-28-6	1,2,3,4,7,8-HXCDD	0.57 J	8.54	ng/kg	11SS110002	5/11	3.12 - 3.21	8.54	NA	45 C[11]	NA	No	BSL
	70648-26-9	1,2,3,4,7,8-HXCDF	0.318 J	3.91 J	ng/kg	11SS110002	5/11	3.12 - 3.28	3.91	NA	45 C[11]	NA	No	BSL
	57653-85-7	1,2,3,6,7,8-HXCDD	0.642 J	24.7 J	ng/kg	11SS110002	7/11	3.12 - 3.19	24.7	NA	45 C[11]	NA	No	BSL
	57117-44-9	1,2,3,6,7,8-HXCDF	0.313 J	4.61 J	ng/kg	11SS110002	4/11	3.12 - 3.28	4.61	NA	45 C[11]	NA	No	BSL
	19408-74-3	1,2,3,7,8,9-HXCDD	0.596 J	13.7 J	ng/kg	11SS110002	7/11	3.12 - 3.19	13.7	NA	45 C[11]	NA	No	BSL
	72918-21-9	1,2,3,7,8,9-HXCDF	1.56 J	1.56 J	ng/kg	11SS110002	1/11	3.09 - 3.28	1.56	NA	45 C[11]	NA	No	BSL

TABLE 7-3

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH SURFACE SOIL
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects(1)	Concentration Used for Screening(2)	Similar to Background?(3)	Adjusted USEPA RSL Residential Soil(4)	IDEM Residential Soil(5)	COPC Flag	Rationale for Contaminant Deletion or Selection(6)
SWMU 11	**Dioxins/Furans**													
	40321-76-4	1,2,3,7,8-PECDD	0.51 J	2.45 J	ng/kg	11SS110002	2/11	3.09 - 3.28	2.45	NA	4.5 C(11)	NA	No	BSL
	57117-41-6	1,2,3,7,8-PECDF	0.849 J	2.5 J	ng/kg	11SS220002	3/11	3.09 - 3.28	2.5	NA	150 C(11)	NA	No	BSL
	60851-34-5	2,3,4,6,7,8-HXCDF	0.383 J	4.51 J	ng/kg	11SS110002	4/11	3.12 - 3.28	4.51	NA	45 C(11)	NA	No	BSL
	57117-31-4	2,3,4,7,8-PECDF	1.04 J	3.12 J	ng/kg	11SS140002	3/11	3.09 - 3.28	3.12	NA	15 C(11)	NA	No	BSL
	1746-01-6	2,3,7,8-TCDD	0.24 J	0.69 J	ng/kg	11SS220002	2/11	0.616 - 0.653	0.69	NA	4.5 C	63 C	No	BSL
	--	**2,3,7,8-TCDD Equivalents - Halfnd**	3.72	20.2	ng/kg	11SS110002	11/11	-	20.2	NA	**4.5 C**	63 C	**Yes**	ASL
	37871-00-4	Total HPCDD	9.63	1,440 J	ng/kg	11SS110002	11/11	-	1,440	NA	NA	NA	No	NTX
	38998-75-3	Total HPCDF	0.691 J	430 J	ng/kg	11SS110002	7/11	3.12 - 3.28	430	NA	NA	NA	No	NTX
	34465-46-8	Total HXCDD	1.38 J	168 J	ng/kg	11SS110002	10/11	3.12 - 3.12	168	NA	NA	NA	No	NTX
	55684-94-1	Total HXCDF	0.255 J	108 J	ng/kg	11SS110002	7/11	3.12 - 3.19	108	NA	NA	NA	No	NTX
	36088-22-9	Total PECDD	0.332 J	18.5 J	ng/kg	11SS110002	7/11	3.12 - 3.21	18.5	NA	NA	NA	No	NTX
	30402-15-4	Total PECDF	0.853 J	36.6	ng/kg	11SS140002	4/11	3.12 - 3.28	36.6	NA	NA	NA	No	NTX
	41903-57-5	Total TCDD	0.69 J	1.17	ng/kg	11SS110002	2/11	0.616 - 0.653	1.17	NA	NA	NA	No	NTX
	55722-27-5	Total TCDF	10	10	ng/kg	11SS220002	1/11	0.369 - 8.4	10	NA	NA	NA	No	NTX
	Metals													
	7429-90-5	**Aluminum**	7,490	19,900	mg/kg	11SB010002	22/22	-	19,900	No	**7,700 N**	100,000 L	**Yes**	ASL
	7440-38-2	Arsenic	3.16	12	mg/kg	11SB010002	22/22	-	12	Yes	**0.61 C**	**5.5 C**	No	BKG
	7440-39-3	Barium	21.4	142	mg/kg	11SS310002	22/22	-	142	Yes	1,500 N	21,000 N	No	BSL, BKG
	7440-41-7	Beryllium	0.373 J	1.14	mg/kg	11SS320002	22/22	-	1.14	NA	16 N	220 N	No	BSL
	7440-43-9	Cadmium	0.139 J	0.174 J	mg/kg	11SS300002	2/22	0.232 - 0.261	0.174	Yes	7 N	98 N	No	BSL, BKG
	7440-70-2	Calcium	242 J	96,200	mg/kg	11SS300002	22/22	-	96,200	No	NA	NA	No	NUT
	7440-47-3	Chromium	10.9	27.6	mg/kg	11SS320002	22/22	-	27.6	Yes	**0.29 C(12)**	**4.1 C(12)**	No	BKG
	7440-48-4	Cobalt	2.85	26	mg/kg	11SS080002	22/22	-	26	Yes	**2.3 N**	32 N	No	BKG
	7440-50-8	Copper	6.37	18.4	mg/kg	11SS180002	22/22	-	18.4	No	310 N	4,300 N	No	BSL
	7439-89-6	**Iron**	13,400	30,100	mg/kg	11SS320002	22/22	-	30,100	No	**5,500 N**	77,000 N	**Yes**	ASL
	7439-92-1	Lead	5.45 J	27.7	mg/kg	11SS080002	22/22	-	27.7	Yes	400	400	No	BSL, BKG
	7439-95-4	Magnesium	738	4,260	mg/kg	11SS300002	22/22	-	4,260	No	NA	NA	No	NUT
	7439-96-5	Manganese	101 J	1,070 J	mg/kg	11SS310002	22/22	-	1,070	Yes	**180 N**	2,500 N	No	BKG
	7439-97-6	Mercury	0.0235 J	0.0645 J	mg/kg	11SS090002	17/22	0.0296 - 0.0402	0.0645	No	2.3 N(13)	32 N(13)	No	BSL
	7440-02-0	Nickel	5.23	17.1	mg/kg	11SS300002	22/22	-	17.1	Yes	150 N	2,100 N	No	BSL, BKG
	7440-09-7	Potassium	278 J	1,110	mg/kg	11SS050002	22/22	-	1,110	Yes	NA	NA	No	NUT, BKG
	7782-49-2	Selenium	0.406 J	0.67 J	mg/kg	11SS050002	8/22	0.577 - 0.649	0.67	Yes	39 N	550 N	No	BSL, BKG
	7440-23-5	Sodium	139 J	397 J	mg/kg	11SS300002	6/22	348 - 389	397	No	NA	NA	No	NUT
	7440-62-2	Vanadium	17.6 J	41	mg/kg	11SB010002	22/22	-	41	Yes	**39 N**	550 N	No	BKG
	7440-66-6	Zinc	10.9	52.5	mg/kg	11SB010002	22/22	-	52.5	Yes	2,300 N	32,000 N	No	BSL, BKG

TABLE 7-3

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH SURFACE SOIL
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Footnotes:
1 - Values presented are sample-specific quantitation limits.
2 - The maximum detected concentration is used for screening purposes.
3 - Soil Group 3 - Alluvial, Mississippian, and Pennsylvanian Surface Soil Upper Tolerance Limit. Base-Wide Background Soil Investigation Report, Tetra Tech, 2001.
4 - USEPA Regional Screening Levels for Chemical Contaminants at Superfund Sites, November 2013. The noncarcinogenic values (denoted with a "N" flag) are the screening level divided by 10 to correspond to a target hazard quotient of 0.1. Carcinogenic values represent an incremental cancer risk of 1.0E-06 (carcinogens denoted with a "C" flag).
5 - IDEM Closure Guide, March 1, 2013.
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
7 - Ten percent of the noncarcinogenic value is less than the carcinogenic value, therefore the noncarcinogenic value is presented.
8 - Value is for acenaphthene.
9 - Value is for pyrene.
10 - Value is for chlordane.
11 - Value is derived by multiplying the criteria for 2,3,7,8-TCDD by World Health Organization Toxicity Equivalency Factor.
12 - Value is for hexavalent chromium.
13 - Value is for mercuric chloride (and other mercury salts).
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Associated Samples

11SB010002	11SS150002
11SB020002	11SS160002
11SB030002	11SS170002
11SB040002	11SS180002
11SS050002	11SS190002
11SS060002	11SS200002
11SS070002	11SS210002
11SS080002	11SS220002
11SS090002	11SS230002
11SS100002	11SS240002
11SS110002	11SS290002
11SS120002	11SS300002
11SS130002	11SS310002
11SS140002	11SS320002

Definitions:
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
L = Capped at 100,000 mg/kg
N = Noncarcinogen
NA = Not Applicable/Not Available
S = Soil saturation limit

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BKG = Less than Background Concentration
BSL = Below COPC Screening Level
NTX = No toxicity criteria available
NUT = Essential nutrient

TABLE 7-4

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - MIGRATION FROM SURFACE SOIL TO GROUNDWATER
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects(1)	Concentration Used for Screening(2)	Similar to Background?(3)	USEPA RSL Protection of Groundwater(4)	IDEM Migration to Groundwater(5)	COPC Flag	Rationale for Contaminant Deletion or Selection(6)
SWMU 11	**Volatile Organic Compounds**													
	95-50-1	1,2-Dichlorobenzene	1.42 J	1.42 J	ug/kg	11SB030002	1/4	2.51 - 2.98	1.42	NA	5,400	12,000 M	No	BSL
	78-93-3	2-Butanone	3.68 J	3.68 J	ug/kg	11SB040002	1/4	5.03 - 5.62	3.68	NA	20,000	21,000 N	No	BSL
	67-64-1	Acetone	14.6 J	25.8	ug/kg	11SB040002	2/3	10.1 - 10.1	25.8	NA	48,000	49,000 N	No	BSL
	156-59-2	cis-1,2-Dichloroethene	2.19 J	3.27 J	ug/kg	11SB020002	2/4	2.81 - 2.98	3.27	NA	164	410 M	No	BSL
	127-18-4	Tetrachloroethene	1.36 J	1.36 J	ug/kg	11SB010002	1/4	2.74 - 2.98	1.36	NA	88	45 M	No	BSL
	Semivolatile Organic Compounds													
	84-66-2	Diethyl Phthalate	4,440	4,440	ug/kg	11SB020002	1/22	189 - 222	4,440	NA	94,000	90,000 N	No	BSL
	Polycyclic Aromatic Hydrocarbons													
	91-57-6	2-Methylnaphthalene	2.52 J	10.8 J	ug/kg	11SS130002	3/22	3.77 - 4.43	10.8	NA	2,800	2,800 N	No	BSL
	83-32-9	Acenaphthene	2.57 J	17.2 J	ug/kg	11SS110002	2/22	3.85 - 19.2	17.2	NA	82,000	82,000 N	No	BSL
	208-96-8	Acenaphthylene	3.57 J	86.9	ug/kg	11SS130002	7/22	3.85 - 4.43	86.9	NA	82,000 (7)	NA	No	BSL
	120-12-7	Anthracene	3.9 J	52.3	ug/kg	11SS130002	6/22	3.85 - 4.43	52.3	NA	840,000	860,000 N	No	BSL
	56-55-3	**Benzo(a)anthracene**	5.49 J	322	ug/kg	11SS130002	8/22	3.85 - 4.43	322	NA	**200**	2,100 C	**Yes**	ASL
	50-32-8	**Benzo(a)pyrene**	3.9 J	348	ug/kg	11SS130002	8/22	3.85 - 4.43	348	NA	**70**	4,700 M	**Yes**	ASL
	205-99-2	Benzo(b)fluoranthene	3.63 J	454	ug/kg	11SS130002	10/22	3.85 - 4.43	454	NA	700	7,000 C	No	BSL
	191-24-2	Benzo(g,h,i)perylene	2.71 J	234	ug/kg	11SS130002	9/22	3.85 - 4.43	234	NA	190,000 (8)	NA	No	BSL
	207-08-9	Benzo(k)fluoranthene	2.59 J	202	ug/kg	11SS130002	9/22	3.85 - 4.43	202	NA	7,000	68,000 C	No	BSL
	218-01-9	Chrysene	3.09 J	427	ug/kg	11SS130002	9/22	3.85 - 4.43	427	NA	22,000	210,000 C	No	BSL
	53-70-3	Dibenzo(a,h)anthracene	9.15	82.1	ug/kg	11SS130002	6/22	3.85 - 4.43	82.1	NA	220	2,200 C	No	BSL
	206-44-0	Fluoranthene	2.67 J	454	ug/kg	11SS130002	10/22	3.85 - 4.43	454	NA	1,400,000	1,400,000 N	No	BSL
	86-73-7	Fluorene	3.25 J	16.1 J	ug/kg	11SS130002	4/22	3.85 - 4.43	16.1	NA	80,000	81,000 N	No	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	2.08 J	187	ug/kg	11SS130002	10/22	3.85 - 4.43	187	NA	4,000	40,000 C	No	BSL
	91-20-3	**Naphthalene**	2.26 J	14.4 J	ug/kg	11SS130002	5/22	3.85 - 4.43	14.4	NA	**9.4**	92 C	**Yes**	ASL
	85-01-8	Phenanthrene	2.24 J	301 J	ug/kg	11SS110002	10/22	3.85 - 4.43	301	NA	190,000 (8)	NA	No	BSL
	129-00-0	Pyrene	2.46 J	417 J	ug/kg	11SS130002	11/22	3.85 - 4.43	417	NA	190,000	190,000 N	No	BSL
	Pesticides													
	72-55-9	4,4'-DDE	1.4 J	1.4 J	ug/kg	11SS140002	1/22	0.39 - 0.462	1.4	NA	920	9,400 C	No	BSL
	319-84-6	**alpha-BHC**	0.226 J	0.93	ug/kg	11SS080002	2/22	0.39 - 0.431	0.93	NA	**0.72**	7.2 C	**Yes**	ASL
	319-85-7	beta-BHC	0.221 J	0.265 J	ug/kg	11SB020002	2/22	0.39 - 0.462	0.265	NA	2.6	26 C	No	BSL
	58-89-9	gamma-BHC (Lindane)	2.27 J	2.27 J	ug/kg	11SS130002	1/22	0.39 - 0.462	2.27	NA	4.2	23 M	No	BSL
	5103-74-2	gamma-Chlordane	0.244 J	1.25 J	ug/kg	11SS070002	6/22	0.39 - 0.462	1.25	NA	260 (9)	2,700 M(9)	No	BSL
	72-43-5	Methoxychlor	1.01 J	1.01 J	ug/kg	11SS120002	1/22	0.383 - 0.462	1.01	NA	30,000	43,000 M	No	BSL
	Dioxins/Furans													
	3268-87-9	1,2,3,4,6,7,8,9-OCDD	443	6,710 J	ng/kg	11SS140002	11/11	-	6710	NA	17,400 (10)	NA	No	BSL
	39001-02-0	1,2,3,4,6,7,8,9-OCDF	1.14 J	583 J	ng/kg	11SS110002	8/11	6.22 - 6.36	583	NA	17,400 (10)	NA	No	BSL
	35822-46-9	**1,2,3,4,6,7,8-HPCDD**	4.84	772 J	ng/kg	11SS110002	11/11	-	772	NA	**520 (10)**	NA	**Yes**	ASL
	67562-39-4	1,2,3,4,6,7,8-HPCDF	0.244 J	102 J	ng/kg	11SS110002	8/11	3.12 - 3.19	102	NA	520 (10)	NA	No	BSL
	55673-89-7	1,2,3,4,7,8,9-HPCDF	0.329 J	7.82	ng/kg	11SS110002	3/11	3.12 - 3.28	7.82	NA	520 (10)	NA	No	BSL
	39227-28-6	1,2,3,4,7,8-HXCDD	0.57 J	8.54	ng/kg	11SS110002	5/11	3.12 - 3.21	8.54	NA	52 (10)	NA	No	BSL
	70648-26-9	1,2,3,4,7,8-HXCDF	0.318 J	3.91 J	ng/kg	11SS110002	5/11	3.12 - 3.28	3.91	NA	52 (10)	NA	No	BSL
	57653-85-7	1,2,3,6,7,8-HXCDD	0.642 J	24.7 J	ng/kg	11SS110002	7/11	3.12 - 3.19	24.7	NA	52 (10)	NA	No	BSL
	57117-44-9	1,2,3,6,7,8-HXCDF	0.313 J	4.61 J	ng/kg	11SS110002	4/11	3.12 - 3.28	4.61	NA	52 (10)	NA	No	BSL
	19408-74-3	1,2,3,7,8,9-HXCDD	0.596 J	13.7 J	ng/kg	11SS110002	7/11	3.12 - 3.19	13.7	NA	52 (10)	NA	No	BSL

TABLE 7-4

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - MIGRATION FROM SURFACE SOIL TO GROUNDWATER
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[1]	Concentration Used for Screening[2]	Similar to Background?[3]	USEPA RSL Protection of Groundwater[4]	IDEM Migration to Groundwater[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
SWMU 11	**Dioxins/Furans**													
	72918-21-9	1,2,3,7,8,9-HXCDF	1.56 J	1.56 J	ng/kg	11SS110002	1/11	3.09 - 3.28	1.56	NA	52 [10]	NA	No	BSL
	40321-76-4	1,2,3,7,8-PECDD	0.51 J	2.45 J	ng/kg	11SS110002	2/11	3.09 - 3.28	2.45	NA	5.2 [10]	NA	No	BSL
	57117-41-6	1,2,3,7,8-PECDF	0.849 J	2.5 J	ng/kg	11SS220002	3/11	3.09 - 3.28	2.5	NA	174 [10]	NA	No	BSL
	60851-34-5	2,3,4,6,7,8-HXCDF	0.383 J	4.51 J	ng/kg	11SS110002	4/11	3.12 - 3.28	4.51	NA	52 [10]	NA	No	BSL
	57117-31-4	2,3,4,7,8-PECDF	1.04 J	3.12 J	ng/kg	11SS140002	3/11	3.09 - 3.28	3.12	NA	17.4 [10]	NA	No	BSL
	1746-01-6	2,3,7,8-TCDD	0.24 J	0.69 J	ng/kg	11SS220002	2/11	0.616 - 0.653	0.69	NA	5.2	300 M	No	ASL
	--	**2,3,7,8-TCDD Equivalents - Halfnd**	3.72	20.2	ng/kg	11SS110002	11/11	-	20.2	NA	**5.2**	300 M	**Yes**	ASL
	37871-00-4	Total HPCDD	9.63	1,440 J	ng/kg	11SS110002	11/11	-	1,440	NA	NA	NA	No	NTX
	38998-75-3	Total HPCDF	0.691 J	430 J	ng/kg	11SS110002	7/11	3.12 - 3.28	430	NA	NA	NA	No	NTX
	34465-46-8	Total HXCDD	1.38 J	168 J	ng/kg	11SS110002	10/11	3.12 - 3.12	168	NA	NA	NA	No	NTX
	55684-94-1	Total HXCDF	0.255 J	108 J	ng/kg	11SS110002	7/11	3.12 - 3.19	108	NA	NA	NA	No	NTX
	36088-22-9	Total PECDD	0.332 J	18.5 J	ng/kg	11SS110002	7/11	3.12 - 3.21	18.5	NA	NA	NA	No	NTX
	30402-15-4	Total PECDF	0.853 J	36.6	ng/kg	11SS140002	4/11	3.12 - 3.28	36.6	NA	NA	NA	No	NTX
	41903-57-5	Total TCDD	0.69 J	1.17	ng/kg	11SS110002	2/11	0.616 - 0.653	1.17	NA	NA	NA	No	NTX
	55722-27-5	Total TCDF	10	10	ng/kg	11SS220002	1/11	0.369 - 8.4	10	NA	NA	NA	No	NTX
	Metals													
	7429-90-5	Aluminum	7,490	19,900	mg/kg	11SB010002	22/22	-	19,900	No	460,000	480,000 N	No	BSL
	7440-38-2	Arsenic	3.16	12	mg/kg	11SB010002	22/22	-	12	Yes	**0.026**	**5.9 M**	No	BKG
	7440-39-3	Barium	21.4	142	mg/kg	11SS310002	22/22	-	142	Yes	2,400	1,700 M	No	BSL, BKG
	7440-41-7	Beryllium	0.373 J	1.14	mg/kg	11SS320002	22/22	-	1.14	NA	260	63 M	No	BSL
	7440-43-9	Cadmium	0.139 J	0.174 J	mg/kg	11SS300002	2/22	0.232 - 0.261	0.174	Yes	10.4	7.5 M	No	BSL, BKG
	7440-70-2	Calcium	242 J	96,200	mg/kg	11SS300002	22/22	-	96,200	No	NA	NA	No	NUT
	7440-47-3	Chromium	10.9	27.6	mg/kg	11SS320002	22/22	-	27.6	Yes	**0.0118 [11]**	**0.12 C[11]**	No	BKG
	7440-48-4	Cobalt	2.85	26	mg/kg	11SS080002	22/22	-	26	Yes	**4.2**	**4.3 N**	No	BKG
	7440-50-8	Copper	6.37	18.4	mg/kg	11SS180002	22/22	-	18.4	No	440	920 M	No	BSL
	7439-89-6	**Iron**	13,400	30,100	mg/kg	11SS320002	22/22	-	30,100	No	**5,400**	**5,600 N**	**Yes**	ASL
	7439-92-1	Lead	5.45 J	27.7	mg/kg	11SS080002	22/22	-	27.7	Yes	280	270 M	No	BSL, BKG
	7439-95-4	Magnesium	738	4,260	mg/kg	11SS300002	22/22	-	4,260	No	NA	NA	No	NUT
	7439-96-5	Manganese	101 J	1,070 J	mg/kg	11SS310002	22/22	-	1,070	Yes	**420**	**420 N**	No	BKG
	7439-97-6	Mercury	0.0235 J	0.0645 J	mg/kg	11SS090002	17/22	0.0296 - 0.0402	0.0645	No	0.66 [12]	2.1 M	No	BSL
	7440-02-0	Nickel	5.23	17.1	mg/kg	11SS300002	22/22	-	17.1	Yes	400	390 N	No	BSL, BKG
	7440-09-7	Potassium	278 J	1,110	mg/kg	11SS050002	22/22	-	1,110	Yes	NA	NA	No	NUT, BKG
	7782-49-2	Selenium	0.406 J	0.67 J	mg/kg	11SS050002	8/22	0.577 - 0.649	0.67	Yes	8	5.3 M	No	BSL, BKG
	7440-23-5	Sodium	139 J	397 J	mg/kg	11SS300002	6/22	348 - 389	397	No	NA	NA	No	NUT
	7440-62-2	Vanadium	17.6 J	41	mg/kg	11SB010002	22/22	-	41	Yes	1,260	1,600 N	No	BSL, BKG
	7440-66-6	Zinc	10.9	52.5	mg/kg	11SB010002	22/22	-	52.5	Yes	5,800	5,900 N	No	BSL, BKG

TABLE 7-4

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - MIGRATION FROM SURFACE SOIL TO GROUNDWATER
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Footnotes:
1 - Values presented are sample-specific quantitation limits.
2 - The maximum detected concentration is used for screening purposes.
3 - Soil Group 3 - Alluvial, Mississippian, and Pennsylvanian Surface Soil Upper Tolerance Limit. Base-Wide Background Soil Investigation Report, Tetra Tech, 2001.
4 - USEPA Regional Screening Levels for Chemical Contaminants at Superfund Sites, November 2013. Values are based on a dilution attenuation factor of 20.
5 - IDEM Closure Guide, March 1, 2013.
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
7 - Value is for acenaphthene.
8 - Value is for pyrene.
9 - Value is for chlordane.
10 - Value is derived by multiplying the criteria for 2,3,7,8-TCDD by World Health Organization Toxicity Equivalency Factor.
11 - Value is for hexavalent chromium.
12 - Value is for mercuric chloride (and other mercury salts).
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Associated Samples

11SB010002	11SS150002
11SB020002	11SS160002
11SB030002	11SS170002
11SB040002	11SS180002
11SS050002	11SS190002
11SS060002	11SS200002
11SS070002	11SS210002
11SS080002	11SS220002
11SS090002	11SS230002
11SS100002	11SS240002
11SS110002	11SS290002
11SS120002	11SS300002
11SS130002	11SS310002
11SS140002	11SS320002

Definitions:
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
M = Maximum Contaminant Level
N = Noncarcinogen
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BKG = Less than Background Concentration
BSL = Below COPC Screening Level
NTX = No toxicity criteria available
NUT = Essential nutrient

TABLE 7-5

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH SUBSURFACE SOIL
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[1]	Concentration Used for Screening[2]	Similar to Background?[3]	Adjusted USEPA RSL Residential Soil[4]	IDEM Residential Soil[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
SWMU 11	**Volatile Organic Compounds**													
	75-35-4	1,1-Dichloroethene	1.67 J	1.9 J	ug/kg	11SB020406	2/83	1.98 - 465	1.9	NA	24,000 N	340,000 N	No	BSL
	95-50-1	1,2-Dichlorobenzene	1.4 J	5870	ug/kg	11SB410204	36/83	1.98 - 465	5,870	NA	190,000 N	380,000 S	No	BSL
	106-46-7	1,4-Dichlorobenzene	3.27 J	150 J	ug/kg	11SB410405	9/83	1.98 - 465	150	NA	2,400 C	34,000 C	No	BSL
	78-93-3	2-Butanone	2.76 J	9.34 J	ug/kg	11SB57-0406	6/83	2.87 - 929	9.34	NA	2,800,000 N	28,000,000 S	No	BSL
	67-64-1	Acetone	4.87 J	270 J	ug/kg	11SB340406	26/82	8.67 - 1860	270	NA	6,100,000 N	85,000,000 N	No	BSL
	71-43-2	Benzene	1.3 J	146 J	ug/kg	11SB360405	4/83	1.98 - 465	146	NA	1,100 C	15,000 C	No	BSL
	108-90-7	Chlorobenzene	1.02 J	1670 J	ug/kg	11SB360405	17/83	2.17 - 465	1,670	NA	29,000 N	410,000 N	No	BSL
	156-59-2	cis-1,2-Dichloroethene	4.99	1700 J	ug/kg	11SB400506	43/83	1.98 - 136	1,700	NA	16,000 N	220,000 N	No	BSL
	100-41-4	Ethylbenzene	1.94 J	6.21	ug/kg	11SB450506	3/83	1.98 - 465	6.21	NA	5,400 C	76,000 C	No	BSL
	98-82-8	Isopropylbenzene	1.38 J	3.24 J	ug/kg	11SB51-0204	2/83	1.98 - 465	3.24	NA	210,000 N	270,000 S	No	BSL
	108-87-2	Methyl Cyclohexane	1.59 J	6.93	ug/kg	11SB65-0911	5/83	1.98 - 465	6.93	NA	NA	NA	No	NTX
	75-09-2	Methylene Chloride	2.63 J	883 J	ug/kg	11SB400506	6/83	3.96 - 272	883	NA	36,000 N[7]	500,000 N	No	BSL
	127-18-4	**Tetrachloroethene**	1.57 J	31200	ug/kg	11SB400506	36/83	1.98 - 136	31,200	NA	**8,600 N[7]**	120,000 N	**Yes**	ASL
	108-88-3	Toluene	1.28 J	10.6	ug/kg	11SB020406	6/83	1.98 - 465	10.6	NA	500,000 N	820,000 S	No	BSL
	1330-20-7	Total Xylenes	4.45 J	20.5	ug/kg	11SB52-0506	3/83	5.94 - 1390	20.5	NA	63,000 N	260,000 S	No	BSL
	156-60-5	trans-1,2-Dichloroethene	1.45 J	75.6	ug/kg	11SB64-0911	8/83	1.98 - 465	75.6	NA	15,000 N	210,000 N	No	BSL
	79-01-6	**Trichloroethene**	1.5 J	1290	ug/kg	11SB68-1315	42/83	1.98 - 136	1,290	NA	**440 N[7]**	6,200 N	**Yes**	ASL
	75-01-4	**Vinyl Chloride**	1.58 J	154	ug/kg	11SB020406	23/83	1.98 - 465	154	NA	**60 C**	840 C	**Yes**	ASL
	Semivolatile Organic Compounds													
	84-66-2	Diethyl Phthalate	300 J	300 J	ug/kg	11SB010406	1/7	186 - 226	300	NA	4,900,000 N	69,000,000 N	No	BSL
	Pesticides													
	319-85-7	beta-BHC	0.488 J	0.488 J	ug/kg	11SB030406	1/4	0.377 - 0.437	0.488	NA	270 C	3,800 C	No	BSL
	5103-74-2	gamma-Chlordane	0.355 J	0.355 J	ug/kg	11SB030406	1/4	0.377 - 0.437	0.355	NA	1,600 C[8]	22,000 C[8]	No	BSL
	Metals													
	7429-90-5	Aluminum	8,150	15,400	mg/kg	11SB020406	4/4	-	15,400	Yes	**7,700 N**	100,000 L	No	BKG
	7440-38-2	**Arsenic**	2.49	20.4	mg/kg	11SB020406	4/4	-	20.4	No	**0.61 C**	**5.5 C**	**Yes**	ASL
	7440-39-3	Barium	49.1	60.9	mg/kg	11SB030406	4/4	-	60.9	Yes	1,500 N	21,000 N	No	BSL, BKG
	7440-41-7	Beryllium	0.392 J	0.827 J	mg/kg	11SB020406	4/4	-	0.827	NA	16 N	220 N	No	BSL
	7440-70-2	Calcium	168 J	688	mg/kg	11SB030406	4/4	-	688	Yes	NA	NA	No	NUT, BKG
	7440-47-3	**Chromium**	13.8	74.9	mg/kg	11SB020406	4/4	-	74.9	No	**0.29 C[9]**	**4.1 C[9]**	**Yes**	ASL
	7440-48-4	Cobalt	1.88	5.73	mg/kg	11SB040406	4/4	-	5.73	Yes	**2.3 N**	32 N	No	BKG
	7440-50-8	Copper	6.05	12.7	mg/kg	11SB010406	4/4	-	12.7	Yes	310 N	4,300 N	No	BSL, BKG
	7439-89-6	**Iron**	11,400	75,600	mg/kg	11SB020406	4/4	-	75,600	No	**5,500 N**	77,000 N	**Yes**	ASL
	7439-92-1	Lead	6.76	28.5 J	mg/kg	11SB020406	4/4	-	28.5	No	400	400	No	BSL
	7439-95-4	Magnesium	792	1,460	mg/kg	11SB010406	4/4	-	1,460	Yes	NA	NA	No	NUT, BKG
	7439-96-5	Manganese	12.5	593	mg/kg	11SB040406	4/4	-	593	Yes	**180 N**	2,500 N	No	BKG
	7439-97-6	Mercury	0.0203 J	0.025 J	mg/kg	11SB040406	2/4	0.0337 - 0.0353	0.025	Yes	2.3 N[10]	32 N[10]	No	BSL, BKG
	7440-02-0	Nickel	5.71	9.71	mg/kg	11SB020406	4/4	-	9.71	Yes	150 N	2,100 N	No	BSL, BKG
	7440-09-7	Potassium	294 J	643	mg/kg	11SB010406	4/4	-	643	Yes	NA	NA	No	NUT, BKG
	7782-49-2	Selenium	1.26 J	1.26 J	mg/kg	11SB020406	1/4	0.559 - 0.59	1.26	No	39 N	550 N	No	BSL
	7440-62-2	**Vanadium**	17.6	86.2	mg/kg	11SB020406	4/4	-	86.2	No	**39 N**	550 N	**Yes**	ASL
	7440-66-6	Zinc	11.1	27.1	mg/kg	11SB010406	4/4	-	27.1	Yes	2,300 N	32,000 N	No	BSL, BKG

TABLE 7-5

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH SUBSURFACE SOIL
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Footnotes:
1 - Values presented are sample-specific quantitation limits.
2 - The maximum detected concentration is used for screening purposes.
3 - Soil Group 3 - Alluvial, Mississippian, and Pennsylvanian Surface Soil Upper Tolerance Limit. Base-Wide Background Soil Investigation Report, Tetra Tech, 2001.
4 - USEPA Regional Screening Levels for Chemical Contaminants at Superfund Sites, November 2013. The noncarcinogenic values (denoted with a "N" flag) are the screening level divided by 10 to correspond to a target hazard quotient of 0.1. Carcinogenic values represent an incremental cancer risk of 1.0E-06 (carcinogens denoted with a "C" flag).
5 - IDEM Closure Guide, March 1, 2013.
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
7 - Ten percent of the noncarcinogenic value is less than the carcinogenic value, therefore the noncarcinogenic value is presented.
8 - Value is for chlordane.
9 - Value is for hexavalent chromium.
10 - Value is for mercuric chloride (and other mercury salts).
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Definitions:
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
L = Capped at 100,000 mg/kg
N = Noncarcinogen
NA = Not Applicable/Not Available
S = Soil saturation limit

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BKG = Less than Background Concentration
BSL = Below COPC Screening Level
NTX = No toxicity criteria available
NUT = Essential nutrient

Associated Samples

11SB010406	11SB420203	11SB56-0406	11SB420102
11SB020406	11SB430406	11SB56-0708	11SB55-0607
11SB030406	11SB430809	11SB57-0406	11SB69-1617
11SB040406	11SB440406	11SB57-0607	11SB70-1315
11SB250507	11SB440607	11SB58-0305	11SB70-1516
11SB260507	11SB450204	11SB58-0506	
11SB270507	11SB450506	11SB59-0204	
11SB280507	11SB460305	11SB60-0204	
11SB330406	11SB460506	11SB60-0405	
11SB330607	11SB470103	11SB61-0810	
11SB340406	11SB470304	11SB61-1011	
11SB340708	11SB480305	11SB62-0911	
11SB350305	11SB480506	11SB62-1112	
11SB350506	11SB490204	11SB63-0911	
11SB360204	11SB490405	11SB63-1112	
11SB360405	11SB500305	11SB64-0911	
11SB370103	11SB500506	11SB64-1112	
11SB370304	11SB51-0204	11SB65-0911	
11SB380406	11SB51-0506	11SB65-1112	
11SB380607	11SB52-0204	11SB66-1315	
11SB390406	11SB52-0506	11SB66-1516	
11SB390708	11SB53-0204	11SB67-1416	
11SB400305	11SB53-0506	11SB67-1617	
11SB400506	11SB54-0204	11SB68-1315	
11SB410204	11SB54-0405	11SB68-1516	
11SB410405	11SB55-0406	11SB69-1416	

TABLE 7-6

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - MIGRATION FROM SUBSURFACE SOIL TO GROUNDWATER
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[1]	Concentration Used for Screening[2]	Similar to Background?[3]	USEPA RSL Protection of Groundwater[4]	IDEM Migration to Groundwater[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
SWMU 11	**Volatile Organic Compounds**													
	75-35-4	1,1-Dichloroethene	1.67 J	1.9 J	ug/kg	11SB020406	2/83	1.98 - 465	1.9	NA	1,860	50 M	No	BSL
	95-50-1	**1,2-Dichlorobenzene**	1.4 J	5,870	ug/kg	11SB410204	36/83	1.98 - 465	5870	NA	**5,400**	12,000 M	**Yes**	ASL
	106-46-7	**1,4-Dichlorobenzene**	3.27 J	150 J	ug/kg	11SB410405	9/83	1.98 - 465	150	NA	**8**	1,400 M	**Yes**	ASL
	78-93-3	2-Butanone	2.76 J	9.34 J	ug/kg	11SB57-0406	6/83	2.87 - 929	9.34	NA	20,000	21,000 N	No	BSL
	67-64-1	Acetone	4.87 J	270 J	ug/kg	11SB340406	26/82	8.67 - 1860	270	NA	48,000	49,000 N	No	BSL
	71-43-2	**Benzene**	1.3 J	146 J	ug/kg	11SB360405	4/83	1.98 - 465	146	NA	**4**	**51 M**	**Yes**	ASL
	108-90-7	**Chlorobenzene**	1.02 J	1,670 J	ug/kg	11SB360405	17/83	2.17 - 465	1670	NA	**980**	**1,400 M**	**Yes**	ASL
	156-59-2	**cis-1,2-Dichloroethene**	4.99	1,700 J	ug/kg	11SB400506	43/83	1.98 - 136	1700	NA	**164**	**410 M**	**Yes**	ASL
	100-41-4	Ethylbenzene	1.94 J	6.21	ug/kg	11SB450506	3/83	1.98 - 465	6.21	NA	30	16,000 M	No	BSL
	98-82-8	Isopropylbenzene	1.38 J	3.24 J	ug/kg	11SB51-0204	2/83	1.98 - 465	3.24	NA	12,800	13,000 N	No	BSL
	108-87-2	Methyl Cyclohexane	1.59 J	6.93	ug/kg	11SB65-0911	5/83	1.98 - 465	6.93	NA	NA	NA	No	NTX
	75-09-2	**Methylene Chloride**	2.63 J	883 J	ug/kg	11SB400506	6/83	3.96 - 272	883	NA	**50**	**25 M**	**Yes**	ASL
	127-18-4	**Tetrachloroethene**	1.57 J	31,200	ug/kg	11SB400506	36/83	1.98 - 136	31200	NA	**88**	**45 M**	**Yes**	ASL
	108-88-3	Toluene	1.28 J	10.6	ug/kg	11SB020406	6/83	1.98 - 465	10.6	NA	11,800	14,000 M	No	BSL
	1330-20-7	Total Xylenes	4.45 J	20.5	ug/kg	11SB52-0506	3/83	5.94 - 1390	20.5	NA	3,800	200,000 M	No	BSL
	156-60-5	trans-1,2-Dichloroethene	1.45 J	75.6	ug/kg	11SB64-0911	8/83	1.98 - 465	75.6	NA	500	590 M	No	BSL
	79-01-6	**Trichloroethene**	1.5 J	1,290	ug/kg	11SB68-1315	42/83	1.98 - 136	1290	NA	**3.2**	**36 M**	**Yes**	ASL
	75-01-4	**Vinyl Chloride**	1.58 J	154	ug/kg	11SB020406	23/83	1.98 - 465	154	NA	**0.106**	**14 M**	**Yes**	ASL
	Semivolatile Organic Compounds													
	84-66-2	Diethyl Phthalate	300 J	300 J	ug/kg	11SB010406	1/7	186 - 226	300	NA	94,000	90,000 N	No	BSL
	Pesticides													
	319-85-7	beta-BHC	0.488 J	0.488 J	ug/kg	11SB030406	1/4	0.377 - 0.437	0.488	NA	2.6	26 C	No	BSL
	5103-74-2	gamma-Chlordane	0.355 J	0.355 J	ug/kg	11SB030406	1/4	0.377 - 0.437	0.355	NA	260 [7]	2700 M[7]	No	BSL
	Metals													
	7429-90-5	Aluminum	8,150	15,400	mg/kg	11SB020406	4/4	-	15,400	Yes	460,000	480,000 N	No	BSL, BKG
	7440-38-2	**Arsenic**	2.49	20.4	mg/kg	11SB020406	4/4	-	20.4	No	**0.026**	**5.9 M**	**Yes**	ASL
	7440-39-3	Barium	49.1	60.9	mg/kg	11SB030406	4/4	-	60.9	Yes	2,400	1,700 M	No	BSL, BKG
	7440-41-7	Beryllium	0.392 J	0.827 J	mg/kg	11SB020406	4/4	-	0.827	NA	260	63 M	No	BSL
	7440-70-2	Calcium	168 J	688	mg/kg	11SB030406	4/4	-	688	Yes	NA	NA	No	NUT, BKG
	7440-47-3	**Chromium**	13.8	74.9	mg/kg	11SB020406	4/4	-	74.9	No	**0.0118 [8]**	**0.12 C[8]**	**Yes**	ASL
	7440-48-4	Cobalt	1.88	5.73	mg/kg	11SB040406	4/4	-	5.73	Yes	**4.2**	**4.3 N**	No	BKG
	7440-50-8	Copper	6.05	12.7	mg/kg	11SB010406	4/4	-	12.7	Yes	440	920 M	No	BSL, BKG
	7439-89-6	**Iron**	11,400	75,600	mg/kg	11SB020406	4/4	-	75,600	No	**5,400**	**5,600 N**	**Yes**	ASL
	7439-92-1	Lead	6.76	28.5 J	mg/kg	11SB020406	4/4	-	28.5	No	280 [9]	270 M	No	BSL
	7439-95-4	Magnesium	792	1,460	mg/kg	11SB010406	4/4	-	1,460	Yes	NA	NA	No	NUT, BKG
	7439-96-5	Manganese	12.5	593	mg/kg	11SB040406	4/4	-	593	Yes	**420**	**420 N**	No	BKG
	7439-97-6	Mercury	0.0203 J	0.025 J	mg/kg	11SB040406	2/4	0.0337 - 0.0353	0.025	Yes	0.66	2.1 M	No	BSL, BKG
	7440-02-0	Nickel	5.71	9.71	mg/kg	11SB020406	4/4	-	9.71	Yes	400	390 N	No	BSL, BKG
	7440-09-7	Potassium	294 J	643	mg/kg	11SB010406	4/4	-	643	Yes	NA	NA	No	NUT, BKG
	7782-49-2	Selenium	1.26 J	1.26 J	mg/kg	11SB020406	1/4	0.559 - 0.59	1.26	No	8	5.3 M	No	BSL
	7440-62-2	Vanadium	17.6	86.2	mg/kg	11SB020406	4/4	-	86.2	No	1,260	1,600 N	No	BSL
	7440-66-6	Zinc	11.1	27.1	mg/kg	11SB010406	4/4	-	27.1	Yes	5,800	5,900 N	No	BSL, BKG

TABLE 7-6

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - MIGRATION FROM SUBSURFACE SOIL TO GROUNDWATER
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Footnotes:
1 - Values presented are sample-specific quantitation limits.
2 - The maximum detected concentration is used for screening purposes.
3 - Soil Group 3 - Alluvial, Mississippian, and Pennsylvanian Surface Soil Upper Tolerance Limit. Base-Wide Background Soil Investigation Report, Tetra Tech, 2001.
4 - USEPA Regional Screening Levels for Chemical Contaminants at Superfund Sites, November 2013. Values are based on a dilution attenuation factor of 20.
5 - IDEM Closure Guide, March 1, 2013.
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
7 - Value is for chlordane.
8 - Value is for hexavalent chromium.
9 - Value is MCL based soil screening level.
10 - Value is for mercuric chloride (and other mercury salts).
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Associated Samples

11SB010406	11SB66-1315	11SB52-0204
11SB020406	11SB66-1516	11SB52-0506
11SB030406	11SB67-1416	11SB53-0204
11SB040406	11SB67-1617	11SB53-0506
11SB250507	11SB68-1315	11SB54-0204
11SB260507	11SB68-1516	11SB54-0405
11SB270507	11SB69-1416	11SB55-0406
11SB280507	11SB69-1617	11SB55-0607
11SB330406	11SB70-1315	11SB56-0406
11SB330607	11SB70-1516	11SB56-0708
11SB340406	11SB430406	11SB57-0406
11SB340708	11SB430809	11SB57-0607
11SB350305	11SB440406	11SB58-0305
11SB350506	11SB440607	11SB58-0506
11SB360204	11SB450204	11SB59-0204
11SB360405	11SB450506	11SB60-0204
11SB370103	11SB460305	11SB60-0405
11SB370304	11SB460506	11SB61-0810
11SB380406	11SB470103	11SB61-1011
11SB380607	11SB470304	11SB62-0911
11SB390406	11SB480305	11SB62-1112
11SB390708	11SB480506	11SB63-0911
11SB400305	11SB490204	11SB63-1112
11SB400506	11SB490405	11SB64-0911
11SB410204	11SB500305	11SB64-1112
11SB410405	11SB500506	11SB65-0911
11SB420102	11SB51-0204	11SB65-1112
11SB420203	11SB51-0506	

Definitions:
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
M = Maximum Contaminant Level
N = Noncarcinogen
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BKG = Less than Background Concentration
BSL = Below COPC Screening Level
NTX = No toxicity criteria available
NUT = Essential nutrient

TABLE 7-7

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH SEDIMENT
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects(1)	Concentration Used for Screening(2)	Similar to Background?(3)	Adjusted USEPA RSL Residential Soil(4)	IDEM Residential Soil(5)	COPC Flag	Rationale for Contaminant Deletion or Selection(6)
SWMU 11	**Dioxins/Furans**													
	3268-87-9	1,2,3,4,6,7,8,9-OCDD	480	2710	ng/kg	11SD020612	4/4	-	2710	NA	15,000 C(7)	NA	No	BSL
	39001-02-0	1,2,3,4,6,7,8,9-OCDF	39.4	219	ng/kg	11SD020612	4/4	-	219	NA	15,000 C(7)	NA	No	BSL
	35822-46-9	1,2,3,4,6,7,8-HPCDD	56.5	290	ng/kg	11SD060006	4/4	-	290	NA	450 C(7)	NA	No	BSL
	67562-39-4	1,2,3,4,6,7,8-HPCDF	8.87	37.2	ng/kg	11SD020612	4/4	-	37.2	NA	450 C(7)	NA	No	BSL
	55673-89-7	1,2,3,4,7,8,9-HPCDF	1.98 J	2.75 J	ng/kg	11SD020612	3/4	3.26 - 3.26	2.75	NA	450 C(7)	NA	No	BSL
	39227-28-6	1,2,3,4,7,8-HXCDD	3.53 J	4.87	ng/kg	11SD020006	3/4	3.26 - 3.26	4.87	NA	45 C(7)	NA	No	BSL
	70648-26-9	1,2,3,4,7,8-HXCDF	1.09 J	1.2 J	ng/kg	11SD020612	2/4	3.12 - 3.26	1.2	NA	45 C(7)	NA	No	BSL
	57653-85-7	1,2,3,6,7,8-HXCDD	2.08 J	8.55	ng/kg	11SD060006	4/4	-	8.55	NA	45 C(7)	NA	No	BSL
	57117-44-9	1,2,3,6,7,8-HXCDF	1.01 J	1.07 J	ng/kg	11SD020612	2/4	3.12 - 3.26	1.07	NA	45 C(7)	NA	No	BSL
	19408-74-3	1,2,3,7,8,9-HXCDD	4.42 J	4.62 J	ng/kg	11SD020612	3/4	3.26 - 3.26	4.62	NA	45 C(7)	NA	No	BSL
	40321-76-4	1,2,3,7,8-PECDD	1.08 J	1.38 J	ng/kg	11SD020006	2/4	3.12 - 3.26	1.38	NA	4.5 C(7)	NA	No	BSL
	57117-41-6	1,2,3,7,8-PECDF	0.562 J	1.02 J	ng/kg	11SD020006	2/4	3.12 - 3.26	1.02	NA	150 C(7)	NA	No	BSL
	60851-34-5	2,3,4,6,7,8-HXCDF	1.15 J	1.36 J	ng/kg	11SD020006	2/4	3.12 - 3.26	1.36	NA	45 C(7)	NA	No	BSL
	57117-31-4	2,3,4,7,8-PECDF	0.48 J	0.559 J	ng/kg	11SD020006	2/4	3.12 - 3.26	0.559	NA	15 C(7)	NA	No	BSL
	1746-01-6	2,3,7,8-TCDD	0.494 J	0.657 J	ng/kg	11SD060006	2/4	0.65 - 0.65	0.657	NA	4.5 C	63 C	No	BSL
	- -	**2,3,7,8-TCDD Equivalents-Half**	4.54	9.05	ng/kg	11SD060006	4/4	-	9.05	NA	**4.5 C**	63 C	**Yes**	ASL
	37871-00-4	Total HPCDD	111	622	ng/kg	11SD060006	4/4	-	622	NA	NA	NA	No	NTX
	38998-75-3	Total HPCDF	33	152	ng/kg	11SD060006	4/4	-	152	NA	NA	NA	No	NTX
	34465-46-8	Total HXCDD	13.8	73.1	ng/kg	11SD060006	4/4	-	73.1	NA	NA	NA	No	NTX
	55684-94-1	Total HXCDF	7.09	33.7	ng/kg	11SD020612	4/4	-	33.7	NA	NA	NA	No	NTX
	36088-22-9	Total PECDD	2.12 J	9.64 J	ng/kg	11SD020006	3/4	3.26 - 3.26	9.64	NA	NA	NA	No	NTX
	30402-15-4	Total PECDF	6.42	9.89 J	ng/kg	11SD020006	3/4	3.26 - 3.26	9.89	NA	NA	NA	No	NTX
	41903-57-5	Total TCDD	1.11	1.11	ng/kg	11SD060006	1/4	0.607 - 0.65	1.11	NA	NA	NA	No	NTX
	55722-27-5	Total TCDF	0.346 J	3.76	ng/kg	11SD060006	2/4	1.94 - 2.1	3.76	NA	NA	NA	No	NTX
	Polycyclic Aromatic Hydrocarbons													
	91-57-6	2-Methylnaphthalene	2.85 J	2.85 J	ug/kg	11SD040612	1/8	3.69 - 23.6	2.85	NA	23,000 N	320,000 N	No	BSL
	208-96-8	Acenaphthylene	4.49 J	27 J	ug/kg	11SD010006	5/8	3.69 - 22.7	27	NA	340,000 N(8)	NA	No	BSL
	120-12-7	Anthracene	4.26 J	28.6 J	ug/kg	11SD010006	6/8	3.69 - 4.45	28.6	NA	1,700,000 N	24,000,000 N	No	BSL
	56-55-3	Benzo(a)anthracene	3.34 J	107	ug/kg	11SD010006	7/8	3.69 - 3.69	107	NA	150 C	2,100 C	No	BSL
	50-32-8	**Benzo(a)pyrene**	5.01 J	136	ug/kg	11SD010006	8/8	-	136	NA	**15 C**	210 C	**Yes**	ASL
	205-99-2	**Benzo(b)fluoranthene**	7.48 J	298	ug/kg	11SD010006	8/8	-	298	NA	**150 C**	2,100 C	**Yes**	ASL
	191-24-2	Benzo(g,h,i)perylene	6.61 J	121	ug/kg	11SD010006	8/8	-	121	NA	170,000 N(9)	NA	No	BSL
	207-08-9	Benzo(k)fluoranthene	3.9 J	95.1	ug/kg	11SD010006	8/8	-	95.1	NA	1,500 C	21,000 C	No	BSL
	218-01-9	Chrysene	5.68 J	279	ug/kg	11SD010006	7/8	3.69 - 3.69	279	NA	15,000 C	210,000 C	No	BSL
	53-70-3	**Dibenzo(a,h)anthracene**	9.83	29.7 J	ug/kg	11SD010006	5/8	3.69 - 22.7	29.7	NA	**15 C**	210 C	**Yes**	ASL
	206-44-0	Fluoranthene	6.68 J	594	ug/kg	11SD010006	8/8	-	594	NA	230,000 N	3,200,000 N	No	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	4.76 J	102	ug/kg	11SD010006	8/8	-	102	NA	150 C	2,100 C	No	BSL
	91-20-3	Naphthalene	2.38 J	15.7 J	ug/kg	11SD010612	3/8	3.69 - 23.6	15.7	NA	3,600 C	50,000 C	No	BSL
	85-01-8	Phenanthrene	3.25 J	153 J	ug/kg	11SD010006	8/8	-	153	NA	170,000 N(9)	NA	No	BSL
	129-00-0	Pyrene	7.39 J	468	ug/kg	11SD010006	8/8	-	468	NA	170,000 N	2,400,000 N	No	BSL
	PCBs													
	11096-82-5	Aroclor-1260	7.95 J	48.5	ug/kg	11SD010006	4/8	9.47 - 11.2	48.5	NA	220 C	3,100 C(10)	No	BSL

TABLE 7-7

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH SEDIMENT
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[1]	Concentration Used for Screening[2]	Similar to Background?[3]	Adjusted USEPA RSL Residential Soil[4]	IDEM Residential Soil[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
SWMU 11	**Pesticides**													
	72-54-8	4,4'-DDD	0.328 J	1.13 J	ug/kg	11SD010612	2/8	0.386 - 0.457	1.13	NA	2,000 C	28,000 C	No	BSL
	72-55-9	4,4'-DDE	3.09 J	3.09 J	ug/kg	11SD010612	1/8	0.386 - 0.47	3.09	NA	1,400 C	20,000 C	No	BSL
	50-29-3	4,4'-DDT	1.45 J	1.45 J	ug/kg	11SD010612	1/8	0.386 - 0.47	1.45	NA	1,700 C	24,000 C	No	BSL
	319-84-6	alpha-BHC	1.46	2.39	ug/kg	11SD010006	6/8	0.418 - 0.422	2.39	NA	77 C	1,100 C	No	BSL
	72-20-8	Endrin	0.637 J	0.747 J	ug/kg	11SD010612	2/8	0.379 - 0.459	0.747	NA	1,800 N	25,000 N	No	BSL
	5103-74-2	gamma-Chlordane	0.182 J	2.3	ug/kg	11SD010612	4/8	0.386 - 0.457	2.3	NA	1,600 C[11]	22,000 C[11]	No	BSL
	Metals													
	7429-90-5	Aluminum	6,500	11,300	mg/kg	11SD020612	8/8	-	11,300	Yes	**7,700 N**	100,000 L	No	BKG
	7440-36-0	Antimony	0.637 J	0.637 J	mg/kg	11SD010612	1/8	0.929 - 1.15	0.637	Yes	3.1 N	43 N	No	BSL, BKG
	7440-38-2	**Arsenic**	14.3	27	mg/kg	11SD040612	8/8	-	27	No	**0.61 C**	**5.5 C**	**Yes**	ASL
	7440-39-3	Barium	66.3	255	mg/kg	11SD040612	8/8	-	255	Yes	1,500 N	21,000 N	No	BSL, BKG
	7440-41-7	Beryllium	0.551 J	1.21	mg/kg	11SD040612	8/8	-	1.21	No	16 N	220 N	No	BSL
	7440-43-9	Cadmium	0.195 J	2.6 J	mg/kg	11SD010006	8/8	-	2.6	No	7 N	98 N	No	BSL
	7440-70-2	Calcium	1,880	55,500	mg/kg	11SD010006	8/8	-	55,500	No	NA	NA	No	NUT
	7440-47-3	**Chromium**	42.3	132	mg/kg	11SD010612	8/8	-	132	No	**0.29 C[12]**	**4.1 C[12]**	**Yes**	ASL
	7440-48-4	Cobalt	13.5	28.3	mg/kg	11SD040612	8/8	-	28.3	Yes	**2.3 N**	32 N	No	BKG
	7440-50-8	Copper	10.1	26.7	mg/kg	11SD010612	8/8	-	26.7	No	310 N	4,300 N	No	BSL
	7439-89-6	**Iron**	16,300	37,800	mg/kg	11SD040612	8/8	-	37,800	No	**5,500 N**	77,000 N	**Yes**	ASL
	7439-92-1	Lead	21.3	148	mg/kg	11SD010612	8/8	-	148	No	400	400	No	BSL
	7439-95-4	Magnesium	820	3,760	mg/kg	11SD010612	8/8	-	3,760	Yes	NA	NA	No	NUT, BKG
	7439-96-5	Manganese	597	4,530	mg/kg	11SD040612	8/8	-	4,530	Yes	**180 N**	**2,500 N**	No	BKG
	7439-97-6	Mercury	0.0337 J	0.153	mg/kg	11SD010612	8/8	-	0.153	No	2.3 N[13]	32 N[13]	No	BSL
	7440-02-0	Nickel	10.7	16.6	mg/kg	11SD040612	8/8	-	16.6	Yes	150 N	2,100 N	No	BSL, BKG
	7440-09-7	Potassium	335 J	442 J	mg/kg	11SD010612	8/8	-	442	Yes	NA	NA	No	NUT, BKG
	7782-49-2	Selenium	0.447 J	0.774	mg/kg	11SD010612	6/8	0.607 - 3.42	0.774	Yes	39 N	550 N	No	BSL, BKG
	7440-23-5	Sodium	93.4 J	215 J	mg/kg	11SD010006	2/8	348 - 410	215	No	NA	NA	No	NUT
	7440-28-0	**Thallium**	0.487 J	0.742 J	mg/kg	11SD020006	4/8	0.278 - 2.73	0.742	No	**0.078 N**	1.1 N	**Yes**	ASL
	7440-62-2	Vanadium	19.7 J	43.1	mg/kg	11SD030612	8/8	-	43.1	Yes	**39 N**	550 N	No	BKG
	7440-66-6	Zinc	54.2	392	mg/kg	11SD010612	8/8	-	392	No	2,300 N	32,000 N	No	BSL
	Miscellaneous Parameters													
	57-12-5	Cyanide	0.201 J	0.462 J	mg/kg	11SD040612	4/8	0.298 - 0.383	0.462	No	2.2 N	31 N	No	BSL

TABLE 7-7

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH SEDIMENT
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Footnotes:
1 - Values presented are sample-specific quantitation limits.
2 - The maximum detected concentration is used for screening purposes.
3 - Soil Group 3 - Alluvial, Mississippian, and Pennsylvanian Surface Soil Upper Tolerance Limit. Base-Wide Background Soil Investigation Report, Tetra Tech, 2001.
4 - USEPA Regional Screening Levels for Chemical Contaminants at Superfund Sites, November 2013. The noncarcinogenic values (denoted with a "N" flag) are the screening level divided by 10 to correspond to a target hazard quotient of 0.1. Carcinogenic values represent an incremental cancer risk of 1.0E-06 (carcinogens denoted with a "C" flag).
5 - IDEM Closure Guide, March 1, 2013.
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level. and is statistically determined to be greater than site background.
7 - Value is derived by multiplying the criteria for 2,3,7,8-TCDD by World Health Organization Toxicity Equivalency Factor.
8 - Value is for acenaphthene.
9 - Value is for pyrene.
10 - Value is for PCBs.
11 - Value is for chlordane.
12 - Value is for hexavalent chromium.
13 - Value is for mercuric chloride (and other mercury salts).
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Associated Samples
11SD010006
11SD010612
11SD020006
11SD020612
11SD030006
11SD030612
11SD040006
11SD040612
11SD050006
11SD060006

Definitions:
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
L = Capped at 100,000 mg/kg
N = Noncarcinogen
NA = Not Applicable/Not Available
S = Soil saturation limit.

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BKG = Background
BSL = Below COPC Screening Level
NUT = Essential nutrient

TABLE 7-8

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH GROUNDWATER
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[1]	Concentration Used for Screening[2]	Background Concentration[3]	Adjusted USEPA RSL Tapwater[4]	USEPA MCL[5]	IDEM Groundwater Residential[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
SWMU 11	**Volatile Organic Compounds**														
	95-50-1	1,2-Dichlorobenzene	0.99 J	0.99 J	ug/L	11MWT0501	1/11	0.5 - 0.5	0.99	NA	28 N	600	600 M	No	BSL
	67-64-1	Acetone	2.74 J	3.9 J	ug/L	11MWT0601	3/11	5 - 5	3.9	NA	1200 N	NA	12000 N	No	BSL
	71-43-2	**Benzene**	1.4	3.23	ug/L	11MWT0201	2/11	0.5 - 0.5	3.23	NA	**0.39 C**	5	5 M	**Yes**	ASL
	75-15-0	Carbon Disulfide	0.394 J	1.32	ug/L	11MWT0501	2/11	0.5 - 0.5	1.32	NA	72 N	NA	720 N	No	BSL
	67-66-3	**Chloroform**	0.32 J	1.29	ug/L	11MWT0301	4/11	0.5 - 0.5	1.29	NA	**0.19 C**	80	80 M	**Yes**	ASL
	156-59-2	**cis-1,2-Dichloroethene**	3.05	27.6	ug/L	11MWT0201	3/11	0.5 - 0.5	27.6	NA	**2.8 N**	70	70 M	**Yes**	ASL
	100-41-4	Ethylbenzene	0.276 J	0.43 J	ug/L	11MWT0201	2/11	0.5 - 0.5	0.43	NA	1.3 C	700	700 M	No	BSL
	127-18-4	**Tetrachloroethene**	5.54	25.5	ug/L	11MWT0201	3/11	0.5 - 0.5	25.5	NA	**3.5 N[8]**	**5**	**5 M**	**Yes**	ASL
	108-88-3	Toluene	0.286 J	3.87 J	ug/L	11MWT0201	4/11	0.5 - 100	3.87	NA	86 N	1000	1000 M	No	BSL
	1330-20-7	Total Xylenes	0.563 J	0.884 J	ug/L	11MWT0201	2/11	0.5 - 1.5	0.884	NA	19 N	10000	10000 M	No	BSL
	156-60-5	trans-1,2-Dichloroethene	0.361 J	0.361 J	ug/L	11MWT0201	1/11	0.5 - 0.5	0.361	NA	8.6 N	100	100 M	No	BSL
	79-01-6	**Trichloroethene**	0.255 J	115	ug/L	11MWT0201	4/11	0.5 - 0.5	115	NA	**0.26 N[8]**	**5**	**5 M**	**Yes**	ASL
	75-01-4	**Vinyl Chloride**	0.503 J	0.503 J	ug/L	11MWT0201	1/11	0.5 - 0.5	0.503	NA	**0.015 C**	2	2 M	**Yes**	ASL
	Metals														
	7440-38-2	Arsenic	1.79 J	1.79 J	ug/L	18CGWT001	1/1	-	1.79	9.1	**0.045 C**	10	10 M	No	BKG
	7440-39-3	Barium	14 J	14 J	ug/L	18CGWT001	1/1	-	14	96.9	290 N	2000	2000 M	No	BSL, BKG
	Dissolved Metals														
	7440-38-2	**Arsenic**	1.62 J	1.62 J	ug/L	18CGWT001	1/1	-	1.62	NA	**0.045 C**	10	10 M	**Yes**	ASL
	7440-39-3	Barium	14.3	14.3	ug/L	18CGWT001	1/1	-	14.3	NA	290 N	2000	2000 M	No	BSL
	7440-47-3	**Chromium**	2.94	2.94	ug/L	18CGWT001	1/1	-	2.94	NA	**0.031 C[9]**	100 [10]	**0.31 C[9]**	**Yes**	ASL

Footnotes:
1 - Values presented are sample-specific quantitation limits.
2 - The maximum detected concentration is used for screening purposes.
3 - Upper Tolerance Limit from draft Basewide Pennsylvanian Bedrock Background Groundwater Study, Tetra Tech, 2013.
4 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, November 2013. RSLs for carcinogens correspond to an integrated lifetime cancer risk (ILCR) of 1E-06; adjusted RSLs for noncarcinogens correspond to a hazard quotient (HQ) of 0.1.
5 - 2012 Edition of the Drinking Water Standards and Health Advisories (USEPA, April 2012).
6 - IDEM Closure Guide, March 1, 2013.
7 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is determined to be greater than site background.
8 - Ten percent of the noncarcinogenic value is less than the carcinogenic value, therefore the noncarcinogenic value is presented.
9 - Values are for hexavalent chromium.
10 - Value is for total chromium.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Associated Samples

11MWT0101	11MWT0401
11MWT0102	11MWT0501
11MWT0201	11MWT0601
11MWT0202	18CGWT001
11MWT0301	18CMWT00102
11MWT0302	

Definitions:
C = Carcinogen
CAS = Chemical Abstracts Service
COPC = Chemical Of Potential Concern
M = Maximum Contaminant Level
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BKG = Less than Background Concentration
BSL = Below COPC Screening Level

TABLE 7-9

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - VAPOR INTRUSION
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[1]	Concentration Used for Screening[2]	Background Concentration[3]	USEPA Groundwater Volatilization Criterion[4]	IDEM Vapor Exposure[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
SWMU 11	**Volatile Organic Compounds**													
	95-50-1	1,2-Dichlorobenzene	0.99 J	0.99 J	ug/L	11MWT0501	1/11	0.5 - 0.5	0.99	NA	270 N	NA	No	BSL
	67-64-1	Acetone	2.74 J	3.9 J	ug/L	11MWT0601	3/11	5 - 5	3.9	NA	2,300,000 N	NA	No	BSL
	71-43-2	**Benzene**	1.4	3.23	ug/L	11MWT0201	2/11	0.5 - 0.5	3.23	NA	**1.4 C**	24 C	**Yes**	ASL
	75-15-0	Carbon Disulfide	0.394 J	1.32	ug/L	11MWT0501	2/11	0.5 - 0.5	1.32	NA	120 N	NA	No	BSL
	67-66-3	**Chloroform**	0.32 J	1.29	ug/L	11MWT0301	4/11	0.5 - 0.5	1.29	NA	**0.71 C**	NA	**Yes**	ASL
	156-59-2	cis-1,2-Dichloroethene	3.05	27.6	ug/L	11MWT0201	3/11	0.5 - 0.5	27.6	NA	NA	NA	No	NTX
	100-41-4	Ethylbenzene	0.276 J	0.43 J	ug/L	11MWT0201	2/11	0.5 - 0.5	0.43	NA	3 C	NA	No	BSL
	127-18-4	**Tetrachloroethene**	5.54	25.5	ug/L	11MWT0201	3/11	0.5 - 0.5	25.5	NA	**5.8 N[7]**	110 N	**Yes**	ASL
	108-88-3	Toluene	0.286 J	3.87 J	ug/L	11MWT0201	4/11	0.5 - 100	3.87	NA	1900 N	NA	No	BSL
	1330-20-7	Total Xylenes	0.563 J	0.884 J	ug/L	11MWT0201	2/11	0.5 - 1.5	0.884	NA	49 N	NA	No	BSL
	156-60-5	trans-1,2-Dichloroethene	0.361 J	0.361 J	ug/L	11MWT0201	1/11	0.5 - 0.5	0.361	NA	38 N	NA	No	BSL
	79-01-6	**Trichloroethene**	0.255 J	115	ug/L	11MWT0201	4/11	0.5 - 0.5	115	NA	**0.52 N[7]**	**9.1 N**	**Yes**	ASL
	75-01-4	**Vinyl Chloride**	0.503 J	0.503 J	ug/L	11MWT0201	1/11	0.5 - 0.5	0.503	NA	**0.14 C**	2 C	**Yes**	ASL
	Metals													
	7440-38-2	Arsenic	1.79 J	1.79 J	ug/L	18CGWT001	1/1	-	1.79	9.1	NA	NA	No	NTX
	7440-39-3	Barium	14 J	14 J	ug/L	18CGWT001	1/1	-	14	96.9	NA	NA	No	NTX
	Dissolved Metals													
	7440-38-2	Arsenic	1.62 J	1.62 J	ug/L	18CGWT001	1/1	-	1.62	NA	NA	NA	No	NTX
	7440-39-3	Barium	14.3	14.3	ug/L	18CGWT001	1/1	-	14.3	NA	NA	NA	No	NTX
	7440-47-3	Chromium	2.94	2.94	ug/L	18CGWT001	1/1	-	2.94	NA	NA	NA	No	NTX

Footnotes:
Footnotes:
1 - Values presented are sample-specific quantitation limits.
2 - The maximum detected concentration is used for screening purposes.
3 - Upper Tolerance Limit from draft Basewide Pennsylvanian Bedrock Background Groundwater Study, Tetra Tech, 2013.
4 - USEPA's Vapor Intrusion Screening Level (VISL) calculator (USEPA, June 2013). Values correspond to a target cancer risk level of 1E-06 or HQ = 0.1 and an attenuation factor of 0.001.
5 - IDEM Closure Guide, March 1, 2013.
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is determined to be greater than site background.
7 - Ten percent of the noncarcinogenic value is less than the carcinogenic value, therefore the noncarcinogenic value is presented.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Associated Samples

11MWT0101	11MWT0401
11MWT0102	11MWT0501
11MWT0201	11MWT0601
11MWT0202	18CGWT001
11MWT0301	18CMWT00102
11MWT0302	

Definitions:
CAS = Chemical Abstracts Service
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BKG = Less than Background Concentration
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

TABLE 7-10

CHEMICALS RETAINED AS COPCs
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Chemical	Surface Soil		Subsurface Soil		Sediment	Groundwater	
	Direct Contact	Soil to Groundwater	Direct Contact	Soil to Groundwater		Direct Contact	Vapor Intrusion
Volatile Organic Compounds							
1,2-Dichlorobenzene				E			
1,4-Dichlorobenzene				E			
Benzene				E, I		E	E
Chlorobenzene				E, I			
Chloroform						E	E
cis-1,2-Dichloroethene				E, I		E	
Methylene Chloride				E, I			
Tetrachloroethene			E	E, I		E, I	E
Trichloroethene			E	E, I		E, I	E, I
Vinyl Chloride			E	E, I		E	E
Polycyclic Aromatic Hydrocarbons							
Benzo(a)anthracene	E	E					
Benzo(a)pyrene	E, I	E			E		
Benzo(b)fluoranthene	E				E		
Dibenzo(a,h)anthracene	E				E		
Indeno(1,2,3-cd)pyrene	E						
Naphthalene		E					
Pesticides							
alpha-BHC		E					
Dioxins/Furans							
1,2,3,4,6,7,8-HPCDD	E	E					
2,3,7,8-TCDD Equivalents	E	E			E		
Metals							
Aluminum	E						
Arsenic			E, I	E, I	E, I		
Chromium			E, I	E, I	E, I		
Iron	E	E, I	E	E, I	E		
Thallium					E		
Vanadium			E				

Notes:
E - Chemical exceeded USEPA screening criteria and was retained as a COPC.
I - Chemical exceeded IDEM screening criteria and was retained as a COPC.

TABLE 7-11

SELECTION OF EXPOSURE PATHWAYS
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE, CRANE, INDIANA

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current/Future	Surface Soil	Surface Soil	SWMU 11	Maintenance Worker	Adult	Ingestion Dermal	Quant Quant	Maintenance workers may contact surface soil during normal work activities.
				Industrial Worker	Adult	Ingestion Dermal	Quant Quant	Industrial workers may contact surface soil during normal work activities.
				Construction Worker	Adult	Ingestion Dermal	Quant Quant	Construction workers may contact surface soil during normal work activities.
				Trespassers	Adolescents	Ingestion Dermal	Quant Quant	Adolescent trespassers may contact surface soil while at the site.
		Air	SWMU 11	Maintenance Worker	Adult	Inhalation	Quant	Maintenance workers may be exposed to fugitive dust and volatile emissions from surface soil.
				Industrial Worker	Adult	Inhalation	Quant	Industrial workers may be exposed to fugitive dust and volatile emissions from surface soil.
				Construction Worker	Adult	Inhalation	Quant	Construction workers may be exposed to fugitive dust and volatile emissions from surface soil.
				Trespassers	Adolescents	Inhalation	Quant	Trespassers may be exposed to fugitive dust and volatile emissions from surface soil.
	Subsurface Soil	Subsurface Soil	SWMU 11	Maintenance Worker	Adult	Ingestion Dermal	Quant Quant	Although exposures to subsurface soil by maintenance workers are considered unlikely, this scenario was included to aid in future risk management decisions.
				Industrial Worker	Adult	Ingestion Dermal	Quant Quant	Although exposures to subsurface soil by industrial workers are considered unlikely, this scenario was included to aid in future risk management decisions.
				Construction Worker	Adult	Ingestion Dermal	Quant Quant	Construction workers may contact subsurface soil during normal work activities.
				Trespassers	Adolescents	Ingestion Dermal	Quant Quant	Although exposures to subsurface soil by trespassers are considered unlikely, this scenario was included to aid in future risk management decisions.
		Air	SWMU 11	Maintenance Worker	Adult	Inhalation	Quant	Although exposures to subsurface soil by maintenance workers are considered unlikely, this scenario was included to aid in future risk management decisions.
				Industrial Worker	Adult	Inhalation	Quant	Although exposures to subsurface soil by industrial workers are considered unlikely, this scenario was included to aid in future risk management decisions.
				Construction Worker	Adult	Inhalation	Quant	Construction workers may be exposed to fugitive dust and volatile emissions from subsurface soil.
				Trespassers	Adolescents	Inhalation	Quant	Although exposures to subsurface soil by trespassers are considered unlikely, this scenario was included to aid in future risk management decisions.
	Groundwater	Groundwater	SWMU 11	Maintenance Worker	Adult	Ingestion Dermal	None None	Maintenance workers are not expected to be exposed to groundwater.
				Industrial Worker	Adult	Ingestion Dermal	None None	Industrial workers are not expected to be exposed to groundwater.
				Construction Worker	Adult	Ingestion Dermal	None Quant	Construction workers may contact groundwater during excavation activities.
				Trespassers	Adolescents	Ingestion Dermal	None None	Trespassers are not expected to be exposed to groundwater.

TABLE 7-11

SELECTION OF EXPOSURE PATHWAYS
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE, CRANE, INDIANA

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current/Future	Groundwater	Air	SWMU 11	Maintenance Worker	Adult	Inhalation	None	Maintenance workers are not expected to be exposed to groundwater.
				Industrial Worker	Adult	Inhalation	None	Industrial workers are not expected to be exposed to groundwater.
				Construction Worker	Adult	Inhalation	Quant	Construction workers may be exposed to chemicals that have volatilized from groundwater during excavation activities.
				Trespassers	Adolescents	Inhalation	None	Trespassers are not expected to be exposed to groundwater.
			Vapor Intrusion	Industrial Worker	Adult	Inhalation	Quant	Industrial workers may be exposed to chemicals that have volatilized from groundwater and migrated through building foundations into indoor air.
	Sediment	Sediment	SWMU 11	Maintenance Worker	Adult	Ingestion Dermal	None None	Maintenance workers are not expected to come into contact with sediment.
				Industrial Worker	Adult	Ingestion Dermal	None None	Industrial workers are not expected to come into contact with sediment.
				Construction Worker	Adult	Ingestion Dermal	None None	Construction workers are not expected to be exposed to sediment.
				Trespassers	Adolescents	Ingestion Dermal	Quant Quant	Trespassers may be exposed to sediment.
Future	Surface Soil	Surface Soil	SWMU 11	Residents	Child	Ingestion Dermal	Quant Quant	Child residents may be exposed to surface soil.
					Adult	Ingestion Dermal	Quant Quant	Adult residents may be exposed to surface soil.
				Recreational Users	Child	Ingestion Dermal	Quant Quant	Child recreational users may be exposed to surface soil.
					Adult	Ingestion Dermal	Quant Quant	Adult recreational user may be exposed to surface soil.
		Air	SWMU 11	Residents	Child	Inhalation	Quant	Child residents may be exposed to fugitive dust and volatile emissions from surface soil.
					Adult	Inhalation	Quant	Adult residents may be exposed to fugitive dust and volatile emissions from surface soil.
				Recreational Users	Child	Inhalation	Quant	Child recreational users may be exposed to fugitive dust and volatile emissions from surface soil.
					Adult	Inhalation	Quant	Adult recreational users may be exposed to fugitive dust and volatile emissions from surface soil.
	Subsurface Soil	Subsurface Soil	SWMU 11	Residents	Child	Ingestion Dermal	Quant Quant	Although exposures to subsurface soil by child residents are considered unlikely, this scenario was included to aid in future risk management decisions.
					Adult	Ingestion Dermal	Quant Quant	Although exposures to subsurface soil by adult residents are considered unlikely, this scenario was included to aid in future risk management decisions.
				Recreational Users	Child	Ingestion Dermal	Quant Quant	Although exposures to subsurface soil by child recreational users are considered unlikely, this scenario was included to aid in future risk management decisions.
					Adult	Ingestion Dermal	Quant Quant	Although exposures to subsurface soil by adult recreational users are considered unlikely, this scenario was included to aid in future risk management decisions.

TABLE 7-11

SELECTION OF EXPOSURE PATHWAYS
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE, CRANE, INDIANA

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Future	Subsurface Soil	Air	SWMU 11	Residents	Child	Inhalation	Quant	Although exposures to subsurface soil by child residents are considered unlikely, this scenario was included to aid in future risk management decisions.
					Adult	Inhalation	Quant	Although exposures to subsurface soil by adult residents are considered unlikely, this scenario was included to aid in future risk management decisions.
				Recreational Users	Child	Inhalation	Quant	Although exposures to subsurface soil by child recreational users are considered unlikely, this scenario was included to aid in future risk management decisions.
					Adult	Inhalation	Quant	Although exposures to subsurface soil by adult recreational users are considered unlikely, this scenario was included to aid in future risk management decisions.
	Groundwater	Groundwater	SWMU 11	Residents	Child	Ingestion Dermal	Quant Quant	Child residents may be exposed to groundwater.
					Adult	Ingestion Dermal	Quant Quant	Adult residents may be exposed to groundwater.
				Recreational Users	Child	Ingestion Dermal	None None	Child recreational users are not expected to be exposed to groundwater.
					Adult	Ingestion Dermal	None None	Adult recreational users are not expected to be exposed to groundwater.
		Air	SWMU 11	Residents	Child	Inhalation	Quant	Child residents may be exposed to chemicals that have volatilized from groundwater.
					Adult	Inhalation	Quant	Adult residents may be exposed to chemicals that have volatilized from groundwater.
				Recreational Users	Child	Inhalation	None	Child recreational users are not expected to be exposed to groundwater.
					Adult	Inhalation	None	Adult recreational users are not expected to be exposed to groundwater.
			Vapor Intrusion	Residents	Child	Inhalation	Quant	Child residents may be exposed to chemicals that have volatilized from groundwater and migrated through building foundations into indoor air.
					Adult	Inhalation	Quant	Adult residents may be exposed to chemicals that have volatilized from groundwater and migrated through building foundations into indoor air.
	Sediment	Sediment	SWMU 11	Residents	Child	Ingestion Dermal	None None	Child residents are not expected to be exposed to sediment.
					Adult	Ingestion Dermal	None None	Adult residents are not expected to be exposed to sediment.
				Recreational Users	Child	Ingestion Dermal	Quant Quant	A future child recreational user may be exposed to sediment.
					Adult	Ingestion Dermal	Quant Quant	A future adult recreational user may be exposed to sediment.

Notes:
Quant - Quantitative.

TABLE 7-12

RECEPTORS AND EXPOSURE ROUTES FOR QUANTITATIVE EVALUATION
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Receptors	Exposure Routes
Construction Worker (current/future land use)	• Soil dermal contact (surface/ subsurface) • Soil incidental ingestion (surface/ subsurface) • Inhalation of air/dust/emissions (surface/ subsurface) • Groundwater dermal contact (during excavation) • Groundwater inhalation of volatile organics (during excavation)
Maintenance Worker (current/future land use)	• Soil dermal contact (surface/ subsurface[1]) • Soil incidental ingestion (surface/ subsurface[1]) • Inhalation of air/dust/emissions (surface/ subsurface[1])
Industrial Worker (current/future land use)	• Soil dermal contact (surface/ subsurface[1]) • Soil incidental ingestion (surface/ subsurface[1]) • Inhalation of air/dust/emissions (surface/ subsurface[1]) • Inhalation of vapors intruding into a building from groundwater
Adolescent Trespassers (6 to 17 years) (current/future land use)	• Soil dermal contact (surface/ subsurface[1]) • Soil incidental ingestion (surface/ subsurface[1]) • Inhalation of air/dust/emissions (surface/ subsurface[1]) • Sediment dermal contact • Sediment incidental ingestion
Small Child (0 to 6 years) and Adult Recreational Users (future land use)	• Soil dermal contact (surface/ subsurface[1]) • Soil incidental ingestion (surface/ subsurface[1]) • Inhalation of air/dust/emissions (surface/ subsurface[1]) • Sediment dermal contact • Sediment incidental ingestion
On-Base Residents (Child/ Adult) (future land use)	• Soil dermal contact (surface/ subsurface[1]) • Soil incidental ingestion (surface/ subsurface[1]) • Inhalation of air/dust/emissions (surface/ subsurface[1]) • Groundwater ingestion • Groundwater dermal contact (showering/bathing) • Inhalation of volatiles in groundwater (showering/bathing) • Inhalation of vapors intruding into a building from groundwater

1 – These receptors are not expected to be exposed to subsurface soil, but exposure to subsurface soil was evaluated to aid in risk management decisions.

TABLE 7-13

EXPOSURE POINT CONCENTRATIONS
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Chemical	Surface Soil (Excluding Building 2981 Concrete Tank Area) (mg/kg)	Surface Soil Building 2981 Concrete Tank Area (mg/kg)	Subsurface Soil (mg/kg)	Sediment (mg/kg)	Groundwater (ug/L)
Volatile Organic Compounds					
Benzene	NA	NA	NA	NA	3.23
Chloroform	NA	NA	NA	NA	1.29
cis-1,2-Dichloroethene	NA	NA	NA	NA	27.6
Tetrachloroethene	NA	NA	2.87	NA	25.5
Trichloroethene	NA	NA	0.238	NA	115
Vinyl Chloride	NA	NA	0.154	NA	0.503
Polycyclic Aromatic Hydrocarbons					
Benzo(a)anthracene	0.066	0.107	NA	NA	NA
Benzo(a)pyrene	0.071	0.13	NA	0.122	NA
Benzo(b)fluoranthene	0.09	0.17	NA	0.147	NA
Dibenzo(a,h)anthracene	0.0821	0.0308	NA	0.018	NA
Indeno(1,2,3-cd)pyrene	0.04	0.0794	NA	NA	NA
Dioxins/Furans					
2,3,7,8-TCDD Equivalents	0.0000087	Not Analyzed	NA	0.00000905	NA
Metals					
Aluminum	15,200	14,400	NA	NA	NA
Arsenic	NA	NA	20.4	20.8	NA
Chromium	NA	NA	74.9	92.6	NA
Iron	22,600	30,100	75,600	29,600	NA
Thallium	NA	NA	NA	0.61	NA
Vanadium	NA	NA	86.2	35.9	NA

Notes:
The exposure point concentrations (EPCs) were calculated according to USEPA's ProUCL guidance. See the RAGS PART D Table 3s in Appendix G.3 for details concerning the EPCs.

NA - Not applicable. Not a COPC for this media.

TABLE 7-14

SUMMARY OF EXPOSURE INPUT PARAMETERS - REASONABLE MAXIMUM EXPOSURES
SWMU 11 – OLD STORAGE BUILDING 225
NSWC CRANE
CRANE INDIANA

Parameter Code	Exposure Parameter	Construction Worker	Maintenance Worker	Industrial Worker	Adolescent Trespasser	Child Recreational User	Adult Recreational User	On-Site Child Resident	On-Site Adult Resident
All Exposures									
C_{soil}	Exposure concentration for soil (mg/kg)	95% UCL[1]	95% UCL[1]	95% UCL[1]	95% UCL[1]	95% UCL[1]	95% UCL[1]	95% UCL[1]	95% UCL[1]
ED	Exposure Duration (years)	1[2]	25[3]	25[3]	10[4]	6[3]	24[3]	6[3]	24[3]
BW	Body Weight (kg)	70[5]	70[3]	70[3]	43[5]	15[3]	70[3]	15[3]	70[3]
AT-N	Averaging Time (Non-Cancer) (days)	365[5]	9,125[5]	9,125[5]	3,650[5]	2,190[5]	8,760[5]	2,190[5]	8,760[5]
AT-C	Averaging Time (Cancer) (days)	25,550[5]	25,550[5]	25,550[5]	25,550[5]	25,550[5]	25,550[5]	25,550[5]	25,550[5]
Incidental Ingestion/Dermal Contact with Soil									
IR	Ingestion Rate (mg/day)	330[6]	100[3]	100[3]	100[3]	200[3]	100[3]	200[3]	100[3]
EF	Exposure Frequency (days/year)	150[7]	24[8]	250[3]	26[9]	52[10]	52[10]	350[3]	350[3]
FI	Fraction Ingested (unitless)	1[6]	1[3]	1[3]	1[3]	0.5[2]	0.5[2]	1[3]	1[3]
SA	Skin Surface Available for Contact (cm^2)	3,300[6]	3,300[11]	3,300[11]	3,280[12]	2,800[11]	9,070[13]	2,800[11]	5,700[11]
AF	Soil to Skin Adherence Factor (mg/cm^2/event)	0.3[6]	0.2[11]	0.2[11]	0.2[11]	0.2[11]	0.07[11]	0.2[11]	0.07[11]
ABS	Absorption Factor (unitless)	chemical-specific[11]	chemical-specific[11]	chemical-specific[11]	chemical-specific[11]	chemical-specific[11]	chemical-specific[11]	chemical-specific[11]	chemical-specific[11]
CF	Conversion Factor (kg/mg)	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
Inhalation Fugitive Dust/Volatile Emissions from Soil									
C_{air}	Exposure concentration for air (mg/m^3)	calculated[6]	calculated[6]	calculated[6]	calculated[6]	calculated[6]	calculated[6]	calculated[6]	calculated[6]
ET	Exposure Time (hours/day)	8[6]	8[6]	8[6]	4[2]	4[2]	4[2]	24[6]	24[6]
EF	Exposure Frequency (days/year)	150[7]	250[3]	250[3]	26[9]	52[10]	52[10]	350[3]	350[3]
PEF	Particulate Emission Factor (m^3/kg)	1.34E+06[6]	1.316E+09[6,14]	1.316E+09[6,14]	1.316E+09[6,14]	1.316E+09[6,14]	1.316E+09[6,14]	1.316E+09[6,14]	1.316E+09[6,14]
Ingestion/Dermal Contact with Groundwater									
C_{gw}	Exposure concentration for groundwater (ug/L)	95% UCL[1]	NA	NA	NA	NA	NA	95% UCL[1]	95% UCL[1]
IR	Ingestion Rate (L/day)	NA	NA	NA	NA	NA	NA	1[3]	2[3]
EF	Exposure Frequency (days/year)	30[15]	NA	NA	NA	NA	NA	350[3]	350[3]
ET/t_{event}	Exposure Time (hours/day)/ Event Duration (hours/event)	4[15]	NA	NA	NA	NA	NA	1[11]	0.58[11]
EV	Event Frequency (events/day)	1[15]	NA	NA	NA	NA	NA	1[2]	1[2]
SA	Skin Surface Available for Contact (cm^2)	3,300[6]	NA	NA	NA	NA	NA	6,600[11]	18,000[11]
	Kp (cm/hour), t* (hour/event), t (hour), and B (unitless)	chemical-specific[11]	NA	NA	NA	NA	NA	chemical-specific[11]	chemical-specific[11]
Inhalation of Volatile Emissions from Groundwater									
C_{air}	Exposure concentration for air (mg/m^3)	calculated[16]	NA	NA	NA	NA	NA	Calculated[17]	Calculated[17]
ET	Exposure Time (hours/day)	4[2]	NA	NA	NA	NA	NA	NA	NA
EF	Exposure Frequency (days/year)	30[9]	NA	NA	NA	NA	NA	350[3]	350[3]
VF	Volatilization Factor (L/m^3)	calculated[16]	NA	NA	NA	NA	NA	NA	NA

TABLE 7-14

SUMMARY OF EXPOSURE INPUT PARAMETERS - REASONABLE MAXIMUM EXPOSURES
SWMU 11 – OLD STORAGE BUILDING 225
NSWC CRANE
CRANE INDIANA

Parameter Code	Exposure Parameter	Construction Worker	Maintenance Worker	Industrial Worker	Adolescent Trespasser	Child Recreational User	Adult Recreational User	On-Site Child Resident	On-Site Adult Resident
Incidental Ingestion/Dermal Contact with Sediment									
C_{sed}	Exposure concentration for sediment (mg/kg)	NA	NA	NA	95% UCL(1)	95% UCL(1)	95% UCL(1)	95% UCL(1)	95% UCL(1)
IR	Ingestion Rate (mg/day)	NA	NA	NA	100(3)	200(3)	100(3)	200(3)	100(3)
EF	Exposure Frequency (days/year)	NA	NA	NA	26(9)	52(10)	52(10)	52(10)	52(10)
FI	Fraction Ingested (unitless)	NA	NA	NA	1(5)	0.5(2)	0.5(2)	0.5(2)	0.5(2)
SA	Skin Surface Available for Contact (cm^2)	NA	NA	NA	3,280(12)	2,800(11)	9,070(13)	2,800(11)	5,700(11)
AF	Soil to Skin Adherence Factor (mg/cm^2/event)	NA	NA	NA	0.2(11)	0.2(11)	0.07(11)	0.2(11)	0.07(11)
ABS	Absorption Factor (unitless)	NA	NA	NA	chemical-specific(11)	chemical-specific(11)	chemical-specific(11)	chemical-specific(11)	chemical-specific(11)
CF	Conversion Factor (kg/mg)	NA	NA	NA	1E-06	1E-06	1E-06	1E-06	1E-06

Notes:
1 - USEPA, 2002. Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.
2 - Professional judgment.
3 - USEPA, 1991: Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors. OSWER Directive 9285.6-03.
4 - Adolescents ages 7 to 16 years old.
5 - USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.
6 - USEPA, 2002: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9365.4-24.
7 - Assumes a 30 week construction project over one year.
8 - Professional judgment. Assumes two days a month.
9 - Assume one day a week in warm weather months for reasonable maximum exposure and every other week for central tendency exposure.
10 - Assume two days a week in warm weather months for reasonable maximum exposure and one day a week for central tendency exposure.
11 - USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. PA/540/R/99/005.
12 - Assume 25 percent of total body surface area is exposed, USEPA, 1997: Exposure Factors Handbook. EPA/600/8-95/002FA.
13 - Assume that head, arms, hands, lower legs, and feet are exposed (USEPA, 1997).
14 - IDEM RISC Technical Guide – January 31, 2006 Appendix 1 (Revised May 1, 2009).
15 - Professional judgment. Assumes construction workers are only exposed to groundwater water during part of the construction project.
16 - VDEQ May 2013. Virginia Department of Environmental Quality.
(http://www.deq.state.va.us/Programs/LandProtectionRevitalization/RemediationProgram/VoluntaryRemediationProgram.aspx)
17 - Foster, S.A. and P.C. Chrostowski, 1987. Inhalation Exposure to Volatile Organic Contaminants in the Shower.

TABLE 7-15

SUMMARY OF EXPOSURE INPUT PARAMETERS - CENTRAL TENDENCY EXPOSURES
SWMU 11 – OLD STORAGE BUILDING 225
NSA CRANE
CRANE INDIANA

Parameter Code	Exposure Parameter	Construction Worker	Maintenance Worker	Industrial Worker	Adolescent Trespasser	Child Recreational User	Adult Recreational User	On-Site Child Resident	On-Site Adult Resident
All Exposures									
C_{soil}	Exposure concentration for soil (mg/kg)	95% UCL[1]	95% UCL[1]	95% UCL[1]	95% UCL[1]	95% UCL[1]	95% UCL[1]	95% UCL[1]	95% UCL[1]
ED	Exposure Duration (years)	1[2]	9[3]	9[3]	10[4]	2[3]	7[3]	2[3]	7[3]
BW	Body Weight (kg)	70[5]	70[3]	70[3]	43[3]	15[3]	70[3]	15[3]	70[3]
AT-N	Averaging Time (Non-Cancer) (days)	365[5]	3,285[5]	3,285[5]	3,650[5]	730[5]	2,555[5]	730[5]	2,555[5]
AT-C	Averaging Time (Cancer) (days)	25,550[5]	25,550[5]	25,550[5]	25,550[5]	25,550[5]	25,550[5]	25,550[5]	25,550[5]
Incidental Ingestion/Dermal Contact with Soil									
IR	Ingestion Rate (mg/day)	165[6]	50[3]	50[3]	50[3]	100[3]	50[3]	100[3]	50[3]
EF	Exposure Frequency (days/year)	75[6]	12[7]	219[3]	13[8]	26[9]	26[9]	234[3]	234[3]
FI	Fraction Ingested (unitless)	1[10]	1[3]	1[3]	1[3]	0.5[2]	0.5[2]	1[3]	1[3]
SA	Skin Surface Available for Contact (cm^2)	3,300[10]	3,300[11]	3,300[11]	3,280[12]	2,800[11]	9,070[13]	2,800[11]	5,700[11]
AF	Soil to Skin Adherence Factor (mg/cm^2/event)	0.1[11]	0.02[11]	0.02[11]	0.04[11]	0.04[11]	0.01[11]	0.04[11]	0.01[11]
ABS	Absorption Factor (unitless)	chemical-specific[11]	chemical-specific[11]	chemical-specific[11]	chemical-specific[11]	chemical-specific[11]	chemical-specific[11]	chemical-specific[11]	chemical-specific[11]
CF	Conversion Factor (kg/mg)	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
Inhalation Fugitive Dust/Volatile Emissions from Soil									
C_{air}	Exposure concentration for air (mg/m^3)	calculated[10]	calculated[10]	calculated[10]	calculated[10]	calculated[10]	calculated[10]	calculated[10]	calculated[10]
ET	Exposure Time (hours/day)	8[14]	8[14]	8[14]	2[6]	2[6]	2[6]	24[10]	24[10]
EF	Exposure Frequency (days/year)	75[6]	12[7]	219[3]	13[8]	26[9]	26[9]	234[3]	234[3]
PEF	Particulate Emission Factor (m^3/kg)	1.34E+06[10]	1.316E+09[10,15]	1.316E+09[10,15]	1.316E+09[10,15]	1.316E+09[10,15]	1.316E+09[10,15]	1.316E+09[10,15]	1.316E+09[10,15]
Ingestion/Dermal Contact with Groundwater									
C_{gw}	Exposure concentration for groundwater (ug/L)	95% UCL[1]	NA	NA	NA	NA	NA	95% UCL[1]	95% UCL[1]
IR	Ingestion Rate (L/day)	NA	NA	NA	NA	NA	NA	0.74[16]	1.4[3]
EF	Exposure Frequency (days/year)	15[6]	NA	NA	NA	NA	NA	234[3]	234[3]
ET/t_{event}	Exposure Time (hours/day)/ Event Duration (hours/event)	4[6]	NA	NA	NA	NA	NA	0.33[11]	0.25[11]
EV	Event Frequency (events/day)	1[2]	NA	NA	NA	NA	NA	1[2]	1[2]
SA	Skin Surface Available for Contact (cm^2)	3,300[10]	NA	NA	NA	NA	NA	6,600[11]	18,000[11]
	Kp (cm/hour), t* (hour/event), t (hour), and B (unitless)	chemical-specific[11]	NA	NA	NA	NA	NA	chemical-specific[11]	chemical-specific[11]
Inhalation of Volatile Emissions from Groundwater									
C_{air}	Exposure concentration for air (mg/m^3)	calculated[17]	NA	NA	NA	NA	NA	Calculated[18]	Calculated[18]
ET	Exposure Time (hours/day)	4[6]	NA	NA	NA	NA	NA	NA	NA
EF	Exposure Frequency (days/year)	15[6]	NA	NA	NA	NA	NA	350[3]	350[3]
VF	Volatilization Factor (L/m^3)	calculated[17]	NA	NA	NA	NA	NA	NA	NA

TABLE 7-15

SUMMARY OF EXPOSURE INPUT PARAMETERS - CENTRAL TENDENCY EXPOSURES
SWMU 11 – OLD STORAGE BUILDING 225
NSA CRANE
CRANE INDIANA

Parameter Code	Exposure Parameter	Construction Worker	Maintenance Worker	Industrial Worker	Adolescent Trespasser	Child Recreational User	Adult Recreational User	On-Site Child Resident	On-Site Adult Resident
Incidental Ingestion/Dermal Contact with Sediment									
C_{sed}	Exposure concentration for sediment (mg/kg)	NA	NA	NA	95% UCL(1)	95% UCL(1)	95% UCL(1)	95% UCL(1)	95% UCL(1)
IR	Ingestion Rate (mg/day)	NA	NA	NA	50(3)	100(3)	50(3)	100(3)	50(3)
EF	Exposure Frequency (days/year)	NA	NA	NA	13(8)	26(9)	26(9)	26(9)	26(9)
FI	Fraction Ingested (unitless)	NA	NA	NA	1(5)	0.5(2)	0.5(2)	0.5(2)	0.5(2)
SA	Skin Surface Available for Contact (cm^2)	NA	NA	NA	3,280(12)	2,800(11)	9,070(13)	2,800(11)	5,700(11)
AF	Soil to Skin Adherence Factor (mg/cm^2/event)	NA	NA	NA	0.04(11)	0.04(11)	0.01(11)	0.04(11)	0.01(11)
ABS	Absorption Factor (unitless)	NA	NA	NA	chemical-specific(11)	chemical-specific(11)	chemical-specific(11)	chemical-specific(11)	chemical-specific(11)
CF	Conversion Factor (kg/mg)	NA	NA	NA	1E-06	1E-06	1E-06	1E-06	1E-06

Notes:
1 - USEPA, 2002. Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.
2 - Professional judgment.
3 - USEPA, 1993: Superfund's Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.
4 - Adolescents ages 7 to 16 years old.
5 - USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.
6 - Central tendency exposure is assumed to be one-half the reasonable maximum exposure value.
7 - Professional judgment. Assumes one day a month.
8 - Assume 1 day a week in warm weather months for RME and every other week for CTE.
9 - Assume 2 days a week in warm weather months for RME and one day a week for CTE.
10 - U.S. EPA, 2002: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9365.4-24.
11 - US EPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. PA/540/R/99/005.
12 - Assume 25 percent of total body surface area is exposed, U.S. EPA, 1997: Exposure Factors Handbook. EPA/600/8-95/002FA.
13 - Assume that head, arms, hands, lower legs, and feet are exposed (USEPA, 1997).
14 - Assume an 8-hour work shift.
15 - IDEM RISC Technical Guide – January 31, 2006 Appendix 1 (Revised May 1, 2009).
16 - USEPA, 1997: Exposure Factors Handbook. EPA/600/8-95/002FA.
17 - VDEQ May 2013. Virginia Department of Environmental Quality.
(http://www.deq.state.va.us/Programs/LandProtectionRevitalization/RemediationProgram/VoluntaryRemediationProgram.aspx)
18 - Foster, S.A. and P.C. Chrostowski, 1987. Inhalation Exposure to Volatile Organic Contaminants in the Shower.

TABLE 7-16

INTERMEDIATE VARIABLES FOR CALCULATING DA(EVENT)
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
			Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Volatile Organic Compounds												
Benzene	Groundwater	0	1	1.5E-02	cm/hr	(1)	hr	2.9E-01	hr	7.0E-01	hr	5.1E-02
Chloroform	Groundwater	0	1	6.8E-03	cm/hr	(1)	hr	5.0E-01	hr	1.2E+00	hr	2.9E-02
cis-1,2-Dichloroethene	Groundwater	0	1	1.1E-02	cm/hr	(1)	hr	3.7E-01	hr	8.8E-01	hr	4.1E-02
Tetrachloroethene	Soil, Groundwater	0	1	3.3E-02	cm/hr	(1)	hr	9.1E-01	hr	2.2E+00	hr	1.7E-01
Trichloroethene	Soil, Groundwater	0	1	1.2E-02	cm/hr	(1)	hr	5.8E-01	hr	1.4E+00	hr	5.1E-02
Vinyl Chloride	Soil, Groundwater	0	1	5.6E-03	cm/hr	(1)	hr	2.4E-01	hr	5.7E-01	hr	1.7E-02
Semivolatile Organic Compounds												
Benzo(a)anthracene	Soil	0.13	NA(1)	NA(1)	cm/hr	(1)	hr	NA(1)	hr	NA(1)	hr	NA(1)
Benzo(a)pyrene	Soil, Sediment	0.13	NA(1)	NA(1)	cm/hr	(1)	hr	NA(1)	hr	NA(1)	hr	NA(1)
Benzo(b)fluoranthene	Soil, Sediment	0.13	NA(1)	NA(1)	cm/hr	(1)	hr	NA(1)	hr	NA(1)	hr	NA(1)
Dibenzo(a,h)anthracene	Soil, Sediment	0.13	NA(1)	NA(1)	cm/hr	(1)	hr	NA(1)	hr	NA(1)	hr	NA(1)
Indeno(1,2,3-cd)pyrene	Soil	0.13	NA(1)	NA(1)	cm/hr	(1)	hr	NA(1)	hr	NA(1)	hr	NA(1)
Dioxins/Furans												
2,3,7,8-TCDD	Soil, Sediment	0.03	NA(1)	NA(1)	cm/hr	(1)	hr	NA(1)	hr	NA(1)	hr	NA(1)
Inorganics												
Aluminum	Soil	0	1	1.0E-03	cm/hr	(1)	hr	NA	NA	NA	NA	NA
Arsenic	Soil, Sediment	0.03	1	1.0E-03	cm/hr	(1)	hr	NA	NA	NA	NA	NA
Chromium VI	Soil, Surface Water, Sediment	0	1	2.0E-03	cm/hr	(1)	hr	NA	NA	NA	NA	NA
Iron	Soil, Sediment	0	1	1.0E-03	cm/hr	(1)	hr	NA	NA	NA	NA	NA
Thallium	Sediment	0	1	1.0E-03	cm/hr	(1)	hr	NA	NA	NA	NA	NA
Vanadium	Soil	0	1	1.0E-03	cm/hr	(1)	hr	NA	NA	NA	NA	NA

Notes:
All values from EPA's Risk Assessment Guidance for Superfund Volume 1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final, July 2004.
1 - See Tables 7-14 and 7-15 for values for T(event).
2 - RAGS Part E recommends not attempting to quantify risk because contaminants are outside the effective predictive domain of the model.
FA = Fraction Absorbed Water
Kp = Dermal Permeability Coefficient of Compound in Water
T(event) = Event Duration
Tau = Lag Time
T* = Time to Reach Steady-State
B = Dimensionless Ratio of the Permeability Coefficient of a Compound Through the Stratum Corneum Relative to its Permeability Coefficient Across the Viable Epidermis
NA = Not applicable.

TABLE 7-17

CHEMICAL PROPERTIES FOR VOLATILIZATION FROM SOIL/GROUNDWATER TO OUTDOOR AIR MODELS
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Chemical	Molecular Weight (g/mole)	Organic Carbon Partition Coefficient (cm^3/g)	Air Diffusivity (cm^2/sec)	Water Diffusivity (cm^2/sec)	Solubility Limit (mg/L)	Henry's Law Constant	
						(Dimensionless)	(atm-m^3/mol)
Benzene	7.81E+01	1.46E+02	8.95E-02	1.03E-05	1.79E+03	2.27E-01	5.55E-03
Chloroform	1.19E+02	3.18E+01	7.69E-02	1.09E-05	7.95E+03	1.50E-01	3.67E-03
cis-1,2-Dichloroethene	9.69E+01	3.96E+01	8.84E-02	1.13E-05	6.41E+03	1.67E-01	4.08E-03
Tetrachloroethene	1.66E+02	9.49E+01	5.05E-02	9.46E-06	2.06E+02	7.24E-01	1.77E-02
Trichloroethene	1.31E+02	6.07E+01	6.87E-02	1.02E-05	1.28E+03	4.03E-01	9.85E-03
Vinyl Chloride	6.25E+01	2.17E+01	1.07E-01	1.20E-05	8.80E+03	1.14E+00	2.78E-02

Source:
USEPA 2013: USEPA Regional Screening Levels for Chemical Contaminants at Superfund Sites, November.

TABLE 7-18

INPUT PARAMETERS FOR VAPOR INTRUSION MODEL
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Parameter	Definition	Value	Reference
T_S	Average groundwater temperature (^oC)	13	Site-specific (USEPA, 2004)
L_F	Depth below grade to bottom of enclosed floor space (cm)	15	Default(1)
L_{WT}	Depth below grade to water table (cm)	208	Site-specific
h_A	Thickness of soil stratum A (cm)	152	Site-specific
- -	Stratum A SCS soil type	SIC	Site-specific
ρ_b^A	Stratum A soil dry bulk density (g/cm^3)	1.62	Default
n^A	soil total porosity (unitless)	0.39	Default
θ_W^A	Stratum A soil water-filled porosity (cm^3/cm^3)	0.076	Default
AT_C	Average time for carcinogens (years)	70	Default
AT_N	Average time for noncarcinogens (years)	30	Default
ED	Exposure duration (years)	30	Default
EF	Exposure Frequency (days/year)	350	Default

Notes:
USEPA, 2004: User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings.
1 - Assumes slab-on-grade construction.

TABLE 7-19

NON-CANCER TOXICITY DATA -- ORAL/DERMAL
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Chemical of Potential Concern	Chronic/ Subchronic	Oral RfD		Oral Absorption Efficiency for Dermal[1]	Absorbed RfD for Dermal[2]		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfD:Target Organ(s)	
		Value	Units		Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
Volatiles										
Benzene	Subchronic	1.0E-02	mg/kg/day	1	1.0E-02	mg/kg/day	Blood	100/1	PPRTV	9/29/2009
	Chronic	4.0E-03	mg/kg/day	1	4.0E-03	mg/kg/day	Blood	300/1	IRIS	12/12/2013
Chloroform	Subchronic	1.0E-01	mg/kg/day	1	1.0E-01	mg/kg/day	Liver	100/1	ATSDR	9/1997
	Chronic	1.0E-02	mg/kg/day	1	1.0E-02	mg/kg/day	Liver	100/1	IRIS	12/12/2013
cis-1,2-Dichloroethene	Subchronic	2.0E-02	mg/kg/day	1	2.0E-02	mg/kg/day	Kidney	300/1	PPRTV	2/3/2011
	Chronic	2.0E-03	mg/kg/day	1	2.0E-03	mg/kg/day	Kidney	3000/1	IRIS	12/12/2013
Tetrachloroethene	Subchronic	1.0E-01	mg/kg/day	1	1.0E-01	mg/kg/day	Liver	NA	HEAST	9/1997
	Chronic	6.0E-03	mg/kg/day	1	6.0E-03	mg/kg/day	Central Nervous System	1000/1	IRIS	12/12/2013
Trichloroethene	Chronic	5.0E-04	mg/kg/day	1	5.0E-04	mg/kg/day	Immune System, Developmental	1000/1	IRIS	12/12/2013
Vinyl Chloride	Chronic	3.0E-03	mg/kg/day	1	3.0E-03	mg/kg/day	Liver	30/1	IRIS	12/12/2013
Polycyclic Aromatic Hydrocarbons										
Benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dioxins/Furans										
2,3,7,8-TCDD Equivalents	Subchronic	2.0E-08	mg/kg/day	1	2.0E-08	mg/kg/day	Developmental	30	ATSDR	12/1998
	Chronic	7.0E-10	mg/kg/day	1	7.0E-10	mg/kg/day	Reproductive	30/1	IRIS	12/12/2013
Metals										
Aluminum	Subchronic	1.0E+00	mg/kg/day	1	1.0E+00	mg/kg/day	Central Nervous System	30/1	ATSDR	9/2008
	Chronic	1.0E+00	mg/kg/day	1	1.0E+00	mg/kg/day	Central Nervous System	100	PPRTV	10/23/2006
Arsenic	Chronic	3.0E-04	mg/kg/day	1	3.0E-04	mg/kg/day	Skin, Cardiovascular System	3/1	IRIS	12/12/2013
Chromium[3]	Subchronic	5.0E-03	mg/kg/day	0.025	1.3E-04	mg/kg/day	Kidney	100/1	ATSDR	9/2012
	Chronic	3.0E-03	mg/kg/day	0.025	7.5E-05	mg/kg/day	None Reported	300/3	IRIS	12/12/2013
Iron	Subchronic	7.0E-01	mg/kg/day	1	7.0E-01	mg/kg/day	Gastrointestinal System	1.5	PPRTV	9/11/2006
	Chronic	7.0E-01	mg/kg/day	1	7.0E-01	mg/kg/day	Gastrointestinal System	1.5	PPRTV	9/11/2006
Thallium[4]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	Subchronic	1.0E-02	mg/kg/day	0.026	2.6E-04	mg/kg/day	Kidney	10/1	ATSDR	11/2012
	Chronic	5.0E-03	mg/kg/day	0.026	5.0E-03	mg/kg/day	Kidney	300	EPA RSL	11/2013

Notes:

1 - U.S. EPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.

2 - Adjusted dermal RfD = Oral RfD x Oral Absorption Efficiency for Dermal.

3 - Values are for hexavalent chromium.

4 - Toxicity criteria used to derive the RSLs is only suitable for screening and is not to be used for quantifying risks.

Definitions:

ATSDR = Agency for Toxic Substances and Disease Registry.

HEAST = Health Effects Assessment Summary Tables.

IRIS = Integrated Risk Information System.

NA = Not Available.

PPRTV = Provisional Peer Reviewed Toxicity Value.

RfD = Reference Dose.

RSL = USEPA Regional Screening Levels for Chemical Contaminants at Superfund Sites, November 2013.

TABLE 7-20

NON-CANCER TOXICITY DATA -- INHALATION
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Chemical of Potential Concern	Chronic/ Subchronic	Inhalation RfC		Extrapolated RfD[1]		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfC : Target Organ(s)	
		Value	Units	Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
Volatiles									
Benzene	Subchronic	8.0E-02	mg/m^3	2.3E-02	(mg/kg/day)	Blood	100/1	PPRTV	9/29/2009
	Chronic	3.0E-02	mg/m^3	8.6E-03	(mg/kg/day)	Blood	300/1	IRIS	12/12/2013
Chloroform	Subchronic	2.4E-01	mg/m^3	6.9E-02	(mg/kg/day)	Liver	300/1	ATSDR	9/1997
	Chronic	9.8E-02	mg/m^3	2.8E-02	(mg/kg/day)	Liver	NA	ATSDR	9/1997
cis-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	Chronic	4.0E-02	mg/m^3	1.1E-02	(mg/kg/day)	Central Nervous System	1000/1	IRIS	12/12/2013
Trichloroethene	Chronic	2.0E-03	mg/m^3	5.7E-04	(mg/kg/day)	Immune System, Developmental	100/1	IRIS	12/12/2013
Vinyl Chloride	Subchronic	7.7E-02	mg/m^3	2.2E-02	(mg/kg/day)	Liver	30/1	ATSDR	7/2006
	Chronic	1.0E-01	mg/m^3	2.9E-02	(mg/kg/day)	Liver	30/1	IRIS	12/12/2013
Polycyclic Aromatic Hydrocarbons									
Benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dioxins/Furans									
2,3,7,8-TCDD Equivalents	Chronic	4.0E-08	mg/m^3	1.1E-08	(mg/kg/day)	Developmental	NA	Cal EPA	9/2009
Metals									
Aluminum	Chronic	5.0E-03	mg/m^3	1.4E-03	(mg/kg/day)	Central Nervous System	300	PPRTV	10/23/2006
Arsenic	Chronic	1.5E-05	mg/m^3	4.3E-06	(mg/kg/day)	Skin, Cardiovascular System	NA	Cal EPA	9/2009
Chromium[2]	Subchronic	3.0E-04	mg/m^3	8.6E-05	(mg/kg/day)	Respiratory	30/1	ATSDR	9/2012
	Chronic	1.0E-04	mg/m^3	2.9E-05	(mg/kg/day)	Respiratory	300/1	IRIS	9/3/2013
Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	Chronic	1.0E-04	mg/m^3	2.9E-05	(mg/kg/day)	Respiratory	30/1	ATSDR	9/2012

Notes:
1 - Extrapolated RfD = RfC *$20m^3$/day / 70 kg.
2 - Values are for hexavalent chromium.

Definitions:
ATSDR = Agency for Toxic Substances and Disease Registry.
Cal EPA = California Environmental Protection Agency, Technical Support Document for Describing Available Cancer Slope Factors, September 2009.
IRIS = Integrated Risk Information System.
NA = Not Available.
PPRTV = Provisional Peer Reviewed Toxicity Value.
RfC = Reference Concentration.
RfD = Reference Dose.

TABLE 7-21

CANCER TOXICITY DATA -- ORAL/DERMAL
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Chemical of Potential Concern	Oral Cancer Slope Factor		Oral Absorption Efficiency for Dermal[1]	Absorbed Cancer Slope Factor for Dermal[2]		Weight of Evidence/ Cancer Guideline Description	Oral CSF	
	Value	Units		Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
Volatiles								
Benzene	5.5E-02	$(mg/kg/day)^{-1}$	1	5.5E-02	$(mg/kg/day)^{-1}$	A / Known human carcinogen	IRIS	12/12/2013
Chloroform	3.1E-02	$(mg/kg/day)^{-1}$	1	3.1E-02	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	Cal EPA	9/2009
cis-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	2.1E-03	$(mg/kg/day)^{-1}$	1	2.1E-03	$(mg/kg/day)^{-1}$	Likely to be carcinogenic to humans	IRIS	12/12/2013
Trichloroethene - non-mutagen[3]	3.7E-02	$(mg/kg/day)^{-1}$	1	3.7E-02	$(mg/kg/day)^{-1}$	Carcinogenic to humans	IRIS	12/12/2013
Trichloroethene - mutagen[3][4]	9.3E-03	$(mg/kg/day)^{-1}$	1	9.3E-03	$(mg/kg/day)^{-1}$	Carcinogenic to humans	IRIS	12/12/2013
Vinyl Chloride	7.2E-01	$(mg/kg/day)^{-1}$	1	7.2E-01	$(mg/kg/day)^{-1}$	A / Likely human carcinogen	IRIS	12/12/2013
Polycyclic Aromatic Hydrocarbons								
Benzo(a)anthracene[4]	7.3E-01	$(mg/kg/day)^{-1}$	1	7.3E-01	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(1)	7/1993
Benzo(a)pyrene[4]	7.3E+00	$(mg/kg/day)^{-1}$	1	7.3E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	IRIS	12/12/2013
Benzo(b)fluoranthene[4]	7.3E-01	$(mg/kg/day)^{-1}$	1	7.3E-01	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(1)	7/1993
Dibenzo(a,h)anthracene[4]	7.3E+00	$(mg/kg/day)^{-1}$	1	7.3E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(1)	7/1993
Indeno(1,2,3-cd)pyrene[4]	7.3E-01	$(mg/kg/day)^{-1}$	1	7.3E-01	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(1)	7/1993
Dioxins/Furans								
2,3,7,8-TCDD Equivalents	1.3E+05	$(mg/kg/day)^{-1}$	1	1.3E+05	$(mg/kg/day)^{-1}$	NA	Cal EPA	9/2009
Metals								
Aluminum	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	1.5E+00	$(mg/kg/day)^{-1}$	1	1.5E+00	$(mg/kg/day)^{-1}$	A / Known human carcinogen	IRIS	12/12/2013
Chromium[4][5]	5.0E-01	$(mg/kg/day)^{-1}$	0.025	2.0E+01	$(mg/kg/day)^{-1}$	Carcinogenic potential cannot be determined (oral route)	NJDEP	4/8/2009
Iron	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 - USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.
2 - Adjusted cancer slope factor for dermal = Oral cancer slope factor / Oral absorption efficiency for dermal.
3 - See text for a discussion of trichloroethene toxicity.
4 - Hexavalent chromium, carcinogenic PAHs, and trichloroethene are considered to act via the mutagenic mode of action. These chemicals are evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).
5 - Values are for hexavalent chromium.

Definitions:
Cal EPA = California Environmental Protection Agency, Technical Support Document for Describing Available Cancer Slope Factors, September 2009.
CSF = Cancer Slope Factor.
IRIS = Integrated Risk Information System.
NA = Not Available.
NJDEP = New Jersey Department of Environmental Protection, Derivation of Ingestion-Based Soil Remediation Criterion for Cr+6 Based on the NTP Chronic Bioassay Data for Sodium Dichromate Dihydrate, April 8, 2009.
USEPA (1) = Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons, July 1993 EPA/600/R-93/089.

TABLE 7-22

CANCER TOXICITY DATA -- INHALATION
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Chemical of Potential Concern	Unit Risk		Inhalation Cancer Slope Factor[1]		Weight of Evidence/ Cancer Guideline Description	Unit Risk : Inhalation CSF	
	Value	Units	Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
Volatiles							
Benzene	7.8E-06	$(ug/m^3)^{-1}$	2.7E-02	$(mg/kg/day)^{-1}$	A / Known human carcinogen	IRIS	12/12/2013
Chloroform	2.3E-05	$(ug/m^3)^{-1}$	8.1E-02	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	IRIS	12/12/2013
cis-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	2.6E-07	$(ug/m^3)^{-1}$	9.1E-04	$(mg/kg/day)^{-1}$	Likely to be carcinogenic to humans	IRIS	12/12/2013
Trichloroethene - non-mutagen[2]	3.1E-06	$(ug/m^3)^{-1}$	1.1E-02	$(mg/kg/day)^{-1}$	Carcinogenic to humans	IRIS	12/12/2013
Trichloroethene - mutagen[2][3]	1.0E-06	$(ug/m^3)^{-1}$	3.5E-03	$(mg/kg/day)^{-1}$	Carcinogenic to humans	IRIS	12/12/2013
Vinyl Chloride	4.4E-06	$(ug/m^3)^{-1}$	1.5E-02	$(mg/kg/day)^{-1}$	A / Known/likely human carcinogen	IRIS	12/12/2013
Polycyclic Aromatic Hydrocarbons							
Benzo(a)anthracene[3]	1.1E-04	$(ug/m^3)^{-1}$	3.9E-01	$(mg/kg/day)^{-1}$	NA	Cal EPA	9/2009
Benzo(a)pyrene[3]	1.1E-03	$(ug/m^3)^{-1}$	3.9E+00	$(mg/kg/day)^{-1}$	NA	Cal EPA	9/2009
Benzo(b)fluoranthene[3]	1.1E-04	$(ug/m^3)^{-1}$	3.9E-01	$(mg/kg/day)^{-1}$	NA	Cal EPA	9/2009
Dibenzo(a,h)anthracene[3]	1.2E-03	$(ug/m^3)^{-1}$	4.2E+00	$(mg/kg/day)^{-1}$	NA	Cal EPA	9/2009
Indeno(1,2,3-cd)pyrene[3]	1.1E-04	$(ug/m^3)^{-1}$	3.9E-01	$(mg/kg/day)^{-1}$	NA	Cal EPA	9/2009
Dioxins/Furans							
2,3,7,8-TCDD Equivalents	3.8E+01	$(ug/m^3)^{-1}$	1.3E+05	$(mg/kg/day)^{-1}$	NA	Cal EPA	9/2009
Metals							
Aluminum	NA	NA	NA	NA	NA	NA	NA
Arsenic	4.3E-03	$(ug/m^3)^{-1}$	1.5E+01	$(mg/kg/day)^{-1}$	A / Known human carcinogen	IRIS	12/12/2013
Chromium[3][4]	8.4E-02	$(ug/m^3)^{-1}$	2.9E+02	$(mg/kg/day)^{-1}$	Known/likely human carcinogen (Inhalation route)	IRIS	12/12/2013
Iron	NA	NA	NA	NA	NA	NA	NA
Thallium	NA	NA	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA	NA	NA

TABLE 7-22

CANCER TOXICITY DATA -- INHALATION
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Notes:

1 - Inhalation CSF = Unit Risk * 70 kg / 20m^3/day.

2 - See text for a discussion of trichloroethene toxicity.

3 - Hexavalent chromium, carcinogenic PAHs, and trichloroethene are considered to act via the mutagenic mode of action. These chemicals are evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

4 - Values are for hexavalent chromium.

Definitions:

Cal EPA = California Environmental Protection Agency, Technical Support Document for Describing Available Cancer Slope Factors, September 2009.

CSF = Cancer Slope Factor.

IRIS = Integrated Risk Information System.

NA = Not Available.

PPRTV = Provisional Peer Reviewed Toxicity Value.

TABLE 7-23

SUMMARY OF CANCER RISKS AND HAZARD INDICES - REASONABLE MAXIMUM EXPOSURES
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks $> 10^{-4}$	Chemicals with Cancer Risks $> 10^{-5}$ and $\leq 10^{-4}$	Chemicals with Cancer Risks $> 10^{-6}$ and $\leq 10^{-5}$	Hazard Index	Chemicals Contributing to an Target Organ HI > 1
Maintenance Workers	Surface Soil	Incidental Ingestion	8E-08	--	--	--	0.006	--
		Dermal Contact	4E-08	--	--	--	0.0002	--
		Inhalation	3E-12	--	--	--	0.00005	--
		Total	1E-07	--	--	--	0.006	--
	Subsurface Soil	Incidental Ingestion	2E-06	--	--	--	0.02	--
		Dermal Contact	2E-07	--	--	--	0.001	--
		Inhalation	5E-08	--	--	--	0.002	--
		Total	2E-06	--	--	--	0.02	--
Construction Workers	Surface Soil	Incidental Ingestion	7E-08	--	--	--	0.09	--
		Dermal Contact	2E-08	--	--	--	0.00008	--
		Inhalation	8E-10	--	--	--	0.3	--
		Total	8E-08	--	--	--	0.4	--
	Subsurface Soil	Incidental Ingestion	2E-06	--	--	--	0.3	--
		Dermal Contact	8E-08	--	--	--	0.01	--
		Inhalation	9E-06	--	--	Chromium	0.2	--
		Total	1E-05	--	--	Chromium	0.6	--
	Groundwater	Dermal Contact	6E-08	--	--	--	0.2	--
		Inhalation	9E-09	--	--	--	0.06	--
		Total	7E-08	--	--	--	0.2	--
	Total Surface Soil and Groundwater		2E-07				0.6	
	Total Subsurface Soil and Groundwater		1E-05				0.8	
Industrial Workers	Surface Soil	Incidental Ingestion	8E-07	--	--	--	0.06	--
		Dermal Contact	5E-07	--	--	--	0.002	--
		Inhalation	3E-11	--	--	--	0.0005	--
		Total	1E-06	--	--	--	0.06	--
	Subsurface Soil	Incidental Ingestion	2E-05	--	--	Arsenic, Chromium	0.2	--
		Dermal Contact	2E-06	--	--	Arsenic	0.01	--
		Inhalation	5E-07	--	--	--	0.02	--
		Total	2E-05	--	--	Arsenic, Chromium	0.2	--
Adolescent Trespassers	Surface Soil	Incidental Ingestion	1E-07	--	--	--	0.01	--
		Dermal Contact	9E-08	--	--	--	0.0004	--
		Inhalation	1E-12	--	--	--	0.00003	--
		Total	2E-07	--	--	--	0.01	--
	Subsurface Soil	Incidental Ingestion	3E-06	--	--	Chromium	0.03	--
		Dermal Contact	2E-07	--	--	--	0.002	--
		Inhalation	3E-08	--	--	--	0.00	--
		Total	4E-06	--	--	Chromium	0.03	--
	Sediment	Incidental Ingestion	4E-06	--	--	Chromium	0.02	--
		Dermal Contact	2E-07	--	--	--	0.003	--
		Total	4E-06	--	--	Chromium	0.03	--

TABLE 7-23

SUMMARY OF CANCER RISKS AND HAZARD INDICES - REASONABLE MAXIMUM EXPOSURES
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks > 10^{-4}	Chemicals with Cancer Risks > 10^{-5} and ≤ 10^{-4}	Chemicals with Cancer Risks > 10^{-6} and ≤ 10^{-5}	Hazard Index	Chemicals Contributing to an Target Organ HI > 1
Child Recreational Users	Surface Soil	Incidental Ingestion	6E-07	--	--	--	0.06	--
		Dermal Contact	5E-07	--	--	--	0.002	--
		Inhalation	2E-12	--	--	--	0.00005	--
		Total	1E-06	--	--	--	0.06	--
	Subsurface Soil	Incidental Ingestion	2E-05	--	Chromium	--	0.2	--
		Dermal Contact	5E-07	--	--	--	0.01	--
		Inhalation	7E-07	--	--	--	0.002	--
		Total	2E-05	--	Chromium	Arsenic	0.2	--
	Sediment	Incidental Ingestion	2E-05	--	Chromium	Arsenic	0.1	--
		Dermal Contact	9E-07	--	--	--	0.02	--
		Total	2E-05	--	Chromium	Arsenic	0.1	--
Adult Recreational Users	Surface Soil	Incidental Ingestion	1E-07	--	--	--	0.006	--
		Dermal Contact	1E-07	--	--	--	0.0005	--
		Inhalation	4E-12	--	--	--	0.00005	--
		Total	3E-07	--	--	--	0.007	--
	Subsurface Soil	Incidental Ingestion	3E-06	--	--	Chromium	0.02	--
		Dermal Contact	4E-07	--	--	--	0.003	--
		Inhalation	8E-08	--	--	--	0.002	--
		Total	4E-06	--	--	Chromium	0.02	--
	Sediment	Incidental Ingestion	4E-06	--	--	Chromium	0.01	--
		Dermal Contact	5E-07	--	--	--	0.003	--
		Total	4E-06	--	--	Chromium	0.02	--
Lifelong Recreational Users	Surface Soil	Incidental Ingestion	8E-07	--	--	--	NA	--
		Dermal Contact	6E-07	--	--	--	NA	--
		Inhalation	6E-12	--	--	--	NA	--
		Total	1E-06	--	--	--	NA	--
	Subsurface Soil	Incidental Ingestion	2E-05	--	Chromium	Arsenic	NA	--
		Dermal Contact	9E-07	--	--	--	NA	--
		Inhalation	8E-07	--	--	--	NA	--
		Total	2E-05	--	Chromium	Arsenic	NA	--
	Sediment	Incidental Ingestion	3E-05	--	Chromium	Arsenic	NA	--
		Dermal Contact	1E-06	--	--	--	NA	--
		Total	3E-05	--	Chromium	Arsenic	NA	--

TABLE 7-23

SUMMARY OF CANCER RISKS AND HAZARD INDICES - REASONABLE MAXIMUM EXPOSURES
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks $> 10^{-4}$	Chemicals with Cancer Risks $> 10^{-5}$ and $\leq 10^{-4}$	Chemicals with Cancer Risks $> 10^{-6}$ and $\leq 10^{-5}$	Hazard Index	Chemicals Contributing to an Target Organ HI > 1
Child Residents	Surface Soil	Incidental Ingestion	9E-06	--	--	Benzo(a)pyrene, Dibenzo(a,h)anthracene	0.8	--
		Dermal Contact	3E-06	--	--	--	0.01	--
		Inhalation	9E-11	--	--	--	0.002	--
		Total	1E-05	--	--	Benzo(a)pyrene, Dibenzo(a,h)anthracene	0.8	--
	Subsurface Soil	Incidental Ingestion	2E-04	Chromium	Arsenic	Vinyl Chloride	2	Target Organs HI < 1
		Dermal Contact	3E-06	--	--	Arsenic	0.07	--
		Inhalation	3E-06	--	--	Chromium	0.08	--
		Total	2E-04	Chromium	Arsenic	Vinyl Chloride	3	Target Organs HI < 1
	Groundwater - Direct Contact	Ingestion	8E-05	--	Trichloroethene, Vinyl Chloride	--	16	Trichloroethene
		Dermal Contact	1E-05	--	--	Trichloroethene	3	Trichloroethene
		Inhalation	1E-05	--	--	Trichloroethene, Vinyl Chloride	4	Trichloroethene
		Total	1E-04	--	Trichloroethene, Vinyl Chloride	--	22	Trichloroethene, cis-1,2-Dichloroethene
	Groundwater - Vapor Intrusion	Inhalation	1E-06	--	--	--	0.2	--
	Total Surface Soil and Groundwater		1E-04				23	
	Total Subsurface Soil and Groundwater		4E-04				25	
Adult Residents	Surface Soil	Incidental Ingestion	2E-06	--	--	--	0.08	--
		Dermal Contact	6E-07	--	--	--	0.002	--
		Inhalation	2E-10	--	--	--	0.002	--
		Total	2E-06	--	--	--	0.09	--
	Subsurface Soil	Incidental Ingestion	4E-05	--	Chromium	Arsenic	0.3	--
		Dermal Contact	2E-06	--	--	Arsenic	0.01	--
		Inhalation	3E-06	--	--	Chromium	0.08	--
		Total	5E-05	--	Chromium	Arsenic	0.4	--
	Groundwater - Direct Contact	Ingestion	6E-05	--	Trichloroethene	Benzene, Vinyl Chloride	7	Trichloroethene
		Dermal Contact	1E-05	--	--	Trichloroethene	1	--
		Inhalation	1E-05	--	--	Trichloroethene	4	Trichloroethene
		Total	9E-05	--	Trichloroethene	Benzene, Vinyl Chloride	12	Trichloroethene, cis-1,2-Dichloroethene
	Groundwater - Vapor Intrusion	Inhalation	5E-07	--	--	--	0.2	--
	Total Surface Soil and Groundwater		9E-05				12	
	Total Subsurface Soil and Groundwater		1E-04				12	

TABLE 7-23

SUMMARY OF CANCER RISKS AND HAZARD INDICES - REASONABLE MAXIMUM EXPOSURES
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks $> 10^{-4}$	Chemicals with Cancer Risks $> 10^{-5}$ and $\leq 10^{-4}$	Chemicals with Cancer Risks $> 10^{-6}$ and $\leq 10^{-5}$	Hazard Index	Chemicals Contributing to an Target Organ HI > 1
Lifelong Residents	Surface Soil	Incidental Ingestion	1E-05	--	--	2,3,7,8-TCDD Equivalents, Benzo(a)pyrene, Dibenzo(a,h)anthracene	NA	--
		Dermal Contact	3E-06	--	--	Dibenzo(a,h)anthracene	NA	--
		Inhalation	3E-10	--	--	--	NA	--
		Total	1E-05	--	--	2,3,7,8-TCDD Equivalents, Benzo(a)pyrene, Dibenzo(a,h)anthracene	NA	--
	Subsurface Soil	Incidental Ingestion	3E-04	Chromium	Arsenic	Vinyl Chloride	NA	--
		Dermal Contact	5E-06	--	--	Arsenic	NA	--
		Inhalation	6E-06	--	--	Chromium	NA	--
		Total	3E-04	Chromium	Arsenic	Vinyl Chloride	NA	--
	Groundwater - Direct Contact	Ingestion	1E-04	--	Trichloroethene, Vinyl Chloride	Benzene	NA	--
		Dermal Contact	2E-05	--	--	Trichloroethene, Vinyl Chloride	NA	--
		Inhalation	2E-05	--	--	Trichloroethene, Vinyl Chloride	NA	--
		Total	2E-04	--	Trichloroethene, Vinyl Chloride	Benzene	NA	--
	Groundwater - Vapor Intrusion	Inhalation	2E-06	--	--	--	NA	--
	Total Surface Soil and Groundwater		2E-04				NA	
	Total Subsurface Soil and Groundwater		5E-04				NA	

TABLE 7-24

SUMMARY OF CANCER RISKS AND HAZARD INDICES - CENTRAL TENDENCY EXPOSURES
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks $> 10^{-4}$	Chemicals with Cancer Risks $> 10^{-5}$ and $\leq 10^{-4}$	Chemicals with Cancer Risks $> 10^{-6}$ and $\leq 10^{-5}$	Hazard Index	Chemicals Contributing to an Target Organ HI > 1
Maintenance Workers	Surface Soil	Incidental Ingestion	7E-09	--	--	--	0.001	--
		Dermal Contact	8E-10	--	--	--	0.00001	--
		Inhalation	6E-13	--	--	--	0.00003	--
		Total	8E-09	--	--	--	0.001	--
	Subsurface Soil	Incidental Ingestion	2E-07	--	--	--	0.005	--
		Dermal Contact	4E-09	--	--	--	0.00006	--
		Inhalation	9E-09	--	--	--	0.0009	--
		Total	2E-07	--	--	--	0.005	--
Construction Workers	Surface Soil	Incidental Ingestion	2E-08	--	--	--	0.02	--
		Dermal Contact	3E-09	--	--	--	0.00001	--
		Inhalation	4E-10	--	--	--	0.2	--
		Total	2E-08	--	--	--	0.2	--
	Subsurface Soil	Incidental Ingestion	4E-07	--	--	--	0.08	--
		Dermal Contact	1E-08	--	--	--	0.002	--
		Inhalation	5E-06	--	--	Chromium	0.1	--
		Total	5E-06	--	--	Chromium	0.2	--
	Groundwater	Dermal Contact	3E-08	--	--	--	0.08	--
		Inhalation	4E-09	--	--	--	0.03	--
		Total	3E-08	--	--	--	0.1	--
	Total Surface Soil and Groundwater		5E-08				0.3	
	Total Subsurface Soil and Groundwater		5E-06				0.3	
Industrial Workers	Surface Soil	Incidental Ingestion	1E-07	--	--	--	0.03	--
		Dermal Contact	1E-08	--	--	--	0.0002	--
		Inhalation	1E-11	--	--	--	0.0005	--
		Total	1E-07	--	--	--	0.03	--
	Subsurface Soil	Incidental Ingestion	3E-06	--	--	Chromium	0.08	--
		Dermal Contact	7E-08	--	--	--	0.001	--
		Inhalation	2E-07	--	--	--	0.02	--
		Total	3E-06	--	--	Chromium	0.1	--
Adolescent Trespassers	Surface Soil	Incidental Ingestion	3E-08	--	--	--	0.002	--
		Dermal Contact	8E-09	--	--	--	0.00004	--
		Inhalation	3E-13	--	--	--	0.000007	--
		Total	4E-08	--	--	--	0.003	--
	Subsurface Soil	Incidental Ingestion	9E-07	--	--	--	0.008	--
		Dermal Contact	1E-08	--	--	--	0.0002	--
		Inhalation	7E-09	--	--	--	0.0002	--
		Total	9E-07	--	--	--	0.008	--
	Sediment	Incidental Ingestion	1E-06	--	--	--	0.006	--
		Dermal Contact	2E-08	--	--	--	0.0003	--
		Total	1E-06	--	--	--	0.006	--

TABLE 7-24

SUMMARY OF CANCER RISKS AND HAZARD INDICES - CENTRAL TENDENCY EXPOSURES
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks > 10^{-4}	Chemicals with Cancer Risks > 10^{-5} and ≤ 10^{-4}	Chemicals with Cancer Risks > 10^{-6} and ≤ 10^{-5}	Hazard Index	Chemicals Contributing to an Target Organ HI > 1
Child Recreational Users	Surface Soil	Incidental Ingestion	6E-08	--	--	--	0.01	--
		Dermal Contact	2E-08	--	--	--	0.0002	--
		Inhalation	2E-13	--	--	--	0.00001	--
		Total	8E-08	--	--	--	0.01	--
	Subsurface Soil	Incidental Ingestion	2E-06	--	--	Chromium	0.05	--
		Dermal Contact	2E-08	--	--	--	0.001	--
		Inhalation	7E-07	--	--	--	0.0005	--
		Total	3E-06	--	--	Chromium	0.05	--
	Sediment	Incidental Ingestion	2E-06	--	--	Chromium	0.03	--
		Dermal Contact	3E-08	--	--	--	0.002	--
		Total	2E-06	--	--	Chromium	0.03	--
Adult Recreational Users	Surface Soil	Incidental Ingestion	8E-09	--	--	--	0.002	--
		Dermal Contact	3E-09	--	--	--	0.00003	--
		Inhalation	3E-13	--	--	--	0.00001	--
		Total	1E-08	--	--	--	0.002	--
	Subsurface Soil	Incidental Ingestion	2E-07	--	--	--	0.005	--
		Dermal Contact	8E-09	--	--	--	0.0002	--
		Inhalation	5E-09	--	--	--	0.0005	--
		Total	2E-07	--	--	--	0.006	--
	Sediment	Incidental Ingestion	2E-07	--	--	--	0.003	--
		Dermal Contact	1E-08	--	--	--	0.0002	--
		Total	3E-07	--	--	--	0.004	--
Lifelong Recreational Users	Surface Soil	Incidental Ingestion	7E-08	--	--	--	NA	--
		Dermal Contact	2E-08	--	--	--	NA	--
		Inhalation	5E-13	--	--	--	NA	--
		Total	9E-08	--	--	--	NA	--
	Subsurface Soil	Incidental Ingestion	2E-06	--	--	Chromium	NA	--
		Dermal Contact	2E-08	--	--	--	NA	--
		Inhalation	7E-07	--	--	--	NA	--
		Total	3E-06	--	--	Chromium	NA	--
	Sediment	Incidental Ingestion	2E-06	--	--	Chromium	NA	--
		Dermal Contact	5E-08	--	--	--	NA	--
		Total	3E-06	--	--	Chromium	NA	--
Child Residents	Surface Soil	Incidental Ingestion	1E-06	--	--	--	0.3	--
		Dermal Contact	2E-07	--	--	--	0.002	--
		Inhalation	2E-11	--	--	--	0.001	--
		Total	1E-06	--	--	--	0.3	--
	Subsurface Soil	Incidental Ingestion	3E-05	--	Chromium	Arsenic	0.8	--
		Dermal Contact	1E-07	--	--	--	0.01	--
		Inhalation	1E-06	--	--	--	0.05	--
		Total	3E-05	--	Chromium	Arsenic	0.9	--
	Groundwater - Direct Contact	Ingestion	3E-05	--	Vinyl Chloride	Trichloroethene	8	Trichloroethene
		Dermal Contact	2E-06	--	--	--	1	--
		Inhalation	6E-07	--	--	--	0.2	--
		Total	3E-05	--	Vinyl Chloride	Trichloroethene	9	Trichloroethene
	Groundwater - Vapor Intrusion	Inhalation	2E-07	--	--	--	0.1	--
	Total Surface Soil and Groundwater		3E-05				9	
	Total Subsurface Soil and Groundwater		7E-05				10	

TABLE 7-24

SUMMARY OF CANCER RISKS AND HAZARD INDICES - CENTRAL TENDENCY EXPOSURES
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks $> 10^{-4}$	Chemicals with Cancer Risks $> 10^{-5}$ and $\leq 10^{-4}$	Chemicals with Cancer Risks $> 10^{-6}$ and $\leq 10^{-5}$	Hazard Index	Chemicals Contributing to an Target Organ HI > 1
Adult Residents	Surface Soil	Incidental Ingestion	1E-07	--	--	--	0.03	--
		Dermal Contact	2E-08	--	--	--	0.0002	--
		Inhalation	3E-11	--	--	--	0.001	--
		Total	2E-07	--	--	--	0.03	--
	Subsurface Soil	Incidental Ingestion	4E-06	--	--	Chromium	0.09	--
		Dermal Contact	5E-08	--	--	--	0.001	--
		Inhalation	6E-07	--	--	--	0.05	--
		Total	4E-06	--	--	Chromium	0.1	--
	Groundwater - Direct Contact	Ingestion	8E-06	--	--	Trichloroethene	3	Trichloroethene
		Dermal Contact	1E-06	--	--	--	0.5	--
		Inhalation	2E-07	--	--	--	0.2	--
		Total	1E-05	--	--	Trichloroethene	4	Trichloroethene
	Groundwater - Vapor Intrusion	Inhalation	1E-07	--	--	--	0.1	--
	Total Surface Soil and Groundwater		1E-05				4	
	Total Subsurface Soil and Groundwater		1E-05				4	
Lifelong Residents	Surface Soil	Incidental Ingestion	1E-06	--	--	Chromium	NA	--
		Dermal Contact	2E-07	--	--	--	NA	--
		Inhalation	5E-11	--	--	--	NA	--
		Total	1E-06	--	--	Chromium	NA	--
	Subsurface Soil	Incidental Ingestion	4E-05	--	Chromium	Arsenic	NA	--
		Dermal Contact	2E-07	--	--	--	NA	--
		Inhalation	2E-06	--	--	--	NA	--
		Total	4E-05	--	Chromium	Arsenic	NA	--
	Groundwater - Direct Contact	Ingestion	4E-05	--	Vinyl Chloride	Trichloroethene	NA	--
		Dermal Contact	3E-06	--	--	--	NA	--
		Inhalation	9E-07	--	--	--	NA	--
		Total	4E-05	--	Vinyl Chloride	Trichloroethene	NA	--
	Groundwater - Vapor Intrusion	Inhalation	3E-07	--	--	--	NA	--
	Total Surface Soil and Groundwater		4E-05				NA	
	Total Subsurface Soil and Groundwater		8E-05				NA	

TABLE 7-25

SUMMARY OF CANCER RISKS AND HAZARD INDICES - REASONABLE MAXIMUM EXPOSURES - BUILDING 2981 CONCRETE TANK AREA
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks $> 10^{-4}$	Chemicals with Cancer Risks $> 10^{-5}$ and $\leq 10^{-4}$	Chemicals with Cancer Risks $> 10^{-6}$ and $\leq 10^{-5}$	Hazard Index	Chemicals Contributing to an Target Organ HI > 1
Maintenance Workers	Surface Soil	Incidental Ingestion	5E-08	--	--	--	0.005	--
		Dermal Contact	4E-08	--	--	--	0	--
		Inhalation	1E-12	--	--	--	0.00005	--
		Total	9E-08	--	--	--	0.005	--
Construction Workers	Surface Soil	Incidental Ingestion	4E-08	--	--	--	0.1	--
		Dermal Contact	2E-08	--	--	--	0	--
		Inhalation	3E-10	--	--	--	0.3	--
		Total	6E-08	--	--	--	0.4	--
Industrial Workers	Surface Soil	Incidental Ingestion	5E-07	--	--	--	0.06	--
		Dermal Contact	4E-07	--	--	--	0	--
		Inhalation	1E-11	--	--	--	0.0005	--
		Total	9E-07	--	--	--	0.06	--
Adolescent Trespassers	Surface Soil	Incidental Ingestion	1E-07	--	--	--	0.010	--
		Dermal Contact	1E-07	--	--	--	0	--
		Inhalation	9E-13	--	--	--	0.00003	--
		Total	2E-07	--	--	--	0.010	--
Child Recreational Users	Surface Soil	Incidental Ingestion	6E-07	--	--	--	0.05	--
		Dermal Contact	5E-07	--	--	--	0	--
		Inhalation	2E-12	--	--	--	0.00005	--
		Total	1E-06	--	--	--	0.05	--
Adult Recreational Users	Surface Soil	Incidental Ingestion	9E-08	--	--	--	0.006	--
		Dermal Contact	2E-07	--	--	--	0	--
		Inhalation	2E-12	--	--	--	0.00005	--
		Total	2E-07	--	--	--	0.006	--
Lifelong Recreational Users	Surface Soil	Incidental Ingestion	7E-07	--	--	--	NA	--
		Dermal Contact	7E-07	--	--	--	NA	--
		Inhalation	4E-12	--	--	--	NA	--
		Total	1E-06	--	--	--	NA	--
Child Residents	Surface Soil	Incidental Ingestion	8E-06	--	--	Benzo(a)pyrene	0.7	--
		Dermal Contact	3E-06	--	--	Benzo(a)pyrene	0	--
		Inhalation	7E-11	--	--	--	0.002	--
		Total	1E-05	--	--	Benzo(a)pyrene, Dibenzo(a,h)anthracene	0.7	--
Adult Residents	Surface Soil	Incidental Ingestion	1E-06	--	--	--	0.08	--
		Dermal Contact	6E-07	--	--	--	0	--
		Inhalation	1E-10	--	--	--	0.002	--
		Total	2E-06	--	--	--	0.08	--

TABLE 7-25

SUMMARY OF CANCER RISKS AND HAZARD INDICES - REASONABLE MAXIMUM EXPOSURES - BUILDING 2981 CONCRETE TANK AREA
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks $> 10^{-4}$	Chemicals with Cancer Risks $> 10^{-5}$ and $\leq 10^{-4}$	Chemicals with Cancer Risks $> 10^{-6}$ and $\leq 10^{-5}$	Hazard Index	Chemicals Contributing to an Target Organ HI > 1
Lifelong Residents	Surface Soil	Incidental Ingestion	1E-05	--	--	Benzo(a)pyrene, Dibenzo(a,h)anthracene	NA	--
		Dermal Contact	4E-06	--	--	Benzo(a)pyrene	NA	--
		Inhalation	2E-10	--	--	--	NA	--
		Total	1E-05	--	--	Benzo(a)pyrene, Dibenzo(a,h)anthracene	NA	--

TABLE 7-26

SUMMARY OF CANCER RISKS AND HAZARD INDICES - CENTRAL TENDENCY EXPOSURES - BUILDING 2981 CONCRETE TANK AREA
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks $> 10^{-4}$	Chemicals with Cancer Risks $> 10^{-5}$ and $\leq 10^{-4}$	Chemicals with Cancer Risks $> 10^{-6}$ and $\leq 10^{-5}$	Hazard Index	Chemicals Contributing to an Target Organ HI > 1
Maintenance Workers	Surface Soil	Incidental Ingestion	4E-09	--	--	--	0.001	--
		Dermal Contact	7E-10	--	--	--	0	--
		Inhalation	2E-13	--	--	--	0.00002	--
		Total	5E-09	--	--	--	0.001	--
Construction Workers	Surface Soil	Incidental Ingestion	1E-08	--	--	--	0.03	--
		Dermal Contact	3E-09	--	--	--	0	--
		Inhalation	2E-10	--	--	--	0.1	--
		Total	1E-08	--	--	--	0.2	--
Industrial Workers	Surface Soil	Incidental Ingestion	8E-08	--	--	--	0.02	--
		Dermal Contact	1E-08	--	--	--	0	--
		Inhalation	4E-12	--	--	--	0.0004	--
		Total	9E-08	--	--	--	0.03	--
Adolescent Trespassers	Surface Soil	Incidental Ingestion	3E-08	--	--	--	0.002	--
		Dermal Contact	9E-09	--	--	--	0	--
		Inhalation	2E-13	--	--	--	0.000006	--
		Total	4E-08	--	--	--	0.002	--
Child Recreational Users	Surface Soil	Incidental Ingestion	6E-08	--	--	--	0.01	--
		Dermal Contact	2E-08	--	--	--	0	--
		Inhalation	2E-13	--	--	--	0.00001	--
		Total	8E-08	--	--	--	0.01	--
Adult Recreational Users	Surface Soil	Incidental Ingestion	6E-09	--	--	--	0.001	--
		Dermal Contact	3E-09	--	--	--	0	--
		Inhalation	2E-13	--	--	--	0.00001	--
		Total	8E-09	--	--	--	0.001	--
Lifelong Recreational Users	Surface Soil	Incidental Ingestion	7E-08	--	--	--	NA	--
		Dermal Contact	2E-08	--	--	--	NA	--
		Inhalation	3E-13	--	--	--	NA	--
		Total	9E-08	--	--	--	NA	--
Child Residents	Surface Soil	Incidental Ingestion	1E-06	--	--	--	0.2	--
		Dermal Contact	2E-07	--	--	--	0	--
		Inhalation	2E-11	--	--	--	0.001	--
		Total	1E-06	--	--	--	0.2	--
Adult Residents	Surface Soil	Incidental Ingestion	1E-07	--	--	--	0.03	--
		Dermal Contact	2E-08	--	--	--	0	--
		Inhalation	2E-11	--	--	--	0.001	--
		Total	1E-07	--	--	--	0.03	--
Lifelong Residents	Surface Soil	Incidental Ingestion	1E-06	--	--	--	NA	--
		Dermal Contact	2E-07	--	--	--	NA	--
		Inhalation	4E-11	--	--	--	NA	--
		Total	1E-06	--	--	--	NA	--

TABLE 7-27

CHEMICALS RETAINED AS CHEMICALS OF CONCERN FOR DIRECT CONTACT EXPOSURES
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Chemical	Receptor									
	Construction Workers	Industrial Workers	Maintenance Workers	Adolescent Trespassers	Child Recreational Users	Adult Recreational Users	Lifelong Recreational Users	Child Residents	Adult Residents	Lifelong Residents
Surface Soil										
No COCs identified for surface soil.										
Subsurface Soil										
Arsenic								X(1)		X(1)
Chromium								X(1)		X(1)
Vinyl Chloride								X(1)		X(1)
Groundwater - Direct Contact(2)										
Benzene										X
cis-1,2-Dichlroethene								X	X	
Trichloroethene								X	X	X
Vinyl Chloride										X
Groundwater - Vapor Intrusion(3)										
No COCs identified for vapor intrusion based on Johnson-Ettinger model; trichloroethene was retained as a COC based on groundwater screening level exceedance										
Sediment										
No COCs identified for sediment.										

X - Chemical is retained as a chemical of concern (COC).

A chemical is retained as a COC if it contributed to a total cancer risk greater than 1×10^{-4} or to a target organ hazard index greater than 1.

1 - Chemicals are only COCs if chromium is evaluated as hexavalent chromium. If chromium is evaluated as trivalent chromium than total cancer risk is less than 1×10^{-4}.

2 - Tetrachloroethene was not identified as contributing to direct contract risk; however, it is also a COC for groundwater based on Maximum Contaminant Level (MCL) exceedances.

3 - Site groundwater concentrations of trichloroethene under Building 225 were greater than the Indiana Department of Environmental Management (IDEM) Vapor Exposure Screening Levels for residential and commercial/industrial scenarios.

TABLE 7-28

CHEMICALS RETAINED AS CHEMICALS OF CONCERN FOR SOIL TO GROUNDWATER PATHWAY
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Media	Retained COPC for Soil to Groundwater Pathway (Tables 7-4 and 7-6)	Minimum Concentration	Maximum Concentration	Units	Similar to Background?[3]	USEPA Risk-Based Protection of Groundwater RSL[4]	USEPA MCL-Based Protection of Groundwater RSL[5]	IDEM Migration to Groundwater[6]	Retained as a COC?	Rationale for Contaminant Deletion or Selection[7]
Surface Soil	Benzo(a)anthracene	5.49 J	322	ug/kg	NA	**200**	NA	2100 C	No	PAHs not detected in subsurface soil.
	Benzo(a)pyrene	3.9 J	348	ug/kg	NA	**70**	4800	4,700 M	No	PAHs not detected in subsurface soil.
	Naphthalene	2.26 J	14.4 J	ug/kg	NA	**9.4**	NA	92 C	No	PAHs not detected in subsurface soil
	alpha-BHC	0.226 J	0.93	ug/kg	NA	**0.72**	NA	7.2 C	No	Low frequency of exceedance of risk-based SSL (1 out of 22 surface soil samples) in surface soil. No exceedance of IDEM Migration to Groundwater. No exceedances of soil to groundwater migration screening values in subsurface soil.
	1,2,3,4,6,7,8-HPCDD	4.84	722 J	ng/kg	NA	**520**	NA	NA		Low frequency of exceedance of risk-based SSL (2/11) in surface soil.
	2,3,7,8-TCDD Eqivalents (Half ND)	3.72	20.2	ng/kg	NA	**5.2**	300	300 M	No	No exceedances of MCL-based SSLs.
	Arsenic	3.16	12	mg/kg	Yes	**0.026**	5.8	5.9 M	No	Concentrations are consistent with background.
	Chromium	10.9	27.6	mg/kg	Yes	**0.0118** [8]	NA	0.12 C	No	Concentrations are consistent with background.
	Cobalt	2.85	26	mg/kg	Yes	**4.2**	NA	4.3 N	No	Concentrations are consistent with background.
	Iron	13,400	30,100	mg/kg	No	**5,400**	NA	5,600	**Yes**	See subsurface rationale.
Subsurface Soil	1,2-Dichlorobenzene	1.4 J	5,870	ug/kg	NA	**5,400**	11,600	12,000 M	No	No exceedances of MCL-based SSLs.
	1,4-Dichlorobenzene	3.27 J	150 J	ug/kg	NA	**8**	1,400	1,400 M	No	No exceedances of MCL-based SSLs.
	Benzene	1.3 J	146 J	ug/kg	NA	**4**	52	**51 M**	**Yes**	Chemical exceeds MCL-based SSL at one location and is detected in groundwater at concentrations greater than groundwater screening levels. Unacceptable risks have been identified for this chemical in groundwater in the HHRA.
	Chlorobenzene	1.02 J	1,670 J	ug/kg	NA	**980**	**1,360**	**1,400 M**	No	Low frequency of MCL-Based SSL (1 out of 83 subsurface soil samples). Chemical was not detected in site groundwater samples.
	cis-1,2-Dichloroethene	4.99	1,700 J	ug/kg	NA	**164**	**420**	**410 M**	**Yes**	Chemical exceeds MCL-based SSL at several subsurface soil sample locations and is detected in groundwater at concentrations greater than groundwater screening levels. Unacceptable risks have been identified for this chemical in groundwater in the HHRA.
	Methylene Chloride	2.63 J	883 J	ug/kg	NA	**50**	**26**	**25 M**	No	Low frequency of exceedance of MCL-based SSL (4 out of 83 subsurface soil samples). Chemical was not detected in site groundwater samples.
	Tetrachloroethene	1.57 J	31,200	ug/kg	NA	**88**	**46**	**45 M**	**Yes**	Chemical exceeds MCL-based SSL by several order of magnitude and is detected in groundwater at concentrations greater than groundwater screening levels.
	Trichloroethene	1.5 J	1,290	ug/kg	NA	**3.2**	**36**	**36 M**	**Yes**	Chemical exceeds MCL-based SSL by several order of magnitude and is detected in groundwater at concentrations greater than groundwater screening levels. Unacceptable risks have been identified for this chemical in groundwater in the HHRA.
	Vinyl Chloride	1.58 J	154	ug/kg	NA	**0.106**	**13.8**	**14 M**	**Yes**	Chemical exceeds MCL-based SSL and is detected in groundwater at concentrations greater than groundwater screening levels.
	Arsenic	2.49	20.4	mg/kg	No	**0.026**	**5.8**	**5.9 M**	**Yes**	Chemical exceeds MCL-based SSL and no groundwater data available to confirm whether migration to groundwater has occured.
	Chromium	13.8	74.9	mg/kg	No	**0.0118** [8]	3600000 [9]	**0.12 C**[8]	No	Chemical does not exceed MCL-Based soil to groundwater values for trivalent chromium.
	Cobalt	1.88	5.73	mg/kg	Yes	**4.2**	NA	**4.3 N**	No	Concentrations in subsurface soil are consistent with background.
	Iron	11,400	75,600	mg/kg	No	**5,400**	**5400**	**5,600 N**	**Yes**	Chemical exceeds MCL-based SSL and no groundwater data available to confirm if migration to groundwater has occured.
	Manganese	12.5	593	mg/kg	Yes	**420**	NA	**420 N**	No	Concentrations in subsurface soil are consistent with background.

TABLE 7-28

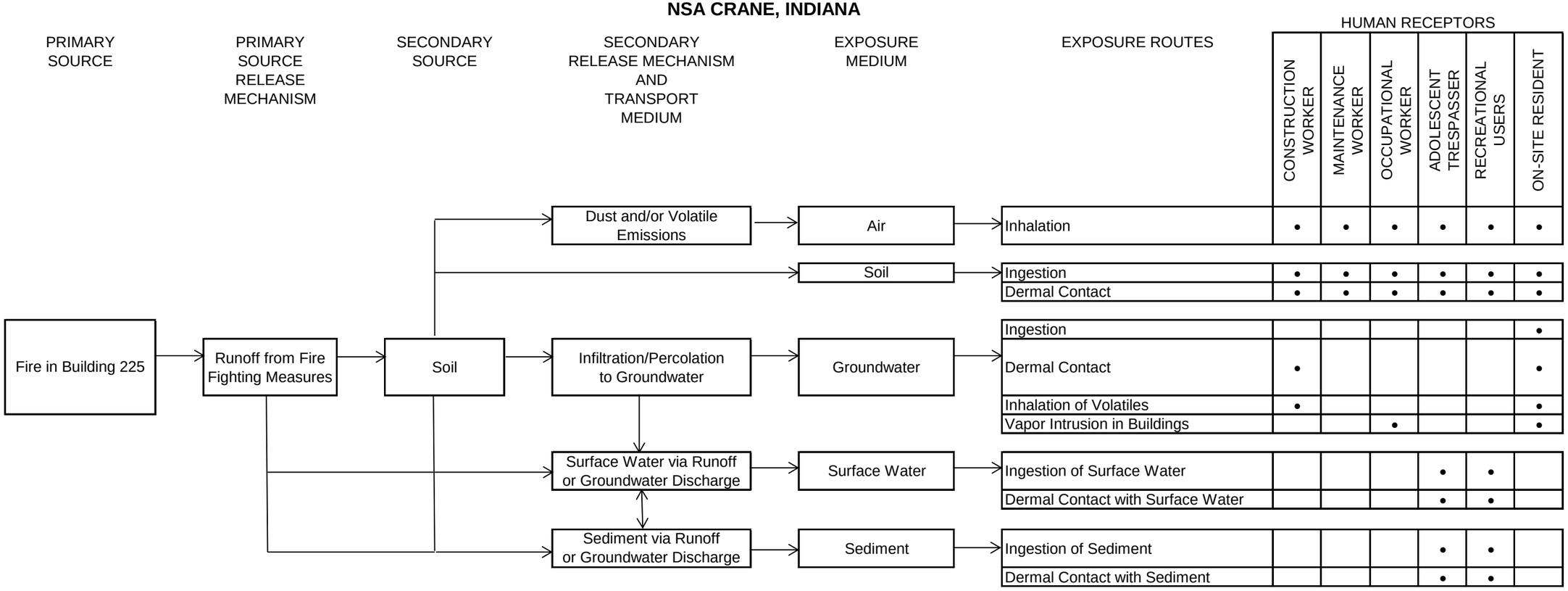
CHEMICALS RETAINED AS CHEMICALS OF CONCERN FOR SOIL TO GROUNDWATER PATHWAY
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Footnotes:
1 - Values presented are sample-specific quantitation limits.
2 - The maximum detected concentration is used for screening purposes.
3 - Soil Group 3 - Alluvial, Mississippian, and Pennsylvanian Surface Soil Upper Tolerance Limit. Base-Wide Background Soil Investigation Report, Tetra Tech, 2001.
4 - USEPA Regional Screening Levels for Chemical Contaminants at Superfund Sites, November 2013. Values are risk-based SSL values with an applied dilution attenuation factor of 20.
5 - USEPA Regional Screening Levels for Chemical Contaminants at Superfund Sites, November 2013. Values are MCL-based SSL values with an applied dilution attenuation factor of 20.
6 - IDEM Closure Guide, March 1, 2013.
7 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
8 - Value is for hexavalent chromium.
9 - Value is for trivalent chromium.

Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COC.

Definitions:
C = Carcinogen
COC = Chemical of Concern
COPC = Chemical Of Potential Concern
J = Estimated value
M = Maximum Contaminant Level
N = Noncarcinogen
NA = Not Applicable/Not Available

FIGURE 7-1
HUMAN CONCEPTUAL EXPOSURE MODEL DIAGRAM
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE, INDIANA



- Indicates receptor for evaluation

8.0 ECOLOGICAL RISK ASSESSMENT

The goal of this ERA for SWMU 11 was to evaluate the potential for adverse ecological impacts due to site-related contamination. This goal was accomplished by identifying COPCs detected at concentrations that exceed ecological screening levels, identifying the locations of these exceedances, and concluding whether further investigation and/or remedial action at SWMU 11 at NSA Crane is warranted from an ecological perspective.

8.1 INTRODUCTION

The screening-level ERA methodology used at NSA Crane is in accordance with the following guidance documents:

- DON Environmental Policy Memorandum 97-04: Use of Ecological Risk Assessments dated May 16, 1997.
- Navy Policy for Conducting Ecological Risk Assessments (Navy, 1999).
- Final Guidelines for Ecological Risk Assessment (USEPA, 1998).
- Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments (USEPA, 1997c).

This ERA consists of Steps 1, 2, and 3a of the eight-step ecological risk evaluation process discussed in USEPA guidance (USEPA, 1997c and 1998) and the Navy Policy for Conducting ERAs (Navy, 1999). The first two screening steps comprise the screening-level ERA, and correspond with Tier 1 of the Navy Policy (Navy, 1999), where conservative exposure estimates are compared to screening-level and threshold toxicity values. Step 3a is the first step of a baseline ecological risk assessment (ERA) and consists of refining the Tier 1 assumptions following Steps 1 and 2 to further focus the ERA process on the chemicals of greatest concern at a site. Step 3a corresponds with the first part of Tier 2 of the Navy Policy (Navy, 1999). Steps 3b through 7, which are conducted if additional ecological investigations are necessary, were not conducted for this ERA because no such investigations were carried out at the site. Aspects of Step 8, risk management, are addressed throughout the ERA process, in cooperation with Region 5 regulators.

A schematic diagram of the general ecological risk assessment process is provided on Figure 8-1.

8.2 TIER 1, STEP 1: SCREENING-LEVEL PROBLEM FORMULATION

The screening-level problem formulation is the first step of the ERA and includes identification of potential receptor groups, COPCs, and the mechanisms for contaminant fate, transport, and toxicity. The complete exposure pathways for ecological receptors that exist at a site are determined at this point to facilitate receptor selection. The problem formulation process enables the risk assessor to identify the ecological resources to be protected (known as assessment endpoints), the measures that were used to evaluate risks to those resources (known as measurement endpoints) and the chemicals, geographic areas, and environmental media relevant to the risk assessment.

As part of receptor identification, site habitats and potential ecological receptors, as they apply to ecological risk, are described in the following subsections.

8.2.1 Environmental Setting

8.2.1.1 Basewide Environmental Setting

A biological characterization of NSA Crane, including a list of plants and animals found at the facility, is presented in the Installation Assessment (IA) (Army, 1978) and the Initial Assessment Study (IAS) (NEESA, 1983) and is summarized in the Environmental Monitoring Reports (EMRs) (Halliburton NUS, 1992a and 1992b). A list of the species that may inhabit NSA Crane and that are protected under the United States Endangered Species Act, Indiana Department of Natural Resources Heritage Data Center, or the United States Fish and Wildlife Service (USFWS) is summarized in the RCRA Facility Permit and below. The following paragraphs briefly summarize the environmental setting at the base.

Eighty percent of NSA Crane's approximately 63,000 acres is classified as Central Hardwoods Forest of the United States (NEESA, 1983). In addition, some former agricultural fields are in various stages of succession. Open spaces on dry upland sites contain almost pure stands of grasses with some clumps of woody plants such as persimmon, sassafras, and sumac. Wetter sites have river birch, willow, sycamore, and cottonwood. Hillside communities have mostly hickory, white and black oak, red maple, sugar maple, tulip poplar, ash, and beech (NEESA, 1983).

The great variety of habitats at NSA Crane (i.e., many stages of forest succession, streams, ponds, Lake Greenwood, grassy open spaces) lead to great diversity of animal species (NEESA, 1983). These species include but are not limited to mammals such as white-tailed deer, beaver, coyote, hawks, red fox, rabbits, raccoons, and mice; birds such as ducks, geese, wild turkey, bobwhite quail, red-tailed hawks, and American robins; and various amphibians, reptiles, fish, and invertebrates.

Six main creeks receive drainage in five separate drainage basins at NSA Crane: First Creek, Sulphur Creek, Little Sulphur Creek, Boggs Creek, Turkey Creek, and Seed Tick Creek. There are also many smaller streams, creeks, and drainage ditches located at the facility, along with several small man-made ponds and one large lake (Lake Greenwood). Lake Greenwood is the source of potable water for NSA Crane. Surface water from the facility eventually discharges to the East Fork of the White River, which is located south of the facility.

Threatened and Endangered Species

The Endangered Species Management Plan for NSA Crane (Comarco Systems, Inc., 2000) identified the federal and state threatened and endangered species and species of special concern potentially present at the facility. Information included in the Endangered Species Management Plan was obtained from studies and surveys conducted by the Navy and other agencies and groups such as universities and research institutions. A small subset of these studies include the inventory of neotropical migratory birds, mist net and radiotelemetry surveys for the Indiana Bat, bobcat trapping, rattlesnake survey, Purdue University wildlife studies, and several fish surveys and bird counts. These studies and others that were used in compiling the list of endangered species present at NSA Crane are described in more detail in the Endangered Species Management Plan (Comarco Systems, Inc., 2000) and below.

The Indiana bat is the only federally threatened or endangered species documented to occur at NSA Crane. No mist nets were located at SWMU 11 during the mist net and radiotelemetry surveys for the Indiana Bat; however, one mist net site was located approximately 0.5 mile east of SWMU 11 (ESI, 2005). No Indiana bats were captured at the location east of SWMU 11 in June 2005.

The USFWS issued a notice in the Federal Register (72 FR 37346 et seq.) on July 9, 2007, that effective August 8, 2007, the American Bald Eagle would be removed from the federal List of Endangered and Threatened Wildlife and Plants. The American Bald Eagle is still protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The bald eagle is known to be present in Lake Greenwood approximately 3 miles north of SWMU 11.

In addition, a number of state endangered and federal and state species of concern have been listed for NSA Crane (Comarco Systems, Inc., 2000). The state endangered species list includes two mammals (bobcat and Indiana bat), one reptile (timber rattlesnake), and several birds (bald eagle, osprey, loggerhead shrike, yellow-crowned night-heron, Virginia rail, king rail, and Henslow's sparrow).

8.2.1.2 Site-Specific Environmental Setting

SWMU 11- Old Storage Building 225 is located near the western boundary of NSA Crane. The site covers approximately 1 acre. The site is bounded by Highway 101 to the southeast and a forested area is located northwest of the site. Structures at the site include a concrete pad, two asphalt paved areas, a loading dock, and a railroad siding spur.

There is very little high quality ecological habitat at the site, as can be seen from the aerial photograph in Figure 1-2 and the site photographs presented as Figure 1-6. The area west of the loading dock where samples from locations 11SB05 through 11SB10 were collected consists of a narrow grass strip between railroad tracks. Also, the area east of the loading dock where samples from locations 11SB13 through 11SB16 were collected consists of a small grass area.

A drainage ditch flows northeast to a culvert that conveys flow to the west to a drainage channel in a wooded area approximately 200 feet west of west site. The drainage channel discharges to Broom Branch approximately 1,000 feet northwest of the site. Surface water collected from portions of Highway 101 also drains into this drainage culvert. The drainage channel is only a few feet wide and very shallow (less than a foot deep in most areas). No fish were observed in the channel during the sediment sampling activities, and if any fish are present, they are likely to be very small.

A former concrete tank at Building 2981 located approximately 1 mile southwest of the site was also investigated because it was suspected to have been a reservoir of runoff from water used to put out a fire at SWMU 11 in 1976. The area immediately surrounding this concrete tank consists of mowed grass,

8.2.2 Potential Sources of Contamination

SWMU 11 had been a storage building for chemicals, paints, dyes, solvent, and various other items when it was destroyed by fire in 1976. PCP, paints, sodium fluorescein, solvents, and other items stored in the building may have entered surface drainage pathways and soils in the immediate area of Building 225 during firefighting efforts. Much of the fire water runoff, which was a fluorescent green color, collected in the drainage ditch immediately northwest of the site, flowed through the culvert into the drainage channel northwest of the site, and discharged into Broom Branch. Temporary dams were placed in Broom Branch to contain the runoff. The runoff was pumped out and transported to a concrete holding pond that is suspected to be the former Building 2981 concrete tank.

8.2.3 Physical and Chemical Characteristics

VOCs, PAHs, PCBs, pesticides, dioxins/furans, and metals were detected in environmental media from SWMU 11. Physical and chemical characteristics of contaminants may affect their mobility, transport, and bioavailability in the environment. These characteristics include bioaccumulation factors (BAFs), K_{OC}s, and K_{OW}s. The physical and chemical characteristics of the chemical classes present in SWMU 11 media are presented in Section 6 and BAFs are presented in Appendix H.

8.2.4 Potential Exposure Pathways

Section 1 of this report presents in more detail descriptions of the operational history, descriptions of previous investigations and the potential sources of contamination for SWMU 11. Chemicals may have been transported to soil and sediment by water runoff during firefighting efforts at the storage building. For the Building 2981 Concrete Tank Area chemicals may have been transported to soil by leaks or spills at the concrete tank, which was used as reservoir of runoff water from SWMU 11.

8.2.4.1 Surface Soil

Several groups of terrestrial ecological receptors can be exposed to contaminants in surface soil. Invertebrates such as earthworms are exposed to contaminants as they move through the soil and ingest soil particles while searching for food. Plants are exposed to contaminants via direct contact as contaminants are absorbed through the roots, and contaminants are then translocated to different parts of the plants (e.g., leaves, seeds). These pathways are evaluated in the ERA.

Small mammals may be exposed to contaminants in soil via several exposure routes. They may be exposed by direct contact as they search for food or burrow into the soil. Exposure of terrestrial wildlife to contaminants in the soil via dermal contact is unlikely to represent a major exposure pathway because fur, feathers, and chitinous exoskeletons are expected to minimize transfer of contaminants across dermal tissue. Therefore, the dermal pathway was not evaluated in the ERA. Small mammals also may be exposed to contaminants in soil via incidental ingestion of soil and ingestion of plants and/or invertebrates that have accumulated contaminants from the soil. These pathways are evaluated in the ERA.

Larger predatory species such as the red fox and red-tailed hawk can be indirectly exposed to soil contaminants by ingesting small mammals that have accumulated contaminants from soil.

Terrestrial receptors are not substantially exposed to subsurface soils, so that pathway was not evaluated in the ERA. For this project, the surface soil depth interval was 0 to 2 feet below the ground surface.

Surface soil sample locations 11SB01 through 11SB04, 11SB17, and 11SB18 were collected beneath concrete and asphalt. Terrestrial receptors are not substantially exposed to soil located beneath concrete and asphalt; therefore, data from those samples were not evaluated in the ERA.

8.2.4.1 Sediment

Contaminants in soil may enter the drainage channel northwest of SWMU 11 via overland flow. Benthic invertebrates and other aquatic organisms can be exposed to chemicals in sediment. This pathway was evaluated in the ERA. Because of the very small size of the drainage channel, it is not likely that piscivorous birds and mammals will be feeding in the channel. Therefore, risks to piscivorous receptors were not evaluated in this ERA.

8.2.5 Assessment Endpoints and Measurement Endpoints

Assessment endpoints are explicit expressions of the environmental value that is to be protected (USEPA, 1997c). The selection of these endpoints is based on the habitats present, migration pathways of probable contaminants, and relevant exposure routes for the receptors. Measurement endpoints are estimates of measurable biological impacts (e.g., mortality, growth, and reproduction) that are used to evaluate the assessment endpoints. The assessment endpoints and measurement endpoints used to evaluate SWMU 11 data are presented in Table 8-1.

8.2.5.1 Assessment Endpoints

Based on the habitat at SWMU 11, which consists of grass, nearby forested areas, and a drainage channel, and the chemicals present at the site, the assessment endpoints include protection of the following groups of receptors from adverse effects of contaminants on their growth, survival, and reproduction:

- Terrestrial vegetation
- Soil invertebrates
- Sediment invertebrates
- Herbivorous birds and mammals
- Invertivorous birds and mammals

The following paragraphs discuss the above assessment endpoints.

Terrestrial Vegetation: Terrestrial vegetation at SWMU 11 consists of grasses, shrubs, and trees. They serve as a food source and provide shade and cover for many organisms, and they help to prevent soil

erosion, among other important functions. They also can accumulate some contaminants that can then be transferred to the higher trophic-level organisms that consume plants.

Soil Invertebrates: Soil invertebrates are present in soil at SWMU 11. They aid in the formation of soil and the redistribution and decomposition of organic matter in the soil, and they serve as a food source for higher trophic-level organisms. They also can accumulate bioaccumulative contaminants that can then be transferred to the higher trophic-level organisms that consume soil invertebrates.

Sediment Invertebrates: Sediment invertebrates present in sediment within the drainage channel adjacent to the site serve as a food source for higher trophic-level organisms (i.e., fish, amphibians, birds, mammals). They can also accumulate contaminants, which can be transferred to higher trophic-level organisms that consume invertebrates.

Herbivorous Birds and Mammals: Herbivorous birds and mammals (i.e., animals that consume only plant tissue) forage in some portions of SWMU 11. Their role in the community is essential because, without them, higher trophic levels could not exist (Smith, 1966). They may be exposed to and accumulate contaminants present in the plants they consume.

Invertivorous Birds and Mammals: Invertivorous birds and mammals are present throughout the base in different terrestrial habitats (e.g., forested, open field) and are present at SWMU11. These are considered first-level carnivores, and they serve as a food source for higher trophic-level carnivores. They may be exposed to and accumulate contaminants present in the food items they consume.

As indicated in USEPA guidance (USEPA, 1997c), “it is not practical or possible to directly evaluate risks to all of the individual components of the ecosystem at a site. Instead, assessment endpoints focus the risk assessment on particular components of the ecosystem that could be adversely affected by contaminants from the site.” Therefore, the ERA will focus on the endpoints that will tend to yield the highest risks, which should then account for endpoints that will have lower risks.

Omnivores were not selected as assessment endpoints because exposure to contaminants in plants is greatest for herbivores, and exposure to contaminants in animals is greatest for invertivores. Therefore, omnivores are protected by protecting herbivores and invertivores. Large carnivorous birds and mammals were not selected as assessment endpoints because their home range (hundreds of acres) is much larger than SWMU 11 (approximately 1 acre including portions covered by concrete and asphalt) and Building 2981 Concrete Tank Area (approximately 0.5 acre), so they would only consume a small portion of food from the site. Therefore, risks would be greater to small mammals and birds that may obtain all of their food from the site. Although reptiles and amphibians may be present, they were not

selected as assessment endpoints because of the general lack of toxicity information and the lack of methods to evaluate their exposure to chemicals.

8.2.5.2 Measurement Endpoints

The following measurement endpoints were used to evaluate the assessment endpoints in the ERA:

- Soil screening values - Mortality, growth, and reproduction of plants and soil invertebrates were evaluated by comparing the measured concentrations of chemicals in surface soil to screening values designed to be protective of ecological receptors.

- Sediment screening values - Mortality, growth, and reproduction of sediment invertebrates were evaluated by comparing the measured concentrations of chemicals in sediment to screening values designed to be protective of ecological receptors.

- Wildlife toxicity reference values (TRVs) - Mortality, reproductive, and/or developmental effects of birds and mammals were evaluated by comparing the estimated dose incurred (based on conservative and average assumptions) from ingestion of contaminants in surface soil, plants, and invertebrates to wildlife TRVs.

8.2.5.3 Selection of Receptor Species

Many receptors in the soil/sediment environment at SWMU 11 are typically grouped into general categories such as soil/sediment invertebrates and vegetation. This is a reflection of the nature of the threshold values, effects values, or criteria typically used to characterize risk for such organisms. However, for vertebrate receptors, selection of a representative species is required so that risks to these upper-level species incurred by intake through eating and drinking can be estimated.

Ingestion is the primary route of exposure for most mammals and birds. The selection of species used to represent the receptor groups identified in Section 8.2.5.1 was based on considerations of their preferred habitat, body size, sensitivity to contaminants, home range, abundance, commercial or sport utilization, legal status, and functional role (e.g., predators). The availability of exposure parameters such as body mass, feeding rate, and drinking rate was also a factor in selecting surrogate species. The following surrogate species were used in the food chain modeling conducted as part of this ERA:

- Herbivorous mammal - Meadow vole
- Herbivorous bird - Bobwhite quail

- Invertivorous mammal - Short-tailed shrew
- Invertivorous bird - American woodcock

Receptor profiles for each of the species above are presented in Appendix H.

8.2.6 Conceptual Site Model

A CSM in ERA problem formulation is a written description of predicted relationships between ecological entities and the stressors to which they may be exposed (USEPA, 1998). The ecological CSM consists of two primary components: predicted relationships among stressor, exposure, and assessment endpoint response, and a diagram that illustrates the relationships (USEPA, 1998). At SWMU 11, the sources of the contamination include the chemicals in the storage building may have been released to the environment during the fire and firefighting efforts in 1976. The primary stressors to ecological receptors are contaminants in surface soil and sediment. The primary receptors for contaminants in surface soil and sediment are plants, soil invertebrates, and sediment invertebrates and secondary receptors are birds and mammals. Figure 8-2 represents the ecological CSM for SWMU 11.

8.3 TIER 1, STEP 2: SCREENING-LEVEL EXPOSURE ESTIMATE AND RISK QUOTIENTS

8.3.1 Ecological Effects Evaluation

The preliminary ecological effects evaluation is an investigation of the relationship between the magnitude of exposure to a chemical and the nature and magnitude of adverse effects resulting from exposure. In addition to being a toxicological evaluation, it may also include descriptions of apparent effects seen during the site visit (e.g., stressed vegetation). Toxicity thresholds are usually expressed in units of concentration when the medium of concern is in intimate contact with the receptor, such as soil for soil invertebrates. For other receptors, such as terrestrial vertebrates, toxicity data are typically available as doses, with units equal to mass of contaminant per unit of body mass per unit of time (usually mg/kg-day).

8.3.2 Exposure Characterization

SWMU 11 and the Building 2981 Concrete Tank Area an offsite area for SWMU 11, were evaluated separately in this ERA. SWMU 11 includes the area surrounding former Building 225. The Building 2981 Concrete Tank Area is located approximately 1 mile from SWMU 11 and was the former Building 2981 concrete tank that was likely used as a reservoir of water runoff from SWMU 11 firefighting activities.

As the first step in the ecological effects evaluation, COPCs were selected by comparing contaminant concentrations in surface soil to ecological screening levels. For surface soil, chemical concentrations

were compared to USEPA Ecological Soil Screening Levels (Eco SSLs) (USEPA, 2007a and supporting documents) because they are the most current screening levels. If USEPA Eco SSLs were not available, Region 5 soil Ecological Screening Levels (ESLs) (USEPA, 2003) were used next in order of preference, followed by the values from Canadian Soil Quality Guidelines [Canadian Council of Ministers of the Environment (CCME), 1999, 2010] and the Oak Ridge National Laboratory (ORNL) Toxicological Benchmarks for plants (Efroymson et al., 1997a) and invertebrates (Efroymson et al., 1997b). Note that because most of the Region 5 ESLs are based on risks to mammals, screening levels specific to plants or invertebrates from other sources were used preferentially for those endpoints, when available. Table 8-2 presents the soil screening levels for plants, invertebrates, mammals, and birds for each chemical and the sources of each value. For sediment, the Region 5 sediment ESLs (USEPA, 2003b) followed by Region 3 freshwater sediment ESLs (USEPA, 2006) were used in COPC selection. These sediment screening values are protective of sediment invertebrates.

The doses in mg/kg-day were estimated for mammals and birds using exposure dose equations. Note that the food chain models were conducted on a dry-weight basis to be consistent with the soil/sediment concentrations which are reported on a dry-weight basis. Therefore, the concentrations in the food items were estimated on a dry-weight basis. The following generic equation was used to calculate the EPCs for wildlife from exposure to chemicals in soil/sediment and associated food items such as plants, and soil invertebrates:

$$CDI = \frac{[(Cf * If) + (Cs * Is)] * H}{BW}$$

where:

CDI	=	Chronic daily intake [milligrams per kilogram (mg/kg)-day]
Cf	=	Chemical concentration in food – (see discussion below)
Cs	=	Chemical concentration in surface soil (mg/kg)
If	=	Food ingestion rate [kilograms per day (kg/day)]
Is	=	Incidental surface soil ingestion rate (kg/day)
H	=	Portion of food intake from the contaminated area (unitless)
BW	=	Body weight (kg)

The exposure factors used for the food chain model, their derivation, and the receptor profiles for the surrogate species are presented in Appendix H. The exposure assumptions (i.e., ingestion rate, body weight) were obtained primarily from the Wildlife Exposure Factors Handbook (USEPA, 1993c) and USEPA Eco SSL Guidance Attachment 4-1 (USEPA, 2007a) with other sources used as necessary. Food ingestion rates are on a dry-weight basis as discussed above.

Chemical concentrations in food items for soil invertivorous and herbivorous receptors were calculated using soil-to-invertebrate or soil-to-plant BAFs and regression equations from the USEPA Eco SSL Guidance Document Attachment 4-1 (2007a). The BAFs are documented in Appendix H. The following equation was used to calculate chemical concentrations in plants or invertebrates when BAFs were used:

$$Cf = Cs * BAF$$

where:

Cf	=	Contaminant concentration in food (mg/kg)
Cs	=	Contaminant concentration in surface soil (mg/kg)
BAF	=	Biota-soil bioaccumulation factor (unitless)

A default value of 1.0 was used for the BAF when chemical-specific data was not available. Sources of BAFs are documented in Appendix H.

The food chain model scenarios were calculated using various exposure assumptions to present a range of potential risks. For selecting chemicals as COPCs, the following Tier 1 exposure assumptions were used:

- Maximum soil concentrations
- 90th percentile BAFs (or maximum value if a 90th percentile value is not available) or regression equations
- Conservative receptor body weight and ingestion rates
- Receptors spend 100 percent of their time at the site

8.3.3 Risk Characterization

An Ecological Effects Quotient (EEQ) approach was used to characterize the risk to ecological receptors. This approach characterizes potential effects by comparing exposure concentrations with effects data. The EEQs for terrestrial receptors were calculated as follows:

$$EEQ = \frac{Css}{SSSL}$$

where:

EEQ	=	Ecological Effects Quotient (unitless)
C_{ss}	=	Contaminant concentration in surface soil (µg/kg)
SSSL	=	Surface soil screening level (µg/kg)

The EEQs for sediment invertebrates were calculated as follows:

$$EEQ = \frac{Csd}{SdSL}$$

where:

EEQ	=	Ecological Effects Quotient (unitless)
Csd	=	Chemical concentration in sediment (µg/kg or mg/kg)
SdSL	=	Sediment screening level (µg/kg or mg/kg)

The EEQs for wildlife were calculated as follows:

$$EEQ = \frac{CDI}{TRV}$$

where:

EEQ	=	Ecological effects Quotient (unitless)
CDI	=	Chronic daily intake dose (mg/kg-day)
TRV	=	Toxicity reference value [No Observed Adverse Effects Level (NOAEL) or Lowest Observed Adverse Effects Level (LOAEL)] (mg/kg-day)

An EEQ of greater than 1.0 was considered to indicate potential risk. Such values do not necessarily indicate that an effect will occur but only that a low (i.e., conservative) threshold has been exceeded.

8.3.4 Tier 1, Step 2: Selection of Contaminants of Potential Concern

Tables 8-3 and 8-4 provide the results of the COPC selection for surface soil for the Building 225 Area and the Building 2981 Concrete Tank Area respectively. Table 8-5 provides the results of the COPC selection for sediment. Tables 8-6 and 8-7 present the results of the Tier 1 food chain model for surface soil for the Building 225 Area and the Building 2981 Concrete Tank Area, respectively. The following rules were used to select COPCs for SWMU 11:

- A contaminant was selected as a COPC for risks to terrestrial plants, soil invertebrates, and sediment invertebrates if the maximum detected concentration in surface soil or sediment exceeded the associated screening level or a screening level was not available.

- If a contaminant had a maximum detected concentration that exceeded associated soil screening level for birds or mammals or a screening level was not available for a bioaccumulative chemical, then the chemical was retained for food chain modeling for wildlife. If the EEQs were greater than 1.0 based on the conservative food chain model, the chemical was selected as a COPC.

- Calcium, magnesium, potassium, and sodium were not selected as COPCs because they are naturally occurring, essential nutrients that can be tolerated by living systems at high concentrations. No evidence indicates that these chemicals are related to site operations, and they are not considered hazardous chemicals.

- For evaluation of risks to wildlife, dioxins/furans were converted to dioxin toxic equivalents (2,3,7,8-TCDD equivalents) for birds, mammals, and fish (Van den Berg, et al., 2006).

Contaminants retained as COPCs were further evaluated as part of Step 3a of the eight-step ERA process.

8.3.4.1 SWMU 11

Terrestrial Plants

Twelve PAHs, two pesticides, 2,3,7,8-TCDD equivalents, and two metals were selected as COPCs because screening levels were not available. Three metals were selected as COPCs because they were detected at a maximum concentration that resulted in an EEQ greater than 1.0.

Soil Invertebrates

Four pesticides, 2,3,7,8-TCDD equivalents, and one metal were selected as COPCs because screening levels were not available. Three metals were selected as COPCs because they were detected at a maximum concentration that resulted in an EEQ greater than 1.0.

Sediment Invertebrates

Five metals were selected as COPCs because screening levels were not available. Four PAHs, 2,3,7,8-TCDD equivalents, seven metals, and cyanide were selected as COPCs because they were detected at a maximum concentration that resulted in an EEQ greater than 1.0.

Wildlife

Table 8-6 summarizes the results of the Tier 1 inputs food chain modeling for mammals and birds for the Building 225 Area. Appendix H presents the calculation worksheets. The following summarizes the results of the food chain modeling for terrestrial receptors using maximum concentrations and Tier 1 input parameters:

- Herbivorous mammal: No chemicals had an EEQ greater than 1.0.
- Herbivorous bird: Two metals had an EEQ greater than 1.0.
- Invertivorous mammal: 2,3,7,8-TCDD equivalents and one metal had EEQs greater than 1.0.
- Invertivorous bird: 2,3,7,8-TCDD equivalents and three metals had EEQs greater than 1.0.

8.3.4.2 Building 2981 Concrete Tank Area

Terrestrial Plants

Twelve PAHs and two metals were selected as COPCs because screening levels were not available. Two metals were selected as COPCs because they were detected at a maximum concentration that resulted in an EEQ greater than 1.0.

Soil Invertebrates

One metal was selected as a COPC because a screening level was not available. Three metals were selected as COPCs because they were detected at a maximum concentration that resulted in an EEQ greater than 1.0.

Wildlife

Table 8-7 summarizes the results of Tier 1 inputs for food chain modeling for terrestrial soil receptors for the Building 2981 Concrete Tank Area. Appendix H presents the calculation worksheets. The following summarizes the results of the food chain modeling for terrestrial receptors using maximum concentrations and Tier 1 input parameters:

- Herbivorous mammal: No chemicals had an EEQ greater than 1.0.
- Herbivorous bird: Two metals had an EEQ greater than 1.0.
- Invertivorous mammal: One metal had an EEQ greater than 1.0.
- Invertivorous bird: Three metals had EEQs greater than 1.0.

8.4 TIER 2, STEP 3A – COPC REFINEMENT

Step 3a consists of refining the conservative exposure assumptions/concentrations used to evaluate potential risks to ecological receptors and re-evaluating the analytical data using benchmarks that are more appropriate for the assessment endpoints. The objective of the Step 3a refinement was to better determine which chemicals contribute to potentially unacceptable levels of ecological risk, and to identify and eliminate from further consideration those COPCs that were initially selected as COPCs because of the use of very conservative exposure scenarios but are not likely causing a significant risk. The Step 3a evaluation can also be used to eliminate chemicals from further evaluation for certain groups of receptors that are not at significant risk. For example, a chemical might not be retained as a COPC in soil for plants based on low risks to plants but the same chemical might be retained as a COPC based on risks to invertebrates or wildlife. This is important because if the site proceeds further to a BERA, the studies in the BERA should only focus on the receptors that are at potential risk.

For chemicals evaluated further in Step 3a, the following factors were evaluated, as appropriate, to determine if the risks are great enough to warrant additional evaluations (i.e., proceed to a BERA, develop cleanup levels, proceed to a CMS). All of these factors may not be discussed for each chemical and/or receptor group.

- Magnitude of criterion exceedance: Although the magnitude of risks may not relate directly to the magnitude of a criterion exceedance, the magnitude of the criterion exceedance may be one item used in a lines-of-evidence approach to determine the need for further site evaluation. The greater the criterion exceedance, the greater the probability and concern that an unacceptable risk exists.

- Frequency of chemical detection and spatial distribution: A chemical detected at a low frequency typically is of less concern than a chemical detected at higher frequency if toxicity and concentrations and spatial areas represented by the data are similar. All else being equal, chemicals detected frequently were given greater consideration than those detected relatively infrequently. In addition, the spatial distribution of a chemical may be evaluated to determine the area that a sample represents.

- Contaminant bioavailability: Many contaminants (especially inorganics) are present in the environment in forms that are typically not bioavailable, and limited bioavailability was considered when evaluating exposures of receptors to site contaminants. Contaminants with generally less bioavailability are considered to be less toxic than more bioavailable contaminants, all other factors being equal.

- Habitat: Although exceedances of criteria may occur, potential risks to ecological receptors may be minimal if there is little habitat for those receptors. Therefore, the extent of habitat was used qualitatively when considering additional evaluation. Areas with little habitat were less of a concern than areas with suitable habitat to support the receptors of interest.

- Alternate benchmarks: These benchmarks are used to further evaluate risks to specific groups of ecological receptors (e.g., plants, invertebrates). Higher effect benchmarks [e.g., probable effects concentrations (PECs)] are used to further evaluate risks to sediment invertebrates from chemicals that exceeded conservative screening levels.

- Food Chain Modeling: Exposure via the food chain is a major pathway of concern for chemicals known to significantly bioaccumulate and/or biomagnify. Thus, potential risk to upper level receptors was evaluated using food chain models. The Tier 1 exposure doses calculated for terrestrial wildlife were re-calculated using the following Tier 2, Step 3a exposure assumptions and chemical concentrations:

  - Average soil concentrations
  - Median or mean BAFs (if available)
  - Average receptor body weights and ingestion rates

- Background: Concentrations of chemicals in surface soil and sediment were compared to background concentration data. A statistical evaluation of site data to background data was conducted for surface soil and sediment (presented in Appendix G). Based on the statistical evaluation, concentrations of barium, chromium, cobalt, lead, manganese, selenium, vanadium, and zinc in surface soil and concentrations of aluminum, barium, manganese, and vanadium in sediment were determined to be consistent with background and therefore, these metals were eliminated as COPCs in surface soil and sediment and are not further evaluated.

Summaries of the Step 3a evaluation for soil invertebrates and terrestrial plants and sediment invertebrates are presented in Tables 8-8 to 8-10. As part of the Step 3a evaluation for terrestrial wildlife, Tables 8-11 and 8-12 present the results of the food chain models for surface soil using Step 3a exposure

assumptions and chemical concentrations. A detailed discussion of the Step 3a evaluation is presented in the following sections.

8.4.1 Tier 2, Step 3a: Terrestrial Plants

Building 225 Area

Several PAHs were selected as COPCs for terrestrial plants because screening levels were not available. An Eco SSL is not available for plants for PAHs; however, data presented on Table 3.1 in the Eco SSL document for PAHs shows that PAHs are typically not toxic to plants except at high soil concentrations with the lowest listed half-maximal effective concentrations (EC_{50}) of 30,000 µg/kg from Mitchell et al. (1988). All concentrations of PAHs are well below this value. Also, concentrations for all PAHs are less than the CCME screening value for anthracene of 2,500 µg/kg (CCME, 2010). It does not appear that PAH concentrations in soil are likely to impact plants because all detected concentrations are significantly less than these benchmarks. Therefore, PAHs are not expected to impact plants at the site and were eliminated as COPCs.

Two pesticides (alpha-BHC and methoxychlor) were selected as COPCs for terrestrial plants because screening values were not available. These pesticides were infrequently detected (1 to 2 of 12 samples). Also, their maximum detected concentrations, 0.93 µg/kg and 1.01 µg/kg, are relatively low, and are indicative of typical spraying activities. Therefore, the pesticides were eliminated as COPCs.

Dioxins/furans, expressed as 2,3,7,8-TCDD equivalents, were selected as COPCs for terrestrial plants because screening values for earthworms were not available. The 2,3,7,8-TCDD equivalents were based on TEFs for mammals and birds, because TEFs are not available for plants. However, based on the discussion below, it is not likely that dioxins/furans are impacting plants. Dioxins need to bind to the aryl hydrocarbon (Ah) receptor to cause toxicity. The Ah receptor has not been detected in plants (USEPA, 1993d). Therefore, plants are not likely impacted by the concentrations of dioxins at the site and 2,3,7,8-TCDD TEQ were eliminated as COPCs.

Aluminum was initially selected as a COPC for terrestrial plants because a pH value, which the screening level is based on, was not available. As presented in USEPA (2003b) aluminum is a COPC only when soil pH is less than 5.5. Although pH data are not available, it is not likely that aluminum at the site is present in a highly bioavailable form that is impacting plants. While total aluminum concentrations were measured, only soluble aluminum may result in the toxicity to plants and invertebrates (USEPA, 2003b). This is the form of aluminum that is typically used in toxicity tests, which is not the same form typically found in the environment. Usually a large fraction of the soluble aluminum is found in the form of organic

and fluoride complexes and these complexed forms of aluminum are much less toxic to plants than soluble Al^{3+} or Al-hydroxy cations (USEPA, 2003b). Finally, only one aluminum concentration (19,200 mg/kg) at the site exceeded the background concentration of 17,400 mg/kg. This sample (collected at 11SB05) was located in the narrow grass ditch between the railroad tracks so the habitat in this area is basically non-existent. For these reasons, aluminum was eliminated as a COPC.

Iron was initially selected as a COPC for plants because a pH value, which the screening level is based on, was not available. Although pH data are not available, it is not likely that iron at the site is present in a highly bioavailable form. Also, although iron concentrations at the site were statistically greater than the background iron concentrations, one of the background iron concentrations was greater than all of the iron concentrations in the site samples. This was also the same sample discussed above for aluminum which was located in the narrow grass ditch between the railroad tracks. Potential risks to plants (if any) would be similar to background risks; therefore, iron was eliminated as a COPC.

Building 2981 Concrete Tank Area

Aluminum and iron were eliminated as COPCs for plants at the Building 2981 Concrete Tank Area for reasons similar to those presented above for SWMU 11.

8.4.2 Tier 2, Step 3a: Soil Invertebrates

SWMU 11

Four pesticides (alpha-BHC, gamma-BHC, gamma-chlordane, and methoxychlor) were selected as COPCs for soil invertebrates because screening values were not available. Alpha-BHC, gamma-BHC, and methoxychlor were infrequently detected (1 to 2 of 12 samples), while gamma-chlordane was detected in 6 of 12 samples. However, the maximum detected concentrations for each of the pesticides (0.93 µg/kg to 2.27 µg/kg) are low and indicative of typical spraying activities. Therefore, they are not related to site activities. Also, based on the very low concentrations, especially when compared to the screening level for 4,4'-DDE, a similar organochlorine pesticide, risks to invertebrates are expected to be minimal and these pesticides were eliminated as COPCs.

Dioxins/furans, expressed as 2,3,7,8-TCDD equivalents, were selected as COPCs for soil invertebrates because screening values for earthworms were not available. The 2,3,7,8-TCDD equivalents were based on TEFs for mammals and birds, because TEFs are not available for invertebrates. However, based on the discussion below, it is not likely that dioxins/furans are impacting invertebrates. One study reported in the literature demonstrated that two species of earthworms showed no adverse effects when exposed for 85 days to soil containing levels of 5000 µg/kg of 2,3,7,8-TCDD, but both species died at 10,000 µg/kg

(Eisler, 1986). The maximum concentration of 2,3,7,8-TCDD equivalents for birds and mammals was well below 5,000 µg/kg. Dioxins need to bind to the Ah receptor to cause toxicity. Many, if not all, invertebrates lack the Ah receptor, or a comparably sensitive receptor for dioxins. In U. S. EPA (1993d), it is noted that the Ah receptor has not been detected nine species of invertebrates representing eight classes of four phyla. Also, Van den Berg et al. (1998) states that, "At this time, development of TEFs for invertebrates is not recommended because there is limited evidence for ligand activation of Ah receptor or for TCDD-like toxicity in invertebrates." For these reasons, potential risks to invertebrates from dioxins in the soil are unlikely and 2,3,7,8-TCDD equivalents were eliminated as COPCs.

Aluminum and iron were eliminated as COPCs for soil invertebrates at SWMU 11 for reasons similar to those presented above for plants.

Building 2981 Concrete Tank Area

Aluminum and iron were eliminated as COPCs for soil invertebrates at the Building 2981 Concrete Tank Area for reasons similar to those presented above for plants.

8.4.3 Tier 2, Step 3a: Sediment Invertebrates

Several PAHs (acenaphthylene, chrysene, fluoranthene, and pyrene), 2,3,7,8-TCDD equivalents, several metals (arsenic, cadmium, chromium, iron, lead, and zinc), and cyanide were initially selected as COPCs for sediment invertebrates because their maximum concentrations detected in sediment exceeded their respective screening values. Beryllium and thallium were initially selected as COPCs for sediment invertebrates because screening values were not available.

Acenaphthlyene was initially selected as a COPC because the maximum detected concentration (27 µg/kg) exceeded the Region 5 ESL, which was based on the threshold effects level (TEL) of 5.87 µg/kg (Buchman, 2008). However, all concentrations were much lower than the probable effects level of 128 µg/kg (Buchman, 2008). Also, the greatest acenaphthlyene concentration was detected in the most upstream sample, while the concentrations in the downstream samples just slightly exceeded the TEL or were less than the TEL. Therefore, effects to sediment invertebrates are expected to be minimal, and acenaphthlyene was eliminated as a COPC for sediment invertebrates.

Chyrsene, fluoranthene, and pyrene were initially selected as COPCs because their maximum detected concentrations (279 µg/kg, 594 µg/kg, and 468 µg/kg, respectively) exceeded their Region 5 ESLs, which were based on threshold effects concentrations (TECs) of 166 µg/kg, 423 µg/kg, and 195 µg/kg, respectively (MacDonald et al., 2000). However, all concentrations were much lower than the PECs of

1290 µg/kg, 2230 µg/kg, and 1520 µg/kg, respectively (MacDonald et al., 2000). Also, the greatest concentrations of these PAHs was detected in the most upstream sample, while the concentrations in the downstream samples just slightly exceeded the TEL or were less than the TEL. Therefore, effects to sediment invertebrates are expected to be minimal, and these PAHs were eliminated as COPCs for sediment invertebrates.

The primary source of the Region 5 ESL for 2,3,7,8-TCDD is not known. However, as discussed previously for soil invertebrates, the Ah receptor has not been detected invertebrates (USEPA, 1993d). Dioxins need to bind to the receptor to cause toxicity. Also, Van den Berg et al. (1998) states that, "At this time, development of TEFs for invertebrates is not recommended because there is limited evidence for ligand activation of Ah receptor or for TCDD-like toxicity in invertebrates." Therefore, 2,3,7,8-TCDD TEQ was eliminated as COPCs for sediment invertebrates.

Maximum detected concentrations of arsenic (27 mg/kg), cadmium (2.6 mg/kg), and zinc (392 mg/kg) exceeded their screening levels of 9.79 mg/kg, 0.99 mg/kg, and 121 mg/kg, respectively. These Region 5 sediment screening values are the TECs from MacDonald et al. (2000). All concentrations are less than their respective PECs of 33 mg/kg for arsenic, 4.98 mg/kg for cadmium, and 459 mg/kg for zinc (MacDonald et al., 2000). Also, with the exception of arsenic, the greatest concentrations of the metals were found in the furthest upstream sample. For arsenic, concentrations were general similar throughout the drainage channel. Therefore, effects to sediment invertebrates are expected to be minimal, and these inorganics were eliminated as COPCs for sediment invertebrates.

Chromium was initially selected as a COPC because the maximum detected concentration (132 mg/kg) exceeded the TEC of 43.4 mg/kg (MacDonald et al., 2000). Chromium concentrations in one sample from 0.5 to 1 foot (11SD01) also exceeded the PEC of 111 mg/kg. Lead was initially selected as a COPC because the maximum detected concentration (148 mg/kg) exceeded the TEC of 35.8 mg/kg (MacDonald et al., 2000). Lead concentrations in two samples from 11SD01 also exceeded the PEC of 128 mg/kg. Only the sediment concentration from the most upstream sample exceeded the PECs for chromium and lead and concentrations in samples downstream of this location were less, indicating that any impacts would be limited to a small area; therefore, chromium and lead were eliminated as COPCs for sediment invertebrates.

Iron was initially selected as a COPC because the maximum detected concentration (37,800 mg/kg) exceeded its screening level (20,000 mg/kg), This screening level is the lowest effects level (LEL) (Persaud, et al., 1993). The Severe Effects Level (SEL) is 40,000 mg/kg (Persaud, et al., 1993). All concentrations were less than the LEL. Also, iron is typically not considered to be bioavailable. Therefore, iron was not retained as a COPC for sediment invertebrates.

Cyanide was detected in four samples. The detected concentrations and detection limits exceeded the Region 5 screening value of 0.0001 mg/kg. This screening value is an open water disposal guideline [Ontario Ministry of Environment and Energy (OMOE), 1993]. However, the units for the value were incorrectly transcribed and the actual value should be 0.1 mg/kg, according to OMOE (1993). The screening value is for total cyanide; however, cyanide toxicity is generally based only on free or available cyanide. Based on the relatively low concentrations of cyanide in the sediment samples (0.18 to 0.46 mg/kg), it is not likely that cyanide is related to site activities or impacting sediment invertebrates and was eliminated as a COPC.

Beryllium and thallium were selected as COPCs because screening levels were not available. Alternate benchmarks were not available. All samples had detected concentrations of beryllium with a maximum detected concentration of 1.21 mg/kg. Four of eight samples had detected concentrations of thallium with a maximum detected concentration of 0.74 mg/kg. Impacts from beryllium and thallium cannot be quantified. However, based on the relatively low concentrations of these metals in comparison with screening levels for other metals, it is not likely that sediment invertebrates would be impacted by the concentrations of beryllium and thallium in sediment. Therefore, they were eliminated as COPCs for risks to sediment invertebrates.

8.4.4 Tier 2, Step 3a: Mammals and Birds

As presented in Sections 8.3.4.1 and 8.3.42, the EEQs from the food chain modeling were greater than 1.0 for several chemicals using maximum chemical concentrations and Tier 1 exposure assumptions. Therefore, as part of the Step 3a refinement, risks were recalculated using average chemical concentrations and the Tier 2, Step 3a exposure parameters as presented in Appendix H. These parameters are summarized on the exposure factors table in Appendix H. The food chain model calculation sheets are also provided in Appendix H. Chemicals eliminated as COPCs based on a comparison to background values were not evaluated in the Step 3 a refinement.

8.4.4.1 Terrestrial Receptors

Building 225 Area

Table 8-11 presents the results of the less conservative food chain model for surface soil from the Building 225 Area. A discussion of the risks to terrestrial mammal and birds for SWMU 11 is presented below.

- Herbivorous receptors: No EEQs were greater than 1.0; therefore, impacts to herbivorous mammals and birds are not expected from chemicals detected in surface soil at SWMU 11.

- Invertivorous mammal: The EEQs for mammalian 2,3,7,8-TCDD equivalents (4.5) and mercury (1.1) for the shrew were greater than 1.0 using the NOAEL as the TRV. The LOAEL EEQs were less than to 1.0. After factoring in the limited ecological habitat at the site, impacts to invertivorous mammals from the relatively low EEQs are expected to be minimal; therefore, 2,3,7,8-TCDD equivalents and mercury were eliminated as COPCs.

- Invertivorous bird: The EEQ for mercury (7.8) for the woodcock was greater than 1.0 using the NOAEL as the TRV. The LOAEL EEQ was less than to 1.0. After factoring in the limited ecological habitat at the site, impacts to invertivorous birds from the relatively low EEQ are expected to be minimal; therefore, mercury was eliminated as a COPC.

Building 2981 Concrete Tank Area

Table 8-12 presents the results of the less conservative food chain model for surface soil from the Building 2981 Concrete Tank Area. A discussion of the risks to terrestrial mammal and birds for the Building 2981 Concrete Tank Area is presented below.

- Herbivorous receptors: No EEQs were greater than 1.0; therefore, impacts to herbivorous mammals and birds are not expected from chemicals detected in surface soil at the Building 2981 concrete Tank Area.

- Invertivorous mammal: No EEQs were greater than 1.0; therefore, impacts to invertivorous mammals are not expected from chemicals detected in surface soil at the Building 2981 Concrete Tank Area.

- Invertivorous bird: The EEQ for mercury (7.0) for the woodcock was greater than 1.0 using the NOAEL as the TRV. The LOAEL EEQ was less than to 1.0. After factoring in the limited ecological habitat at the site, impacts to invertivorous birds from the relatively low EEQ are expected to be minimal; therefore, mercury was eliminated as a COPC.

8.5 ECOLOGICAL RISK UNCERTAINTY ANALYSIS

This section discusses some of the uncertainties associated with the SWMU 11 ERA.

8.5.1 Uncertainty in Assessment Endpoints and Measurement Endpoints

Measurement endpoints were used to evaluate the assessment endpoints selected for the ERA. For the ERA, the measurement endpoints were not the same as the assessment endpoints. Measurement endpoints were used to predict effects to the assessment endpoints by selecting surrogate species to be evaluated. For example, a decrease in reproduction of a shrew was used to assess a decrease in reproduction of the small mammal population. However, predicting a decrease in reproduction of a shrew may either under protect or overprotect the small mammal population based on differences in ingestion rates, toxicity, food preferences, home ranges, etc. between different species.

As discussed in Section 8.2.1.1, several endangered and threatened species or species of special concern are present at NSA Crane and potentially may inhabit SWMU 11. Risks to these species were not specifically calculated, so the uncertainties of not calculating risks to these species are presented here. Unacceptable risks to the bobcat, bald eagle, Northern harrier, and osprey are not expected because habitat at SWMU 11 is not available for these receptors. The home range of the bobcat is significantly larger than the size of SWMW 11. The bald eagle and osprey require open water habitat, which is not available at SWMU 11, but is available in Lake Greenwood located approximately 3 miles from the site. The Northern harrier prefers wetlands habitat, which is not available at SWMU 11. However, there is uncertainty with this conclusion because risks were not quantitatively evaluated.

Loggerhead shrikes and the sedge wren consume mostly aboveground insects such as caterpillars, beetles, spiders, and flies, as opposed to the worms that are consumed by the American woodcock in the food-chain model. Because worms are in direct contact with soil, it is expected that they would have greater levels of contaminants at SWMU 11 than aboveground insects; therefore, risks to the woodcock from consuming worms are expected to be greater than risks to the loggerhead shrike and sedge wren from consuming aboveground insects. By protecting the woodcock, these other invertivorous birds will also be protected. As mentioned in Section 8.2.1.1, the presence of the Indiana bat has not been documented at SWMU 11 and no Indiana bats were captured at the mist net site one half mile from SWMU 11.

Finally, there are uncertainties in risks to reptiles and amphibians because there is a lack of exposure factors for reptiles and amphibians and a lack of reptile and amphibian toxicity data for the detected chemicals. As discussed in Section 8.2.1.1, one threatened reptilian species is listed as potentially present at NSA Crane. Based on the preferred habitat of the timber rattlesnake and the ecology of SWMU 11, this species likely does not inhabit areas of SWMU 11. Risks to carnivorous reptiles were not specifically calculated; however, risks are accounted for by using invertivorous birds and mammals as surrogates.

8.5.2 Uncertainty in Exposure Characterization

The contaminant dose to terrestrial wildlife is calculated using an equation that incorporates ingestion rates, body weights, BAFs, and other exposure factors. The exposure factors were obtained from literature studies or predicted using various equations. Ingestion rates and body weights vary among species, especially among species inhabiting different areas. This was taken into account when selecting exposure parameters from USEPA (USEPA, 1993c), and an attempt was made to minimize the uncertainties associated with the exposure characterization by selecting exposure parameters from studies conducted in Indiana and surrounding states.

Bioaccumulation of contaminants into various biological media (e.g., plants, invertebrates, small mammals) depends on characteristics of the media such as pH, organic carbon content, etc. Therefore, actual BAFs at the sites may be different than those used in the ERA and obtained from the literature. Also, the bioavailability of contaminants reported in toxicity studies is typically greater than the bioavailability of contaminants in environmental media. Typically, highly bioavailable forms of the chemicals are used when conducting toxicity tests and/or conducting dosing studies for wildlife.

There is uncertainty in the chemical data collected at the site. Measured levels of chemicals are only estimates of true site chemical concentrations. At SWMU 11, samples were deliberately biased toward suspected high concentrations, so predicted doses are probably higher than actual doses. Whereas this is a conservative approach in predicting exposure concentrations, actual exposure of ecological receptors to chemical concentrations at SWMU 11 is likely overestimated. In particular, wildlife that typically roam over multiple sample locations are unlikely to obtain all of their food from within the most contaminated areas at SWMU 11. The site includes areas covered by concrete and asphalt which limits habitat and food at the site. Also, much of the available habitat is low quality habitat such as the narrow strip of grass between the railroad tracks.

8.5.3 Uncertainty in Ecological Effects Data

Uncertainty exists in the ecological effects data, including the screening levels and wildlife TRVs. Several of the screening levels are very conservative, and typically are based on studies where the bioavailability of the chemical is much greater than it is in the environment. Also, toxicity data was not available or was limited for some chemicals.

The NOAELs/LOAELs used for the wildlife endpoints species are based on species other than the endpoint species (e.g., rats, mice). Uncertainty exists in the application of toxicity data across species

because the contaminant may be more or less toxic to the endpoint species than it was to the test study species.

8.5.4 Uncertainty in Risk Characterization

Risks are possible if an EEQ is greater than or equal to 1.0 regardless of the magnitude of the EEQ. However, the magnitude of effects to ecological receptors cannot be inferred based on the magnitude of the EEQ. Rather, an EEQ greater than 1.0 simply indicates that the dose used to derive the toxicity reference value was exceeded.

Finally, there is uncertainty in how the predicted risks to a species at a site translate into risk to the population in the area as a whole.

8.6 ECOLOGICAL RISK SUMMARY AND CONCLUSIONS

This ERA evaluated surface soil and sediment from SWMU 11 Building 225 Area and surface soil from the Building 2981 Concrete Tank Area. Based on the initial screening of the chemical data, several chemicals were initially selected as COPCs in surface soil and sediment because they were detected at concentrations that exceeded conservative screening levels, they had EEQs greater than 1.0 in the conservative food chain model, or because they did not have screening levels..

These chemicals were then further evaluated to refine the list of COPCs, and to better characterize risks to ecological receptors. The following summarizes the results of the ERA.

- No chemicals were retained as COPCs for potential risks to terrestrial plants and soil invertebrates.
- No chemicals were retained as COPCs for potential risks to sediment invertebrates.
- No chemicals were retained as COPCs for mammals and birds.

TABLE 8-1

ASSESSMENT ENDPOINTS AND MEASUREMENT ENDPOINTS
SWMU 11 – OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Assessment Endpoint	Measurement Endpoint
Adverse effects on the survival, reproduction, and/or growth of soil invertebrates	• Survival, growth, and/or reproduction of soil invertebrates were evaluated by comparing the measured concentrations of chemicals in the surface soil to invertebrate soil screening levels.
Adverse effects on the survival, reproduction, and/or growth of terrestrial plants	• Survival, growth, and/or reproduction of terrestrial plants were evaluated by comparing the measured concentrations of chemicals in the surface soil to plant soil screening levels.
Adverse effects on the survival, reproduction, and/or growth of sediment invertebrates	• Survival, growth, and/or reproduction of sediment invertebrates were evaluated by comparing the measured concentrations of chemicals in the sediment to sediment screening levels.
Adverse effects on the survival, reproduction, and/or increase in development effects of invertivorous birds and mammals	• Survival, reproduction, and/or increase in development effects of birds and mammals were evaluated by comparing the estimated ingested dose of contaminants in the surface soil and earthworms to No Observed Adverse Effects Levels (NOAELs) and Lowest Observed Adverse Effects Levels (LOAELs) for surrogate wildlife species.
Adverse effects on the survival, reproduction, and/or increase in development effects of herbivorous birds and mammals	• Survival, reproduction, and/or increase in development effects of birds and mammals were evaluated by comparing the estimated ingested dose of contaminants in the surface soil and plants to NOAELs and LOAELs for surrogate wildlife species.

TABLE 8-2

SOIL SCREENING LEVELS
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Parameter	Ecological Soil Screening Level							
	Plant		Invertebrate		Avian		Mammal	
	Value	Source	Value	Source	Value	Source	Value	Source
Dioxins/Furans (NG/KG)								
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA	NA	0.199	Region 5
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA	NA	38.6	Region 5
1,2,3,4,6,7,8-HPCDD	NA	NA	NA	NA	NA	NA	0.199	Region 5
1,2,3,4,6,7,8-HPCDF	NA	NA	NA	NA	NA	NA	38.6	Region 5
1,2,3,4,7,8,9-HPCDF	NA	NA	NA	NA	NA	NA	38.6	Region 5
1,2,3,4,7,8-HXCDD	NA	NA	NA	NA	NA	NA	0.199	Region 5
1,2,3,4,7,8-HXCDF	NA	NA	NA	NA	NA	NA	38.6	Region 5
1,2,3,6,7,8-HXCDD	NA	NA	NA	NA	NA	NA	0.199	Region 5
1,2,3,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	38.6	Region 5
1,2,3,7,8,9-HXCDD	NA	NA	NA	NA	NA	NA	0.199	Region 5
1,2,3,7,8,9-HXCDF	NA	NA	NA	NA	NA	NA	38.6	Region 5
1,2,3,7,8-PECDD	NA	NA	NA	NA	NA	NA	0.199	Region 5
1,2,3,7,8-PECDF	NA	NA	NA	NA	NA	NA	38.6	Region 5
2,3,4,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	38.6	Region 5
2,3,4,7,8-PECDF	NA	NA	NA	NA	NA	NA	38.6	Region 5
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA	0.199	Region 5
2,3,7,8-TCDD Equivalents	NA	NA	NA	NA	NA	NA	0.199	Region 5
Inorganics (MG/KG)								
ALUMINUM	NA[1]	NA	NA[1]	NA	NA[1]	NA	NA[1]	NA
ARSENIC	18	Eco SSL	17	CCME	43	Eco SSL	46	Eco SSL
BARIUM	500	ORNL	330	Eco SSL	NA	NA	2000	Eco SSL
BERYLLIUM	10	ORNL	40	Eco SSL	NA	NA	21	Eco SSL
CADMIUM	32	Eco SSL	140	Eco SSL	0.77	Eco SSL	0.36	Eco SSL
CALCIUM	NA	NA	NA	NA	NA	NA	NA	NA
CHROMIUM	78	CCME	0.4	Region 5	26	Eco SSL	34	Eco SSL
COBALT	13	Eco SSL	1000	ORNL[2]	120	Eco SSL	230	Eco SSL
COPPER	70	Eco SSL	80	Eco SSL	28	Eco SSL	49	Eco SSL
IRON	NA[3]	NA	200	ORNL[2]	NA	NA	NA	NA
LEAD	120	Eco SSL	1700	Eco SSL	11	Eco SSL	56	Eco SSL
MAGNESIUM	NA	NA	NA	NA	NA	NA	NA	NA
MANGANESE	220	Eco SSL	450	Eco SSL	4300	Eco SSL	4000	Eco SSL
MERCURY	12	CCME	0.1	Region 5	NA	NA	NA	NA
NICKEL	38	Eco SSL	280	Eco SSL	210	Eco SSL	130	Eco SSL
POTASSIUM	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	0.52	Eco SSL	4.1	Eco SSL	1.2	Eco SSL	0.63	Eco SSL
SODIUM	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM	130	CCME	130	CCME	7.8	Eco SSL	280	Eco SSL
ZINC	160	Eco SSL	120	Eco SSL	46	Eco SSL	79	Eco SSL
Polycyclic Aromatic Hydrocarbons (UG/KG)								
2-METHYLNAPHTHALENE	NA	NA	29000	Eco SSL	NA	NA	100000	Eco SSL
ACENAPHTHENE	20000	ORNL	29000	Eco SSL	NA	NA	100000	Eco SSL
ACENAPHTHYLENE	20000	ORNL[4]	29000	Eco SSL	NA	NA	100000	Eco SSL
ANTHRACENE	2500	CCME	29000	Eco SSL	NA	NA	100000	Eco SSL
BENZO(A)ANTHRACENE	NA	NA	18000	Eco SSL	NA	NA	1100	Eco SSL
BENZO(A)PYRENE	20000	CCME	18000	Eco SSL	NA	NA	1100	Eco SSL
BENZO(B)FLUORANTHENE	NA	NA	18000	Eco SSL	NA	NA	1100	Eco SSL
BENZO(G,H,I)PERYLENE	NA	NA	18000	Eco SSL	NA	NA	1100	Eco SSL
BENZO(K)FLUORANTHENE	NA	NA	18000	Eco SSL	NA	NA	1100	Eco SSL
CHRYSENE	NA	NA	18000	Eco SSL	NA	NA	1100	Eco SSL
DIBENZO(A,H)ANTHRACENE	NA	NA	18000	Eco SSL	NA	NA	1100	Eco SSL
FLUORANTHENE	50000	CCME	29000	Eco SSL	NA	NA	100000	Eco SSL
FLUORENE	NA	NA	29000	Eco SSL	NA	NA	100000	Eco SSL
INDENO(1,2,3-CD)PYRENE	NA	NA	18000	Eco SSL	NA	NA	1100	Eco SSL
NAPHTHALENE	NA	NA	29000	Eco SSL	NA	NA	100000	Eco SSL
PHENANTHRENE	NA	NA	29000	Eco SSL	NA	NA	100000	Eco SSL
PYRENE	NA	NA	18000	Eco SSL	NA	NA	1100	Eco SSL

TABLE 8-2

SOIL SCREENING LEVELS
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Parameter	Ecological Soil Screening Level							
	Plant		Invertebrate		Avian		Mammal	
	Value	Source	Value	Source	Value	Source	Value	Source
PEST (UG/KG)								
4,4'-DDE	12000	CCME	12000	CCME	93	Eco SSL	21	Eco SSL
ALPHA-BHC	NA	NA	NA	NA	NA	NA	99.4	Region 5
GAMMA-BHC (LINDANE)	5	Region 5	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	224	Region 5	NA	NA	NA	NA	NA	NA
METHOXYCHLOR	NA	NA	NA	NA	NA	NA	19.9	Region 5

Ecological Screening Level sources used in the order of preference:
EcoSSL - EPA Ecological Soil Screening Levels (USEPA, 2007b)
Region 5 - USEPA Region 5 Ecological Screening Levels (USEPA, 2003).
CCME - Canadian Soil Quality Guidelines (CCME, 1999, 2010)
ORNL - Oak Ridge National Laboratory Toxicological Benchmarks for plants (Efroymson et al., 1997a) and invertebrates (Efroymson et al., 1997b).
NA - Not available.

Footnotes:
1 - Only considered a COPC when the soil pH is less than 5.5.
2 - Value for microorganisms.
3 - Not expected to be toxic to plants with a soil pH between 5 and 8.
4 - Acenaphthene used as surrogate.

TABLE 8-3

SURFACE SOIL COPC SELECTION - SWMU 11 BUILDING 225 AREA
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Parameter	Frequency of Detection	Minimum Concentration	Maximum Concentration	Sample of Maximum Detection	Averge of Positive Results[1]	Average of All Results[2]	Consistent with Background?[3]	Ecological Screening Level[4]				Ecological Effects Quotient[5]				Deletion or Selection of COPCs for Invertebrates/Plants		Further Evaluated in Terrestrial Food Chain Modeling[6]	
								Plant	Invertebrate	Avian	Mammal	Plant	Invertebrate	Avian	Mammal	COPC (yes/no)?	Rationale	Evaluated (yes/no)?	Rationale
DIOXINS/FURANS (NG/KG)																			
1,2,3,4,6,7,8,9-OCDD	9/9	443	6710 J	11SS140002	3286	3286	NA	NA	NA	NA	0.199	NA	NA	NA	33719	NO	(7)	NO	(7)
1,2,3,4,6,7,8,9-OCDF	7/9	1.14 J	583 J	11SS110002	88.6	69.6	NA	NA	NA	NA	38.6	NA	NA	NA	15.1	NO	(7)	NO	(7)
1,2,3,4,6,7,8-HPCDD	9/9	4.84	772 J	11SS110002	127	127	NA	NA	NA	NA	0.199	NA	NA	NA	3879	NO	(7)	NO	(7)
1,2,3,4,6,7,8-HPCDF	7/9	0.244 J	102 J	11SS110002	16.9	13.5	NA	NA	NA	NA	38.6	NA	NA	NA	2.6	NO	(7)	NO	(7)
1,2,3,4,7,8,9-HPCDF	3/9	0.329 J	7.82	11SS110002	2.87	2.01	NA	NA	NA	NA	38.6	NA	NA	NA	0.20	NO	(7)	NO	(7)
1,2,3,4,7,8-HXCDD	4/9	0.57 J	8.54	11SS110002	2.66	2.07	NA	NA	NA	NA	0.199	NA	NA	NA	42.9	NO	(7)	NO	(7)
1,2,3,4,7,8-HXCDF	5/9	0.318 J	3.91 J	11SS110002	1.53	1.55	NA	NA	NA	NA	38.6	NA	NA	NA	0.10	NO	(7)	NO	(7)
1,2,3,6,7,8-HXCDD	6/9	0.642 J	24.7 J	11SS110002	4.91	3.80	NA	NA	NA	NA	0.199	NA	NA	NA	124	NO	(7)	NO	(7)
1,2,3,6,7,8-HXCDF	4/9	0.313 J	4.61 J	11SS110002	1.55	1.57	NA	NA	NA	NA	38.6	NA	NA	NA	0.12	NO	(7)	NO	(7)
1,2,3,7,8,9-HXCDD	6/9	0.596 J	13.7 J	11SS110002	3.17	2.64	NA	NA	NA	NA	0.199	NA	NA	NA	68.8	NO	(7)	NO	(7)
1,2,3,7,8,9-HXCDF	1/9	1.56 J	1.56 J	11SS110002	1.56	1.58	NA	NA	NA	NA	38.6	NA	NA	NA	0.040	NO	(7)	NO	(7)
1,2,3,7,8-PECDD	2/9	0.51 J	2.45 J	11SS110002	1.48	1.56	NA	NA	NA	NA	0.199	NA	NA	NA	12.3	NO	(7)	NO	(7)
1,2,3,7,8-PECDF	3/9	0.849 J	2.5 J	11SS220002	1.83	1.66	NA	NA	NA	NA	38.6	NA	NA	NA	0.065	NO	(7)	NO	(7)
2,3,4,6,7,8-HXCDF	4/9	0.383 J	4.51 J	11SS110002	1.97	1.76	NA	NA	NA	NA	38.6	NA	NA	NA	0.12	NO	(7)	NO	(7)
2,3,4,7,8-PECDF	3/9	1.04 J	3.12 J	11SS140002	2.06	1.74	NA	NA	NA	NA	38.6	NA	NA	NA	0.081	NO	(7)	NO	(7)
2,3,7,8-TCDD	2/9	0.24 J	0.69 J	11SS220002	0.465	0.348	NA	NA	NA	NA	0.199	NA	NA	NA	3.5	NO	(7)	NO	(7)
2,3,7,8-TCDD Equivalents (mammal)	9/9	0.56	19.9	11SS110002	4.21	4.21	NA	NA	NA	NA	0.199	NA	NA	NA	100	YES	NSL	YES	ASL
2,3,7,8-TCDD Equivalents (bird)	9/9	4.79	10.4	11SS110002	5.73	5.73	NA	NA	NA	NA	NA	NA	NA	NA	NA	YES	NSL	YES	BIO
METALS (MG/KG)																			
ALUMINUM	12/12	7490	19200	11SS050002	13508	13508	NO	NA	NA	NA	NA	NA	NA	NA	NA	YES	NSL	NO	NONBIO
ARSENIC	12/12	3.16	11.9	11SS050002	8.18	8.18	YES	18	17	43	46	0.66	0.70	0.28	0.26	NO	BSL	NO	BSL
BARIUM	12/12	33.6	88.1	11SS130002	62.1	62.1	YES	500	330	NA	2000	0.18	0.27	NA	0.044	NO	BSL	NO	NONBIO
BERYLLIUM	12/12	0.373 J	0.934	11SS160002	0.693	0.693	NA	10	40	NA	21	0.09	0.023	NA	0.044	NO	BSL	NO	NONBIO
CALCIUM	12/12	650	13700 J	11SS110002	3236	3236	NO	NA	NA	NA	NA	NA	NA	NA	NA	NO	NUT	NO	NUT
CHROMIUM	12/12	12.7	23.8	11SS090002	16.7	16.7	YES	78	0.4	26	34	0.31	59.5	0.9	0.70	YES	ASL	NO	BSL
COBALT	12/12	4.73	26	11SS080002	9.38	9.38	YES	13	1000	120	230	2.0	0.026	0.22	0.11	YES	ASL	NO	BSL
COPPER	12/12	6.37	17.5	11SS150002	13.4	13.4	NO	70	80	28	49	0.25	0.22	0.63	0.36	NO	BSL	NO	BSL
IRON	12/12	13400	25900	11SS050002	20917	20917	NO	NA	200	NA	NA	NA	130	NA	NA	YES	NSL, ASL	NO	NONBIO
LEAD	12/12	5.45 J	27.7	11SS080002	14.8	14.8	YES	120	1700	11	56	0.23	0.016	2.5	0.49	NO	BSL	YES	ASL
MAGNESIUM	12/12	743	2440	11SS110002	1731	1731	NO	NA	NA	NA	NA	NA	NA	NA	NA	NO	NUT	NO	NUT
MANGANESE	12/12	123 J	835 J	11SS080002	370	370	YES	220	450	4300	4000	3.8	1.9	0.19	0.21	YES	ASL	NO	BSL
MERCURY	11/12	0.0303 J	0.0645 J	11SS090002	0.045	0.043	NO	12	0.1	NA	NA	0.0054	0.65	NA	NA	NO	BSL	YES	BIO
NICKEL	12/12	6.12	16.1	11SS150002	11.9	11.9	YES	38	280	210	130	0.42	0.058	0.077	0.12	NO	BSL	NO	BSL
POTASSIUM	12/12	368 J	1110	11SS050002	670	670	YES	NA	NA	NA	NA	NA	NA	NA	NA	NO	NUT	NO	NUT
SELENIUM	4/12	0.517 J	0.67 J	11SS050002	0.574	0.396	YES	0.52	4.1	1.2	0.63	1.3	0.16	0.56	1.1	YES	ASL	YES	ASL
SODIUM	4/12	139 J	342 J	11SS160002	250	206	NO	NA	NA	NA	NA	NA	NA	NA	NA	NO	NUT	NO	NUT
VANADIUM	12/12	17.6 J	39.6	11SS050002	29.1	29.1	YES	130	130	7.8	280	0.30	0.30	5.1	0.14	NO	BSL	YES	ASL
ZINC	12/12	18.2	46.9	11SS050002	37.0	37.0	YES	160	120	46	79	0.29	0.39	1.0	0.59	NO	BSL	YES	ASL
PESTICIDES (UG/KG)																			
4,4'-DDE	1/12	1.4 J	1.4 J	11SS140002	1.40	0.307	NA	12000	12000	93	21	0.00012	0.00012	0.015	0.067	NO	BSL	NO	BSL
ALPHA-BHC	2/12	0.226 J	0.93	11SS080002	0.578	0.267	NA	NA	NA	NA	99.4	NA	NA	NA	0.0094	YES	NSL	YES	BIO
GAMMA-BHC (LINDANE)	1/12	2.27 J	2.27 J	11SS130002	2.27	0.379	NA	5	NA	NA	NA	0.45	NA	NA	NA	YES	NSL	YES	BIO
GAMMA-CHLORDANE	6/12	0.244 J	1.25 J	11SS070002	0.847	0.529	NA	224	NA	NA	NA	0.0056	NA	NA	NA	YES	NSL	YES	BIO
METHOXYCHLOR	1/12	1.01 J	1.01 J	11SS120002	1.01	0.275	NA	NA	NA	NA	19.9	NA	NA	NA	0.051	YES	NSL	YES	BIO
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)																			
2-METHYLNAPHTHALENE	1/12	10.8 J	10.8 J	11SS130002	10.8	2.77	NA	NA	29000	NA	100000	NA	0.00037	NA	0.00011	YES	NSL	NO	NONBIO
ACENAPHTHENE	1/12	17.2 J	17.2 J	11SS110002	17.2	3.94	NA	20000	29000	NA	100000	0.00086	0.00059	NA	0.00017	NO	BSL	YES	BIO
ACENAPHTHYLENE	3/12	3.57 J	86.9	11SS130002	33.6	9.93	NA	20000	29000	NA	100000	0.0043	0.0030	NA	0.00087	NO	BSL	YES	BIO
ANTHRACENE	3/12	3.9 J	52.3	11SS130002	28.3	8.61	NA	2500	29000	NA	100000	0.021	0.0018	NA	0.00052	NO	BSL	YES	BIO
BENZO(A)ANTHRACENE	4/12	5.49 J	322	11SS130002	123	42.2	NA	NA	18000	NA	1100	NA	0.018	NA	0.29	YES	NSL	YES	BIO
BENZO(A)PYRENE	4/12	3.9 J	348	11SS130002	131	44.9	NA	20000	18000	NA	1100	0.017	0.019	NA	0.32	NO	BSL	YES	BIO
BENZO(B)FLUORANTHENE	5/12	4.63 J	454	11SS130002	141	59.9	NA	NA	18000	NA	1100	NA	0.025	NA	0.41	YES	NSL	YES	BIO
BENZO(G,H,I)PERYLENE	5/12	2.71 J	234	11SS130002	77.5	33.5	NA	NA	18000	NA	1100	NA	0.013	NA	0.21	YES	NSL	YES	BIO
BENZO(K)FLUORANTHENE	4/12	2.93 J	202	11SS130002	78.6	27.6	NA	NA	18000	NA	1100	NA	0.011	NA	0.18	YES	NSL	YES	BIO
CHRYSENE	5/12	3.09 J	427	11SS130002	126	53.9	NA	NA	18000	NA	1100	NA	0.024	NA	0.39	YES	NSL	YES	BIO
DIBENZO(A,H)ANTHRACENE	3/12	9.15	82.1	11SS130002	38.8	11.2	NA	NA	18000	NA	1100	NA	0.005	NA	0.075	YES	NSL	YES	BIO
FLUORANTHENE	5/12	2.92 J	454	11SS130002	182	77.1	NA	50000	29000	NA	100000	0.0091	0.016	NA	0.0045	NO	BSL	YES	BIO
FLUORENE	2/12	12.4 J	16.1 J	11SS130002	14.3	4.08	NA	NA	29000	NA	100000	NA	0.00056	NA	0.00016	YES	NSL	YES	BIO
INDENO(1,2,3-CD)PYRENE	5/12	2.64 J	187	11SS130002	62.2	27.1	NA	NA	18000	NA	1100	NA	0.010	NA	0.17	YES	NSL	YES	BIO
NAPHTHALENE	2/12	2.74 J	14.4 J	11SS130002	8.57	3.14	NA	NA	29000	NA	100000	NA	0.00050	NA	0.00014	YES	NSL	NO	NONBIO

TABLE 8-3

SURFACE SOIL COPC SELECTION - SWMU 11 BUILDING 225 AREA
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Parameter	Frequency of Detection	Minimum Concentration	Maximum Concentration	Sample of Maximum Detection	Averge of Positive Results(1)	Average of All Results(2)	Consistent with Background?(3)	Ecological Screening Level(4)				Ecological Effects Quotient(5)				Deletion or Selection of COPCs for Invertebrates/Plants		Further Evaluated in Terrestrial Food Chain Modeling(6)	
								Plant	Invertebrate	Avian	Mammal	Plant	Invertebrate	Avian	Mammal	COPC (yes/no)?	Rationale	Evaluated (yes/no)?	Rationale
PHENANTHRENE	5/12	2.35 J	301 J	11SS110002	93.5	40.1	NA	NA	29000	NA	100000	NA	0.010	NA	0.0030	YES	NSL	YES	BIO
PYRENE	6/12	2.46 J	417 J	11SS130002	129	65.4	NA	NA	18000	NA	1100	NA	0.023	NA	0.38	YES	NSL	YES	BIO

Ecological effects quotients are shaded if the maximum detected concentration exceeds a screening level or a screening level is not available. Other cells are shaded if the chemical is retained as a COPC for plants or invertebrates or if the chemical is retained for food chain modeling.

Footnotes:
1 - Average of detected concentrations only.
2 - Average of all analytical results including one-half of the detection limit for non-detects.
3 - Data from Crane Basewide Background Report (Tetra Tech, 2001). Statistical evaluation provided in Appendix G.
4 - Sources of ecological screening levels are presented in Table 8-2.
5 - Ecological Effects Quotients (EEQs) were calculated by dividing the maximum detected concentration by the ecological screening level. Values are unitless.
6 - Chemicals with EEQs for birds or mammals greater than 1.0 or bioaccumulative chemicals without bird or mammal screening values are retained for food chain modeling.
7 - Risk from parameter considered by evaluating 2,3,7,8-TCDD Equivalents.

COPC Selection Rationale:
ASL = Above Screening Level
BIO = Bioaccumulative chemical
BSL = Below Screening Level
NONBIO = Non-bioaccumulative chemical
NSL = No Screening Level

NA - Not applicable/not available

J - Estimated concentration

TABLE 8-4

SURFACE SOIL COPC SELECTION - BUILDING 2981 CONCRETE TANK AREA
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Parameter	Frequency of Detection	Minimum Concentration	Maximum Concentration	Sample of Maximum Detection	Averge of Positive Results[1]	Average of All Results[2]	Consistent with Background? [3]	Ecological Screening Level[4]				Ecological Effects Quotient[5]				Deletion or Selection of COPCs for Invertebrates/Plants		Further Evaluated in Terrestrial Food Chain Modeling[6]	
								Plant	Invertebrate	Avian	Mammal	Plant	Invertebrate	Avian	Mammal	COPC (yes/no)?	Rationale	Evaluated (yes/no)?	Rationale
METALS (MG/KG)																			
ALUMINUM	4/4	8830	14400	11SS320002	11708	11708	NO	NA	NA	NA	NA	**NA**	**NA**	**NA**	**NA**	**YES**	NSL	NO	NONBIO
ARSENIC	4/4	3.48	8.78	11SS320002	6.12	6.12	YES	18	17	43	46	0.49	0.52	0.20	0.19	NO	BSL	NO	BSL
BARIUM	4/4	44.7	142	11SS310002	90.4	90.4	YES	500	330	NA	2000	0.28	0.43	**NA**	0.071	NO	BSL	NO	NONBIO
BERYLLIUM	4/4	0.622 J	1.14	11SS320002	0.855	0.855	NA	10	40	NA	21	0.11	0.029	**NA**	0.054	NO	BSL	NO	NONBIO
CADMIUM	2/4	0.139 J	0.174 J	11SS300002	0.157	0.140	YES	32	140	0.77	0.36	0.0054	0.0012	0.23	0.48	NO	BSL	NO	BSL
CALCIUM	4/4	1950	96200	11SS300002	28758	28758	NO	NA	NA	NA	NA	NA	NA	NA	NA	NO	NUT	NO	NUT
CHROMIUM	4/4	10.9	27.6	11SS320002	16.2	16.2	YES	78	0.4	26	34	0.35	**69**	**1.1**	0.81	**YES**	ASL	**YES**	ASL
COBALT	4/4	4.98	16.2	11SS320002	11.7	11.7	YES	13	1000	120	230	**1.2**	0.016	0.14	0.07	**YES**	ASL	NO	BSL
COPPER	4/4	9.24	12.6	11SS310002	11.3	11.3	NO	70	80	28	49	0.18	0.16	0.45	0.26	NO	BSL	NO	BSL
IRON	4/4	16400	30100	11SS320002	21050	21050	NO	NA	200	NA	NA	**NA**	**151**	**NA**	**NA**	**YES**	NSL, ASL	NO	NONBIO
LEAD	4/4	7.26	19.2	11SS320002	13.1	13.1	YES	120	1700	11	56	0.16	0.011	**1.7**	0.34	NO	BSL	**YES**	ASL
MAGNESIUM	4/4	1310	4260	11SS300002	2113	2113	NO	NA	NA	NA	NA	NA	NA	NA	NA	NO	NUT	NO	NUT
MANGANESE	4/4	101 J	1070 J	11SS310002	566	566	YES	220	450	4300	4000	**4.9**	**2.4**	0.25	0.27	**YES**	ASL	NO	BSL
MERCURY	3/4	0.0252 J	0.0448	11SS310002	0.034	0.031	NO	12	0.1	NA	NA	0.0037	0.45	**NA**	**NA**	NO	BSL	**YES**	BIO
NICKEL	4/4	7.05	17.1	11SS300002	13.3	13.3	YES	38	280	210	130	0.45	0.061	0.081	0.13	NO	BSL	NO	BSL
POTASSIUM	4/4	481 J	710 J	11SS310002	642	642	YES	NA	NA	NA	NA	NA	NA	NA	NA	NO	NUT	NO	NUT
SELENIUM	2/4	0.472 J	0.516 J	11SS310002	0.494	0.399	YES	0.52	4.1	1.2	0.63	1.0	0.13	0.43	0.8	NO	BSL	NO	BSL
SODIUM	1/4	397 J	397 J	11SS300002	397	237	NO	NA	NA	NA	NA	NA	NA	NA	NA	NO	NUT	NO	NUT
VANADIUM	4/4	18.3 J	36 J	11SS320002	25.0	25.0	YES	130	130	7.8	280	0.28	0.28	**4.6**	0.13	NO	BSL	**YES**	ASL
ZINC	4/4	26.8	50.2	11SS320002	42.8	42.8	YES	160	120	46	79	0.31	0.42	**1.1**	0.64	NO	BSL	**YES**	ASL
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)																			
2-METHYLNAPHTHALENE	2/4	2.52 J	2.52 J	11SS310002, 11SS320002	2.52	2.26	NA	NA	29000	NA	100000	**NA**	0.00009	**NA**	0.00003	**YES**	NSL	NO	NONBIO
ACENAPHTHENE	1/4	2.57 J	2.57 J	11SS320002	2.57	2.17	NA	20000	29000	NA	100000	0.00013	0.00009	**NA**	0.00003	NO	BSL	**YES**	BIO
ACENAPHTHYLENE	4/4	5.09 J	20.8	11SS320002	14.4	14.4	NA	20000	29000	NA	100000	0.0010	0.0007	**NA**	0.00021	NO	BSL	**YES**	BIO
ANTHRACENE	3/4	9.88	18.3	11SS300002	14.7	11.5	NA	2500	29000	NA	100000	0.007	0.0006	**NA**	0.00018	NO	BSL	**YES**	BIO
BENZO(A)ANTHRACENE	4/4	12.1	107	11SS300002	63.4	63.4	NA	NA	18000	NA	1100	**NA**	0.006	**NA**	0.10	**YES**	NSL	**YES**	BIO
BENZO(A)PYRENE	4/4	16.1	130	11SS320002	82.1	82.1	NA	20000	18000	NA	1100	0.007	0.007	**NA**	0.12	NO	BSL	**YES**	BIO
BENZO(B)FLUORANTHENE	4/4	20.1	170	11SS320002	106	106	NA	NA	18000	NA	1100	**NA**	0.009	**NA**	0.15	**YES**	NSL	**YES**	BIO
BENZO(G,H,I)PERYLENE	4/4	18.2	104	11SS320002	68.2	68.2	NA	NA	18000	NA	1100	**NA**	0.006	**NA**	0.09	**YES**	NSL	**YES**	BIO
BENZO(K)FLUORANTHENE	4/4	9.14	64.2	11SS300002	42.4	42.4	NA	NA	18000	NA	1100	**NA**	0.004	**NA**	0.06	**YES**	NSL	**YES**	BIO
CHRYSENE	4/4	16.1	136	11SS300002	84.0	84.0	NA	NA	18000	NA	1100	**NA**	0.008	**NA**	0.12	**YES**	NSL	**YES**	BIO
DIBENZO(A,H)ANTHRACENE	3/4	15.7	30.8	11SS320002	22.9	17.7	NA	NA	18000	NA	1100	**NA**	0.002	**NA**	0.028	**YES**	NSL	**YES**	BIO
FLUORANTHENE	4/4	9.7	221	11SS300002	113	113	NA	50000	29000	NA	100000	0.0044	0.008	**NA**	0.0022	NO	BSL	**YES**	BIO
FLUORENE	2/4	3.25 J	3.93 J	11SS300002	3.59	2.83	NA	NA	29000	NA	100000	**NA**	0.00014	**NA**	0.00004	**YES**	NSL	**YES**	BIO
INDENO(1,2,3-CD)PYRENE	4/4	12.4	79.4	11SS320002	51.5	51.5	NA	NA	18000	NA	1100	**NA**	0.004	**NA**	0.07	**YES**	NSL	**YES**	BIO
NAPHTHALENE	3/4	2.26 J	4.82 J	11SS320002	3.59	3.23	NA	NA	29000	NA	100000	**NA**	0.00017	**NA**	0.00005	**YES**	NSL	NO	NONBIO
PHENANTHRENE	4/4	2.33 J	72.7 J	11SS300002	38.9	38.9	NA	NA	29000	NA	100000	**NA**	0.003	**NA**	0.0007	**YES**	NSL	**YES**	BIO
PYRENE	4/4	14.4 J	198 J	11SS300002	109	109	NA	NA	18000	NA	1100	**NA**	0.011	**NA**	0.18	**YES**	NSL	**YES**	BIO

Ecological effects quotients are shaded if the maximum detected concentration exceeds a screening level or a screening level is not available. Other cells are shaded if the chemical is retained as a COPC for plants or invertebrates or if the chemical is retained for food chain modeling.

Footnotes:
1 - Average of detected concentrations only.
2 - Average of all analytical results including one-half of the detection limit for non-detects.
3 - Data from Crane Basewide Background Report (Tetra Tech, 2001). Statistical evaluation provided in Appendix G.
4 - Sources of ecological screening levels are presented in Table 8-2.
5 - Ecological Effects Quotients (EEQs) were calculated by dividing the maximum detected concentration by the ecological screening level. Values are unitless.
6 - Chemicals with EEQs for birds or mammals greater than 1.0 or bioaccumulative chemicals without bird or mammal screening values are retained for food chain modeling.

COPC Selection Rationale:
ASL = Above Screening Level
BIO = Bioaccumulative chemical
BSL = Below Screening Level
NONBIO = Non-bioaccumulative chemical
NSL = No Screening Level

NA - Not applicable/not available

J - Estimated concentration

TABLE 8-5

SEDIMENT COPC SELECTION
SWMU 11- OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Parameter	Frequency of Detection	Minimum Detection	Maximum Detection	Sample of Maximum Detection	Average of Detections[1]	Average of All Results[2]	Consistent with Background[3]	Screening Level[4]		EEQ[5]	Deletion or Selection of COPCs for Sediment Invertebrates	
								Value	Source		COPC (yes/no)?	Rationale
DIOXINS/FURANS (NG/KG)												
1,2,3,4,6,7,8,9-OCDD	4/4	480	2710	11SD020612	1930	1930	NA	3.3	Region 5	**821**	NO	(6)
1,2,3,4,6,7,8,9-OCDF	4/4	39.4	219	11SD020612	157	157	NA	0.0129	Region 5	**16977**	NO	(6)
1,2,3,4,6,7,8-HPCDD	4/4	56.5	290	11SD060006	212	212	NA	3.3	Region 5	**87.9**	NO	(6)
1,2,3,4,6,7,8-HPCDF	4/4	8.87	37.2	11SD020612	29.1	29.1	NA	0.0129	Region 5	**2884**	NO	(6)
1,2,3,4,7,8,9-HPCDF	3/4	1.98 J	2.75 J	11SD020612	2.3	2.1	NA	0.0129	Region 5	**213**	NO	(6)
1,2,3,4,7,8-HXCDD	3/4	3.53 J	4.87	11SD020006	4.3	3.6	NA	3.3	Region 5	**1.5**	NO	(6)
1,2,3,4,7,8-HXCDF	2/4	1.09 J	1.2 J	11SD020612	1.1	1.4	NA	0.0129	Region 5	**93.0**	NO	(6)
1,2,3,6,7,8-HXCDD	4/4	2.08 J	8.55	11SD060006	6.5	6.5	NA	3.3	Region 5	**2.6**	NO	(6)
1,2,3,6,7,8-HXCDF	2/4	1.01 J	1.07 J	11SD020612	1.0	1.3	NA	0.0129	Region 5	**82.9**	NO	(6)
1,2,3,7,8,9-HXCDD	3/4	4.42 J	4.62 J	11SD020612	4.5	3.8	NA	3.3	Region 5	**1.4**	NO	(6)
1,2,3,7,8-PECDD	2/4	1.08 J	1.38 J	11SD020006	1.2	1.4	NA	3.3	Region 5	0.4	NO	(6)
1,2,3,7,8-PECDF	2/4	0.562 J	1.02 J	11SD020006	0.79	1.2	NA	0.0129	Region 5	**79.1**	NO	(6)
2,3,4,6,7,8-HXCDF	2/4	1.15 J	1.36 J	11SD020006	1.3	1.4	NA	0.0129	Region 5	**105**	NO	(6)
2,3,4,7,8-PECDF	2/4	0.48 J	0.559 J	11SD020006	0.52	1.1	NA	0.0129	Region 5	**43.3**	NO	(6)
2,3,7,8-TCDD	2/4	0.494 J	0.657 J	11SD060006	0.58	0.45	NA	0.12	Region 5	**5.5**	NO	(6)
2,3,7,8-TCDD Equivalents (fish)	4/4	4.59	6.52	11SD060006	5.7	5.7	NA	0.12	Region 5	**54.3**	**YES**	ASL
METALS (MG/KG)												
Aluminum	8/8	6500	11300	11SD020612	8510	8510	YES	NA	NA	**NA**	**YES**	NSL
Antimony	1/8	0.637 J	0.637 J	11SD010612	0.64	0.54	YES	2	Region 3	0.3	NO	BSL
Arsenic	8/8	14.3	27	11SD040612	18.0	18.0	NO	9.79	Region 5	**2.8**	**YES**	ASL
Barium	8/8	66.3	255	11SD040612	129	129	YES	NA	NA	**NA**	**YES**	NSL
Beryllium	8/8	0.551 J	1.21	11SD040612	0.84	0.84	NA	NA	NA	**NA**	**YES**	NSL
Cadmium	8/8	0.195 J	2.6 J	11SD010006	1.1	1.1	NO	0.99	Region 5	**2.6**	**YES**	ASL
Calcium	8/8	1880	55500	11SD010006	19500	19500	NO	NA	NA	NA	NO	NUT
Chromium	8/8	42.3	132	11SD010612	72.3	72.3	NO	43.4	Region 5	**3.0**	**YES**	ASL
Cobalt	8/8	13.5	28.3	11SD040612	17.9	17.9	YES	50	Region 5	0.6	NO	BSL
Copper	8/8	10.1	26.7	11SD010612	16.5	16.5	NO	31.6	Region 5	0.8	NO	BSL
Iron	8/8	16300	37800	11SD040612	24100	24100	NO	20000	Region 3	**1.9**	**YES**	ASL
Lead	8/8	21.3	148	11SD010612	67.8	67.8	NO	35.8	Region 5	**4.1**	**YES**	ASL
Magnesium	8/8	820	3760	11SD010612	1630	1630	YES	NA	NA	NA	NO	NUT
Manganese	8/8	597	4530	11SD040612	1820	1820	YES	460	Region 3	**9.8**	**YES**	ASL
Mercury	8/8	0.0337 J	0.153	11SD010612	0.07	0.07	NO	0.174	Region 5	0.9	NO	BSL
Nickel	8/8	10.7	16.6	11SD040612	13.3	13.3	YES	22.7	Region 5	0.7	NO	BSL
Potassium	8/8	335 J	442 J	11SD010612	393	393	YES	NA	NA	NA	NO	NUT
Selenium	6/8	0.447 J	0.774	11SD010612	0.61	0.71	YES	2	Region 3	0.4	NO	BSL
Sodium	2/8	93.4 J	215 J	11SD010006	154	183	NO	NA	NA	NA	NO	NUT
Thallium	4/8	0.487 J	0.742 J	11SD020006	0.6	0.55	NO	NA	NA	**NA**	**YES**	NSL
Vanadium	8/8	19.7 J	43.1	11SD030612	29.6	29.6	YES	NA	NA	**NA**	**YES**	NSL
Zinc	8/8	54.2	392	11SD010612	186	186	NO	121	Region 5	**3.2**	**YES**	ASL
Miscellaneous Parameters (MG/KG)												
Cyanide	4/8	0.201 J	0.462 J	11SD040612	0.33	0.25	NA	0.0001	Region 5	**4620**	**YES**	ASL
Total Organic Carbon	8/8	7070	23500	11SD030006	13300	13300	NA	NA	NA	NA	NA	NA

TABLE 8-5

SEDIMENT COPC SELECTION
SWMU 11- OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Parameter	Frequency of Detection	Minimum Detection	Maximum Detection	Sample of Maximum Detection	Average of Detections(1)	Average of All Results(2)	Consistent with Background(3)	Screening Level(4)		EEQ(5)	Deletion or Selection of COPCs for Sediment Invertebrates	
								Value	Source		COPC (yes/no)?	Rationale
PCB (UG/KG)												
Aroclor-1260	4/8	7.95 J	48.5	11SD010006	19.9	12.6	NA	59.8	Region 5	0.8	NO	BSL
Pesticides (UG/KG)												
4,4'-DDD	2/8	0.328 J	1.13 J	11SD010612	0.73	0.34	NA	4.88	Region 5	0.2	NO	BSL
4,4'-DDE	1/8	3.09 J	3.09 J	11SD010612	3.1	0.58	NA	3.16	Region 5	1.0	NO	BSL
4,4'-DDT	1/8	1.45 J	1.45 J	11SD010612	1.5	0.37	NA	4.16	Region 5	0.3	NO	BSL
alpha-BHC	6/8	1.46	2.39	11SD010006	2.0	1.5	NA	6	Region 5	0.4	NO	BSL
Endrin	2/8	0.637 J	0.747 J	11SD010612	0.69	0.33	NA	2.22	Region 5	0.3	NO	BSL
gamma-Chlordane	4/8	0.182 J	2.3	11SD010612	1.1	0.66	NA	4.5	Region 5	0.5	NO	BSL
Polycyclic Aromatic Hydrocarbons (UG/KG)												
2-Methylnaphthalene	1/8	2.85 J	2.85 J	11SD040612	2.9	4.5	NA	20.2	Region 5	0.1	NO	BSL
Acenaphthylene	5/8	4.49 J	27 J	11SD010006	10.5	8.5	NA	5.87	Region 5	**4.6**	**YES**	ASL
Anthracene	6/8	4.26 J	28.6 J	11SD010006	12.8	10.1	NA	57.2	Region 5	0.5	NO	BSL
Benzo(a)anthracene	7/8	3.34 J	107	11SD010006	35.9	31.7	NA	108	Region 5	1.0	NO	BSL
Benzo(a)pyrene	8/8	5.01 J	136	11SD010006	43.7	43.7	NA	150	Region 5	0.9	NO	BSL
Benzo(b)fluoranthene	8/8	7.48 J	298	11SD010006	84.0	84.0	NA	10400	Region 5	0.0	NO	BSL
Benzo(g,h,i)perylene	8/8	6.61 J	121	11SD010006	42.8	42.8	NA	170	Region 5	0.7	NO	BSL
Benzo(k)fluoranthene	8/8	3.9 J	95.1	11SD010006	30.4	30.4	NA	240	Region 5	0.4	NO	BSL
Chrysene	7/8	5.68 J	279	11SD010006	80.5	70.7	NA	166	Region 5	**1.7**	**YES**	ASL
Dibenzo(a,h)anthracene	5/8	9.83	29.7 J	11SD010006	16.0	11.9	NA	33	Region 5	0.9	NO	BSL
Fluoranthene	8/8	6.68 J	594	11SD010006	121	121	NA	423	Region 5	**1.4**	**YES**	ASL
Indeno(1,2,3-cd)pyrene	8/8	4.76 J	102	11SD010006	35.0	35.0	NA	200	Region 5	0.5	NO	BSL
Naphthalene	3/8	2.38 J	15.7 J	11SD010612	7.0	5.2	NA	176	Region 5	0.1	NO	BSL
Phenanthrene	8/8	3.25 J	153 J	11SD010006	40.8	40.8	NA	204	Region 5	0.8	NO	BSL
Pyrene	8/8	7.39 J	468	11SD010006	104	104	NA	195	Region 5	**2.4**	**YES**	ASL

Ecological effects quotients are shaded if the maximum detected concentration exceeds a screening level or a screening level is not available. Other cells are shaded if the chemical is retained as a COPC for sediment invertebrates.

Footnotes:
1 - Average of detected concentrations only.
2 - Average of all analytical results including one-half of the detection limit for non-detects.
3 - Data from Crane Basewide Background Report (Tetra Tech, 2001). Statistical evaluation provided in Appendix G.
4 - In order of preference: USEPA Region 5 Ecological Sediment Screening Levels (USEPA, 2003), followed by USEPA Region 3 BTAG Freshwater Sediment Screening Levels (USEPA, 2006).
5 - Ecological Effects Quotients (EEQs) were calculated by dividing the maximum detected concentration by the ecological screening level. Values are unitless.
6 - Risk from parameter considered by evaluating 2,3,7,8-TCDD Equivalents.

Rationale Codes for COPC Selection:
ASL = Above COPC Screening Level
BSL = Below COPC Screening Level
NSL = No Screening Level Available

Abbreviations:
COPC = Chemical of Potential Concern
EEQ = Ecological Effects Quotient
NA = Not available or not applicable

TABLE 8-6

TERRESTRIAL FOOD CHAIN MODEL - TIER 1 SCENARIO, SWMU 11, BUILDING 225 AREA
INSECTIVOROUS AND HERBIVOROUS RECEPTORS
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

	Herbivorous Receptors EEQs				Invertivorous Receptors EEQs			
	Bobwhite Quail		Meadow Vole		Woodcock		Short-Tailed Shrew	
Chemical	**NOAEL-based**	**LOAEL-based**	**NOAEL-based**	**LOAEL-based**	**NOAEL-based**	**LOAEL-based**	**NOAEL-based**	**LOAEL-based**
DIOXINS/FURANS								
2,3,7,8-TCDD Equivalents (mammal)	NA	NA	4.2E-02	4.2E-03	NA	NA	7.5E+01	7.5E+00
2,3,7,8-TCDD Equivalents (bird)	1.1E-02	1.1E-03	NA	NA	3.0E+00	3.0E-01	NA	NA
METALS								
LEAD	3.5E-01	5.8E-02	3.2E-02	5.0E-03	1.8E+00	3.1E-01	4.5E-01	7.1E-02
MERCURY	5.2E+00	5.2E-01	5.9E-01	1.2E-01	1.3E+01	1.3E+00	2.3E+00	4.6E-01
SELENIUM	1.5E-01	5.2E-02	1.4E-01	3.1E-02	5.0E-01	1.8E-01	8.5E-01	1.8E-01
VANADIUM	1.7E+00	3.4E-01	2.0E-02	9.0E-03	4.3E+00	8.8E-01	1.2E-01	5.1E-02
ZINC	7.2E-02	2.8E-02	3.3E-02	8.3E-03	8.6E-01	3.3E-01	6.8E-01	1.7E-01
PESTICIDES								
ALPHA-BHC	6.4E-05	1.6E-05	1.1E-03	1.1E-04	3.5E-04	8.8E-05	1.2E-02	1.2E-03
GAMMA-BHC (LINDANE)	4.7E-05	4.7E-06	5.0E-06	5.0E-07	3.8E-03	3.8E-04	8.7E-04	8.7E-05
GAMMA-CHLORDANE	8.8E-06	1.8E-06	6.6E-07	3.3E-07	5.5E-04	1.1E-04	2.3E-04	1.2E-04
METHOXYCHLOR	NV	NV	1.1E-06	5.6E-07	NV	NV	4.4E-05	2.2E-05
POLYCYCLIC AROMATIC HYDROCARBONS								
ACENAPHTHENE	6.4E-03	6.4E-04	1.1E-04	2.0E-05	2.6E-03	2.6E-04	6.7E-05	1.2E-05
ACENAPHTHYLENE	2.9E-03	2.9E-04	4.4E-05	8.0E-06	1.8E-01	1.8E-02	5.2E-03	9.5E-04
ANTHRACENE	2.3E-03	2.3E-04	3.5E-05	6.4E-06	1.2E-02	1.2E-03	3.3E-04	6.1E-05
BENZO(A)ANTHRACENE	4.0E-03	4.0E-04	4.2E-03	6.7E-05	5.2E-02	5.2E-03	1.4E-01	2.3E-03
BENZO(A)PYRENE	4.8E-03	4.8E-04	5.4E-03	8.6E-05	4.7E-02	4.7E-03	1.3E-01	2.1E-03
BENZO(B)FLUORANTHENE	1.0E-02	1.0E-03	1.5E-02	2.4E-04	1.1E-01	1.1E-02	3.3E-01	5.3E-03
BENZO(G,H,I)PERYLENE	5.2E-03	5.2E-04	7.4E-03	1.2E-04	6.6E-02	6.6E-03	1.9E-01	3.1E-03
BENZO(K)FLUORANTHENE	2.9E-03	2.9E-04	3.4E-03	5.4E-05	5.1E-02	5.1E-03	1.5E-01	2.4E-03
CHRYSENE	5.0E-03	5.0E-04	5.1E-03	8.2E-05	9.6E-02	9.6E-03	2.7E-01	4.4E-03
DIBENZO(A,H)ANTHRACENE	1.1E-03	1.1E-04	1.3E-03	2.0E-05	1.9E-02	1.9E-03	5.3E-02	8.5E-04
FLUORANTHENE	1.5E-02	1.5E-03	2.1E-04	4.0E-05	1.3E-01	1.3E-02	3.6E-03	6.7E-04
FLUORENE	6.8E-03	6.8E-04	1.2E-04	2.2E-05	1.4E-02	1.4E-03	4.0E-04	7.4E-05
INDENO(1,2,3-CD)PYRENE	2.4E-03	2.4E-04	2.5E-03	4.0E-05	5.2E-02	5.2E-03	1.5E-01	2.4E-03
PHENANTHRENE	2.2E-02	2.2E-03	3.7E-04	6.7E-05	5.2E-02	5.2E-03	1.4E-03	2.5E-04
PYRENE	1.8E-02	1.8E-03	3.0E-02	4.8E-04	7.3E-02	7.3E-03	2.1E-01	3.3E-03

Cells are shaded if the value is greater than 1.0

NOAEL - No Observed Adverse Effects Level
LOAEL - Lowest Observed Adverse Effects Level
EEQ - Ecological Effects Quotient
NA - Not applicable
NV - No value determined

TABLE 8-7

TERRESTRIAL FOOD CHAIN MODEL - TIER 1 SCENARIO, BUILDING 2981 CONCRETE TANK AREA
INSECTIVOROUS AND HERBIVOROUS RECEPTORS
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

	Herbivorous Receptors EEQs				Invertivorous Receptors EEQs			
	Bobwhite Quail		Meadow Vole		Woodcock		Short-Tailed Shrew	
Chemical	**NOAEL-based**	**LOAEL-based**	**NOAEL-based**	**LOAEL-based**	**NOAEL-based**	**LOAEL-based**	**NOAEL-based**	**LOAEL-based**
METALS								
LEAD	2.5E-01	4.2E-02	2.5E-02	3.9E-03	1.3E+00	2.2E-01	3.4E-01	5.2E-02
MERCURY	3.6E+00	3.6E-01	4.1E-01	8.2E-02	1.1E+01	1.1E+00	2.0E+00	4.0E-01
VANADIUM	1.5E+00	3.1E-01	1.9E-02	8.2E-03	3.9E+00	8.0E-01	1.1E-01	4.7E-02
ZINC	7.5E-02	2.9E-02	3.4E-02	8.6E-03	8.8E-01	3.4E-01	7.0E-01	1.8E-01
POLYCYCLIC AROMATIC HYDROCARBONS								
ACENAPHTHENE	3.2E-02	3.2E-03	5.6E-04	1.0E-04	3.8E-04	3.8E-05	1.0E-05	1.8E-06
ACENAPHTHYLENE	9.0E-04	9.0E-05	1.4E-05	2.5E-06	4.4E-02	4.4E-03	1.2E-03	2.3E-04
ANTHRACENE	9.7E-04	9.7E-05	1.5E-05	2.8E-06	4.3E-03	4.3E-04	1.2E-04	2.1E-05
BENZO(A)ANTHRACENE	1.6E-03	1.6E-04	2.0E-03	3.2E-05	1.7E-02	1.7E-03	4.8E-02	7.7E-04
BENZO(A)PYRENE	1.8E-03	1.8E-04	2.0E-03	3.3E-05	1.8E-02	1.8E-03	4.9E-02	7.8E-04
BENZO(B)FLUORANTHENE	3.9E-03	3.9E-04	5.5E-03	8.8E-05	4.3E-02	4.3E-03	1.2E-01	2.0E-03
BENZO(G,H,I)PERYLENE	2.1E-03	2.1E-04	2.9E-03	4.6E-05	2.9E-02	2.9E-03	8.5E-02	1.4E-03
BENZO(K)FLUORANTHENE	1.0E-03	1.0E-04	1.2E-03	2.0E-05	1.6E-02	1.6E-03	4.7E-02	7.5E-04
CHRYSENE	2.0E-03	2.0E-04	2.3E-03	3.8E-05	3.0E-02	3.0E-03	8.7E-02	1.4E-03
DIBENZO(A,H)ANTHRACENE	4.2E-04	4.2E-05	4.7E-04	7.6E-06	7.0E-03	7.0E-04	2.0E-02	3.2E-04
FLUORANTHENE	7.1E-03	7.1E-04	1.0E-04	1.9E-05	6.5E-02	6.5E-03	1.8E-03	3.2E-04
FLUORENE	2.2E-02	2.2E-03	3.9E-04	7.2E-05	3.5E-03	3.5E-04	9.8E-05	1.8E-05
INDENO(1,2,3-CD)PYRENE	1.0E-03	1.0E-04	1.1E-03	1.7E-05	2.2E-02	2.2E-03	6.3E-02	1.0E-03
PHENANTHRENE	8.9E-03	8.9E-04	1.5E-04	2.8E-05	1.3E-02	1.3E-03	3.3E-04	6.1E-05
PYRENE	8.6E-03	8.6E-04	1.4E-02	2.3E-04	3.5E-02	3.5E-03	9.7E-02	1.6E-03

Cells are shaded if the value is greater than 1.0

NOAEL - No Observed Adverse Effects Level
LOAEL - Lowest Observed Adverse Effects Level
EEQ - Ecological Effects Quotient

TABLE 8-8

STEP 3A EVALUATION FOR RISKS TO PLANTS AND INVERTEBRATES
SURFACE SOIL COPCs - SWMU 11 BUILDING 225 AREA
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Chemical of Potential Concern (COPC)	Frequency of Detection	Maximum Detected Concentration	Screening Level[1]		Maximum EEQ[2]		Step 3a Evaluation[3]		Risk Determination (Acceptable/ Unacceptable)	Retained as a COPC?	
							Step 3a Factors Considered in Evaluation				
			Plants	Invertebrates	Plants	Invertebrates	Plants	Invertebrates		Plants	Invertebrates
DIOXINS/FURANS (NG/KG)											
2,3,7,8-TCDD Equivalents (mammal)	9/9	19.9	NA	NA	NA	NA	Dioxins bind to the AH receptor to cause toxicity and this receptor is not present in plants.		Acceptable	No	No
2,3,7,8-TCDD Equivalents (bird)	9/9	10.3945	NA	NA	NA	NA			Acceptable	No	No
METALS (MG/KG)											
ALUMINUM	12/12	19200	NA	NA	NA	NA	Limited bioavailability; limited habitat; most concentrations similar to background.		Acceptable	No	No
CHROMIUM	12/12	23.8	78	0.4	0.31	59.5	Not a COPC	Consistent with background.	Acceptable	No	No
COBALT	12/12	26	13	1000	2.0	0.026	Consistent with background.	Not a COPC	Acceptable	No	No
IRON	12/12	25900	NA	200	NA	130	Limited bioavailability; limited habitat; most concentrations similar to background.		Acceptable	No	No
MANGANESE	12/12	835	220	450	3.8	1.9	Consistent with background.		Acceptable	No	No
SELENIUM	4/12	0.67	0.52	4.1	1.3	0.16	Consistent with background.	Not a COPC	Acceptable	No	No
PESTICIDES (UG/KG)											
ALPHA-BHC	2/12	0.93	NA	NA	NA	NA	Infrequently detected at low concentrations.	Infrequently detected at low concentrations indicative of typical spraying activities.	Acceptable	No	No
GAMMA-BHC (LINDANE)	1/12	2.27	5	NA	0.45	NA	Not a COPC		Acceptable	No	No
GAMMA-CHLORDANE	6/12	1.25	224	NA	0.0056	NA	Not a COPC		Acceptable	No	No
METHOXYCHLOR	1/12	1.01	NA	NA	NA	NA	Infrequently detected at low concentrations.		Acceptable	No	No
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)											
2-METHYLNAPHTHALENE	1/12	10.8	NA	29000	NA	0.00037	Typically not toxic to plants. Concentrations less than available Canadian screening values for PAHs.	Not a COPC	Acceptable	No	No
BENZO(A)ANTHRACENE	4/12	322	NA	18000	NA	0.018		Not a COPC	Acceptable	No	No
BENZO(B)FLUORANTHENE	5/12	454	NA	18000	NA	0.025		Not a COPC	Acceptable	No	No
BENZO(G,H,I)PERYLENE	5/12	234	NA	18000	NA	0.013		Not a COPC	Acceptable	No	No
BENZO(K)FLUORANTHENE	4/12	202	NA	18000	NA	0.011		Not a COPC	Acceptable	No	No
CHRYSENE	5/12	427	NA	18000	NA	0.024		Not a COPC	Acceptable	No	No
DIBENZO(A,H)ANTHRACENE	3/12	82.1	NA	18000	NA	0.0046		Not a COPC	Acceptable	No	No
FLUORENE	2/12	16.1	NA	29000	NA	0.00056		Not a COPC	Acceptable	No	No
INDENO(1,2,3-CD)PYRENE	5/12	187	NA	18000	NA	0.010		Not a COPC	Acceptable	No	No
NAPHTHALENE	2/12	14.4	NA	29000	NA	0.00050		Not a COPC	Acceptable	No	No
PHENANTHRENE	5/12	301	NA	29000	NA	0.010		Not a COPC	Acceptable	No	No
PYRENE	6/12	417	NA	18000	NA	0.023		Not a COPC	Acceptable	No	No

Footnotes:
1 Sources of ecological screening levels presented in Table 8-2.
2 Maximum detection divided by screening level.
3 See Section 8.4 for a more detailed Step 3a evaluation.

Acronyms:
COPC = Chemical of Potential Concern
EEQ = Ecological Effects Quotient
NA = Not Available or Not Applicable

TABLE 8-9

STEP 3A EVALUATION FOR RISKS TO PLANTS AND INVERTEBRATES
SURFACE SOIL COPCs - BUILDING 2981 CONCRETE TANK AREA
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Chemical of Potential Concern (COPC)	Frequency of Detection	Maximum Detected Concentration	Screening Level[1]		Maximum EEQ[2]		Step 3a Evaluation[3]		Risk Determination (Acceptable/ Unacceptable)	Retained as a COPC?	
							Step 3a Factors Considered in Evaluation				
			Plants	Invertebrates	Plants	Invertebrates	Plants	Invertebrates		Plants	Invertebrates
METALS (MG/KG)											
ALUMINUM	4/4	14400	NA	NA	NA	NA	Limited bioavailability; limited habitat; most concentrations similar to background.		Acceptable	No	No
CHROMIUM	4/4	27.6	78	0.4	0.35	69.0	Not a COPC	Consistent with background.	Acceptable	No	No
COBALT	4/4	16.2	13	1000	1.2	0.016	Consistent with background.	Not a COPC	Acceptable	No	No
IRON	4/4	30100	NA	200	NA	151	Limited bioavailability; limited habitat; most concentrations similar to background.		Acceptable	No	No
MANGANESE	4/4	1070	220	450	4.9	2.4	Consistent with background.		Acceptable	No	No
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)											
2-METHYLNAPHTHALENE	2/4	2.52	NA	29000	NA	0.000087	Typically not toxic to plants. Concentrations less than available Canadian screening values for PAHs.	Not a COPC	Acceptable	No	No
BENZO(A)ANTHRACENE	4/4	107	NA	18000	NA	0.0059		Not a COPC	Acceptable	No	No
BENZO(B)FLUORANTHENE	4/4	170	NA	18000	NA	0.0094		Not a COPC	Acceptable	No	No
BENZO(G,H,I)PERYLENE	4/4	104	NA	18000	NA	0.0058		Not a COPC	Acceptable	No	No
BENZO(K)FLUORANTHENE	4/4	64.2	NA	18000	NA	0.0036		Not a COPC	Acceptable	No	No
CHRYSENE	4/4	136	NA	18000	NA	0.0076		Not a COPC	Acceptable	No	No
DIBENZO(A,H)ANTHRACENE	3/4	30.8	NA	18000	NA	0.0017		Not a COPC	Acceptable	No	No
FLUORENE	2/4	3.93	NA	29000	NA	0.00014		Not a COPC	Acceptable	No	No
INDENO(1,2,3-CD)PYRENE	4/4	79.4	NA	18000	NA	0.0044		Not a COPC	Acceptable	No	No
NAPHTHALENE	3/4	4.82	NA	29000	NA	0.00017		Not a COPC	Acceptable	No	No
PHENANTHRENE	4/4	72.7	NA	29000	NA	0.0025		Not a COPC	Acceptable	No	No
PYRENE	4/4	198	NA	18000	NA	0.011		Not a COPC	Acceptable	No	No

Footnotes:
1 Sources of ecological screening levels presented in Table 8-2.
2 Maximum detection divided by screening level.
3 See Section 8.4 for a more detailed Step 3a evaluation.

Acronyms:
COPC = Chemical of Potential Concern
EEQ = Ecological Effects Quotient
NA = Not Available or Not Applicable

TABLE 8-10

STEP 3A EVALUATION FOR RISKS TO SEDIMENT INVERTEBRATES
SEDIMENT COPCs
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Chemical of Potential Concern (COPC)	Frequency of Detection	Maximum Detected Concentration	Screening Level[1]	Maximum EEQ[2]	Step 3a Evaluation			Risk Determination (Acceptable/ Unacceptable)	Retained as a COPC?
					Higher Effects Benchmarks		Step 3a Factors Considered in Evaluation[3]		
					Value	Source			
DIOXINS/FURANS (NG/KG)									
2,3,7,8-TCDD Equivalents (fish)	4/4	6.52	0.12	54.3	NA	NA	Dioxins bind to the AH receptor to cause toxicity and this receptor is not present in invertebrates.	Acceptable	No
METALS (MG/KG)									
Aluminum	8/8	11300	NA	NA	NA	NA	Consistent with background.	Acceptable	No
Arsenic	8/8	27	9.79	2.8	33	PEC	Concentrations less than higher effects benchmark.	Acceptable	No
Barium	8/8	255	NA	NA	NA	NA	Consistent with background.	Acceptable	No
Beryllium	8/8	1.21	NA	NA	NA	NA	Relatively low concentrations.	Acceptable	No
Cadmium	8/8	2.6	0.99	2.6	4.98	PEC	Concentrations less than higher effects benchmark.	Acceptable	No
Chromium	8/8	132	43.4	3.0	111	PEC	One location exceeded PEC; limited area impacted.	Acceptable	No
Iron	8/8	37800	20000	1.9	40000	SEL	Concentrations less than higher effects benchmark. Typically not bioavailable.	Acceptable	No
Lead	8/8	148	35.8	4.1	128	PEC	Concentrations less than higher effects benchmark.	Acceptable	No
Manganese	8/8	4530	460	9.8	NA	NA	Consistent with background.	Acceptable	No
Thallium	4/8	0.742	NA	NA	NA	NA	Relatively low concentrations.	Acceptable	No
Vanadium	8/8	43.1	NA	NA	NA	NA	Consistent with background.	Acceptable	No
Zinc	8/8	392	121	3.2	459	PEC	Concentrations less than higher effects benchmark.	Acceptable	No
MISCELLANEOUS PARAMETERS (MG/KG)									
Cyanide	4/8	0.462	0.0001	4620	NA	NA	Cyanide toxicity is generally based only on free or available cyanide. Relatively low concentrations.	Acceptable	No
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)									
Acenaphthylene	5/8	27	5.87	4.6	128	PEL	Concentrations less than higher effects benchmarks.	Acceptable	No
Chrysene	7/8	279	166	1.7	1290	PEC		Acceptable	No
Fluoranthene	8/8	594	423	1.4	2230	PEC		Acceptable	No
Pyrene	8/8	468	195	2.4	1520	PEC		Acceptable	No

Footnotes:
1 Sources of ecological screening level presented in Table 8-5.
2 Maximum detection divided by the screening level.
3 See Section 8.4 for a more detailed Step 3a evaluation.

Acronyms:
AET = Apparent Effects Threshold (Buchman, 2008)
COPC = Chemical of Potential Concern
EEQ = Ecological Effects Quotient
NA = Not Available or Not Applicable
PEC = Probable Effects Concentration (MacDonald, et al., 2000)
PEL = Probable Effects Level (Buchman, 2008)
SEL = Severe Effects Level (Persaud, et al., 1993)

TABLE 8-11

TERRESTRIAL FOOD CHAIN MODEL - TIER 2, STEP 3A SCENARIO, SWMU 11 BUILDING 225 AREA
INSECTIVOROUS AND HERBIVOROUS RECEPTORS
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Chemical	Herbivorous Receptors EEQs				Invertivorous Receptors EEQs			
	Bobwhite Quail		Meadow Vole		Woodcock		Short-Tailed Shrew	
	NOAEL-based	LOAEL-based	NOAEL-based	LOAEL-based	NOAEL-based	LOAEL-based	NOAEL-based	LOAEL-based
DIOXINS/FURANS								
2,3,7,8-TCDD Equivalents (mammal)	NA	NA	3.4E-03	3.4E-04	NA	NA	4.5E+00	4.5E-01
2,3,7,8-TCDD Equivalents (bird)	2.2E-03	2.2E-04	NA	NA	6.0E-01	6.0E-02	NA	NA
METALS								
MERCURY	3.9E-01	3.9E-02	4.3E-02	8.7E-03	7.8E+00	7.8E-01	1.1E+00	2.3E-01

Cells are shaded if the value is greater than 1.0

NOAEL - No Observed Adverse Effects Level
LOAEL - Lowest Observed Adverse Effects Level
EEQ - Ecological Effects Quotient

TABLE 8-12

TERRESTRIAL FOOD CHAIN MODEL - TIER 2, STEP 3A SCENARIO, BUILDING 2981 CONCRETE TANK AREA
INSECTIVOROUS AND HERBIVOROUS RECEPTORS
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

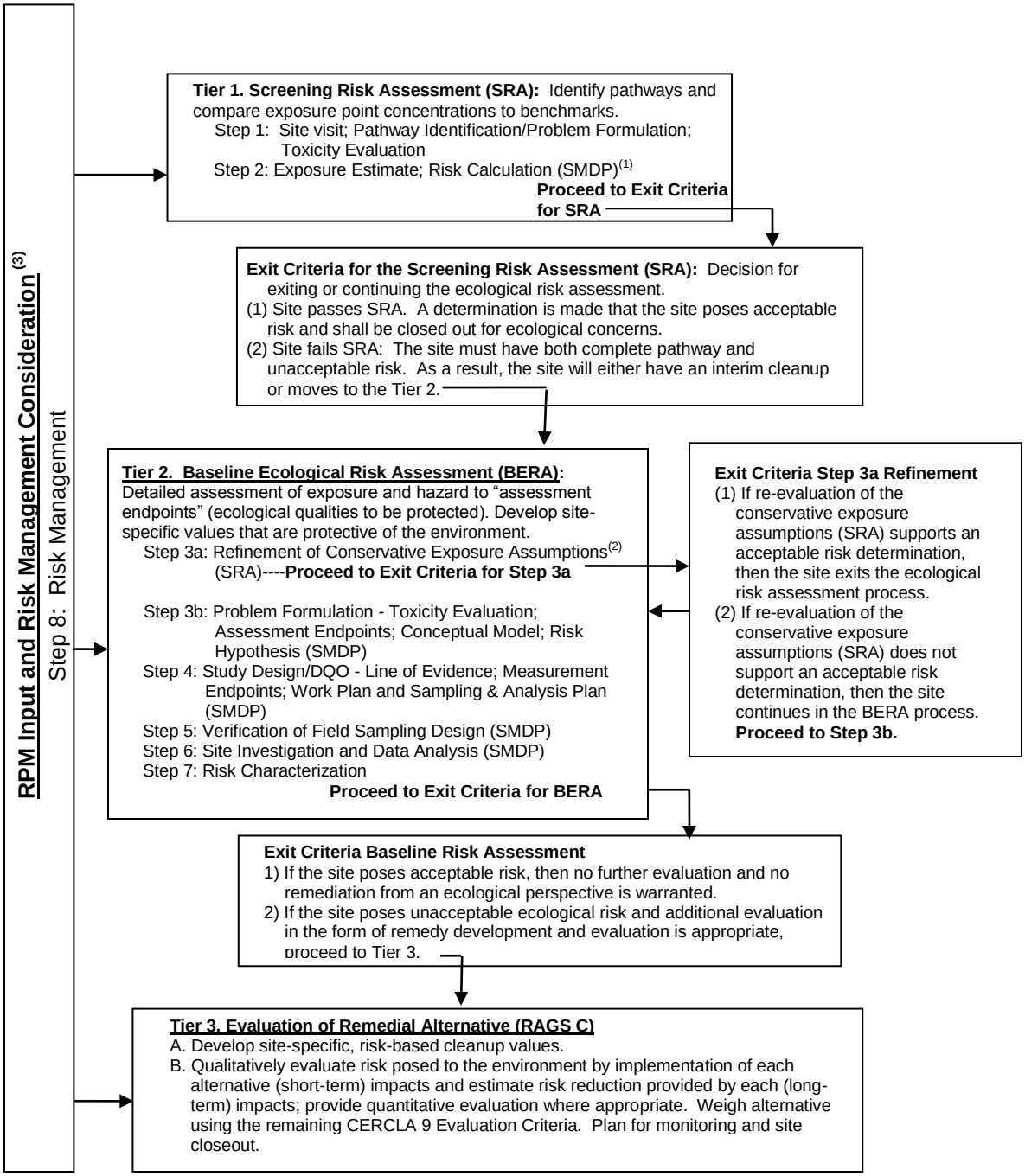
Chemical	Herbivorous Receptors EEQs				Invertivorous Receptors EEQs			
	Bobwhite Quail		Meadow Vole		Woodcock		Short-Tailed Shrew	
	NOAEL-based	LOAEL-based	NOAEL-based	LOAEL-based	NOAEL-based	LOAEL-based	NOAEL-based	LOAEL-based
METALS								
MERCURY	2.8E-01	2.8E-02	3.1E-02	6.2E-03	7.0E+00	7.0E-01	1.0E+00	2.0E-01

Cells are shaded if the value is greater than 1.0

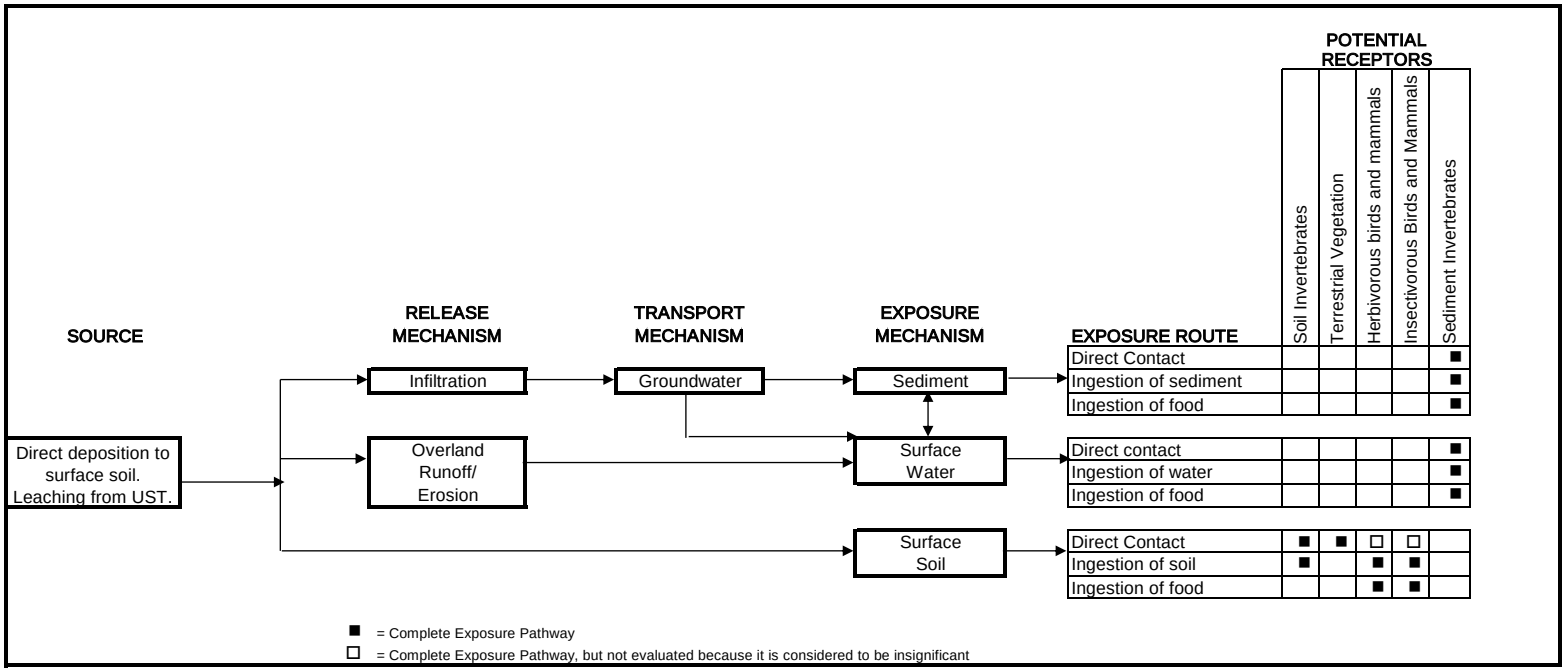
NOAEL - No Observed Adverse Effects Level
LOAEL - Lowest Observed Adverse Effects Level
EEQ - Ecological Effects Quotient

FIGURE 8-1

NAVY ECOLOGICAL RISK ASSESSMENT TIERED APPROACH
SWMU 11 – OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA



Notes: 1 See USEPA's 8 Steps ERA Process for requirements for each Scientific Management Decision Point (SMDP).
2 Refinement includes but is not limited to background, bioavailability, detection frequency, etc.
3 Risk management is incorporated throughout the tiered approach.



Blank space indicates incomplete exposure pathway or relatively insignificant, or not applicable, potential exposure.

FIGURE 8-2

ECOLOGICAL CONCEPTUAL SITE MODEL
SWMU 11 | OLD STORAGE BUILDING 225
NSA CRANE, INDIANA

9.0 CONCLUSIONS AND RECOMMENDATIONS

The RFI identified subsurface soil and groundwater contamination at SWMU 11 as a result of the 1976 Building 225 fire. The subsurface soil contamination consists primarily of chlorinated VOCs. The subsurface contamination was identified in the immediate vicinity of the Building 225 concrete slab and chlorinated VOC contamination appears to have migrated to the west towards the railroad tracks and south of Building 2720.

An HHRA and ERA were completed to evaluate potential risks associated the contamination at SWMU 11. Human health risk under current land use was found to be acceptable; however, potential unacceptable human health risks for hypothetical future residents were identified associated with direct contact exposure (i.e. potable water use) to VOCs in groundwater (cis-1,2-DCE, benzene, TCE and VC). There were no unacceptable risks identified for vapor intrusion from groundwater based on estimated indoor air concentrations using the Johnson-Ettinger model. Potential unacceptable risks were identified for the groundwater to indoor air pathway (i.e., vapor intrusion) for TCE under a future residential and commercial/industrial scenario based on a comparison of groundwater concentrations to IDEM Vapor Exposure groundwater screening levels; IDEM does not accept the use of modeling (i.e., Johnson-Ettinger model) to dismiss concerns regarding vapor intrusion. Evaluation of the migration from soil to groundwater showed that benzene, cis-1,2-DCE, PCE, TCE, and VC in subsurface soil could represent a source of groundwater contamination. Arsenic and iron were also retained as COCs for the soil to groundwater pathway at SWMU 11 because of exceedance of soil to groundwater migration screening levels and groundwater data are not available to confirm whether migration has occurred. The ERA evaluated surface soil and sediment to determine the potential for adverse ecological impacts due to site-related contamination. No unacceptable risks for ecological receptors were identified.

A summary of the receptor-specific human health risks and hazards, ecological risks, critical exposure pathways and COCs, and recommendations for SWMU 11 is presented in Table ES-1. In addition to COCs identified based on the risk assessments, PCE is also identified as a COC for groundwater because detected concentrations of PCE in groundwater exceeded the MCL.

Based on the results of the RFI activities, it is recommended that the site proceed to a focused CMS to address future unacceptable human health risks from ingestion of groundwater contaminated with chlorinated organics and the vapor intrusion pathway as identified in the HHRA. The CMS should focus on monitored natural attenuation of chlorinated organics in groundwater with land use controls to address potential future unacceptable risks. An active groundwater treatment action is not necessary because there are no current potential or likely future exposure to contaminated groundwater based on current site

use. Concentrations of VOCs and metals (arsenic and iron) in soil exceed IDEM soil screening levels for protection of groundwater; however, metals in groundwater were not analyzed in SWMU 11 monitoring wells. Therefore, the CMS should also provide for sampling to verify whether arsenic and iron are present in SWMU 11 groundwater at concentrations greater than MCLs or facility background.

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APPENDIX A

FIELD TASK MODIFICATION REQUESTS

Tetra Tech NUS, Inc.
FIELD TASK MODIFICATION REQUEST FORM

Project/Installation Name	CTO & Project Number	Task Modification Number
NSA Crane, SWMU 11 – Old Storage Building 225	CTO F27E; 112G02635.	001
Modification to: March 2011 SWMU 11 Sampling and Analysis Plan (SAP) - Supplemental Sampling	**Site Location** NSA Crane	**Date of Request** September 15, 2011

Background. Tetra Tech performed RFI sampling in April 2011 that included the collection of surface, subsurface, and sediment samples. Analysis included volatile organic compounds (VOCs) and dioxin/furans. Based on review of the analytical data, there are gaps associated with VOCs in the subsurface soil and potential impacts to groundwater. The VOCs detected in the subsurface soil included tetrachloroethene (PCE), trichloroethene (TCE), and vinyl chloride (VC). There is also a gap regarding the extent of dioxin/furan contamination in the sediment downstream of the site. Note: A September 15, 2011 Technical Memorandum summarizes the analytical data, describes the data gaps and presents more information about the initial RFI sampling.

Purpose of FTMR. The purpose of this FTMR form is to present the proposed plan to: 1) collect subsurface soil samples to define the extent of VOC contamination, 2) install groundwater monitoring wells and sample them to determine if VOC contamination has impacted groundwater, and 3) collect sediment samples to better define the extent of dioxin/furans in the sediment. This additional sampling will be performed as described in this FTMR form and the approved March 2011 SAP. This FTMR form includes figures and tables and revised and new Standard Operating Procedures (SOPs) to perform the proposed additional sampling.

Proposed Supplemental Sampling. The approximate locations of the supplemental subsurface soil and sediment samples and the locations on the proposed groundwater monitoring wells are shown on Figures 2-1, 2-2, and 2-3; the supplemental sampling and analysis is presented on attached Table 2-1 and described as follows:

- **Subsurface Soil.** Subsurface soil samples will be collected from eighteen (18) additional soil borings in the area of the Building 225 concrete floor to delineate the extent of subsurface soil VOC contamination. Two subsurface samples will be collected at each soil boring at the 1 foot interval above bedrock and at the 4 to 6 feet bgs interval if there are no obvious signs of contamination.

- **Groundwater.** Five groundwater monitoring wells will be installed to determine if VOCs have migrated to the groundwater. The groundwater monitoring wells will be placed in bedrock to an approximate depth of 30 to 40 feet bgs or to the first water bearing zone. The proposed locations are shown on Figure 2-2. The new monitoring wells will be drilled and logged according to the Tetra Tech SOP 18 and the monitoring wells will be installed according to the Tetra Tech SOP 12. The drilling, sampling, and well installation will be supervised by a Tetra Tech field geologist who has sufficient experience and familiarity with drilling and installing wells in the Lower Pennsylvanian Mansfield Formation at the NSA Crane facility. SOP 12 and 18 are attached to this FTMR form.

- **Sediment samples.** Two additional sediment samples will be collected from two locations downstream of the sediment samples collected at 11SD02 to better define the extent of dioxin/furan contamination. The sediment samples will be collected between 0 to 6 inches bgs and will be analyzed for dioxins/furans.

Attachments to this FTMR include:

Figures
Figure 2-1 Proposed Subsurface Soil Sampling Locations
Figure 2-2 Proposed Groundwater Monitoring Well Locations
Figure 2-3 Proposed Sediment Sampling Locations

Table
Table 2-1 Proposed Supplemental Sampling at SWMU 11

Standard Operating Procedures (SOPs)
SOP 12 – Monitoring Well Installation
SOP 18 - Drilling and Geologic Logging of Boreholes in Rock

Reason for Change/Modification: Supplemental Sampling to address data gaps

Person Requesting Change/Modification:
10/31/2011
George L. Ten Eyck, FOL / Date

Approvals:
11/1/11
Anthony Klimek, Tetra Tech Project Manager / Date

Modifications to the HASP required based on this change? ☒ Yes ☐ No ☐ NA

Revision 0 of the February 2011 HASP was revised (Revision 1) to include the Activity Hazard Analysis for rock well drilling

10/27/2011
Health Safety Manager (Signature) **Date**

SWMU 11 Figures

Figure 2-1 Proposed Subsurface Soil Sampling Locations
Figure 2-2 Proposed Groundwater Monitoring Well Locations
Figure 2-3 Proposed Sediment Sampling Locations

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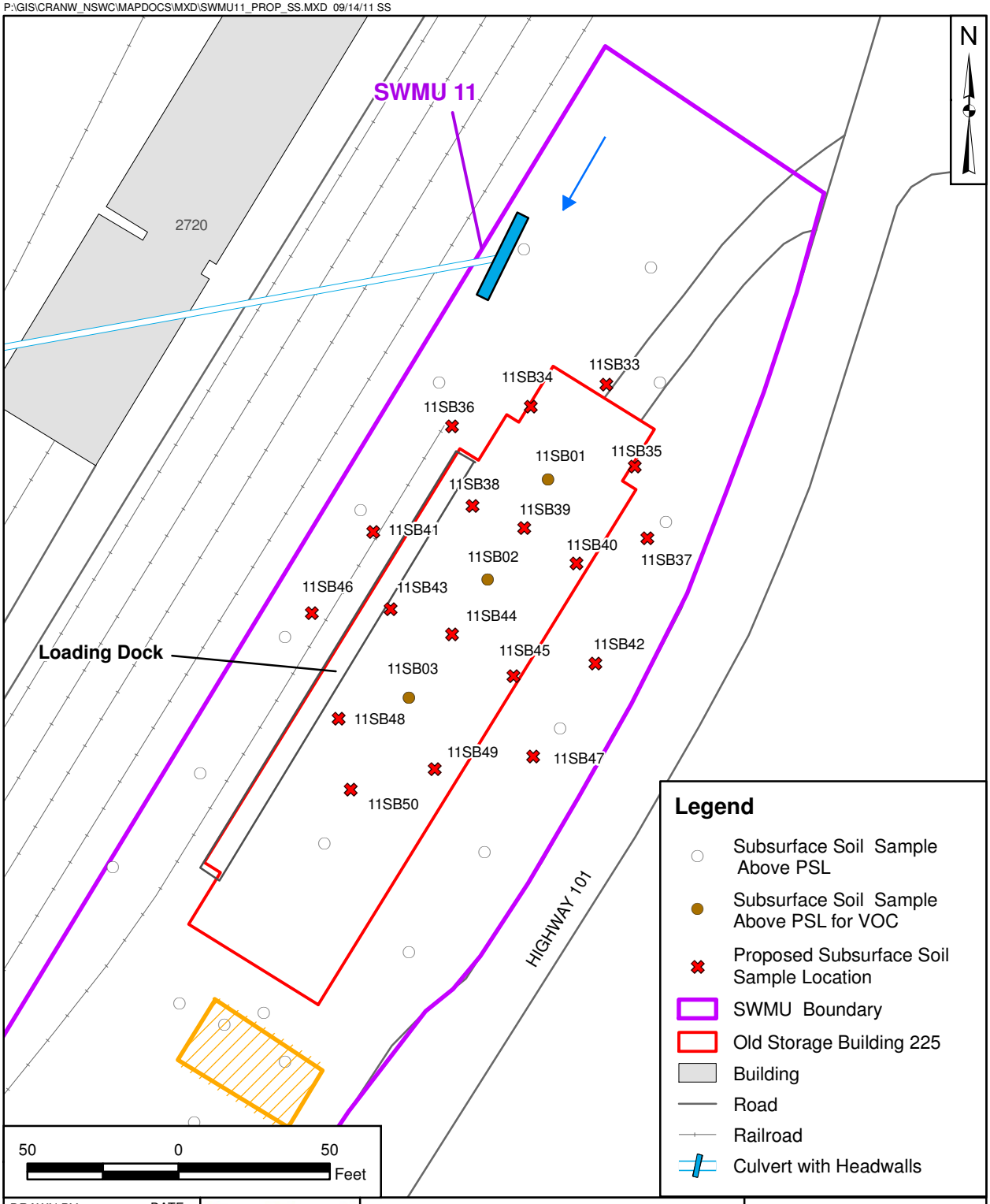

DRAWN BY	DATE			CONTRACT NUMBER CTO F27E	
S. STROZ	08/22/11		PROPOSED SUBSURFACE SOIL SAMPLING LOCATIONS SWMU 11 - OLD STORAGE BUILDING 225 NSA CRANE CRANE, INDIANA	APPROVED BY	DATE
CHECKED BY	DATE			T. KLIMEK	02/24/11
K. LOSEKAMP	09/14/11			APPROVED BY	DATE
REVISED BY	DATE			—	—
SCALE				FIGURE NO.	REV
AS NOTED				2-1	0

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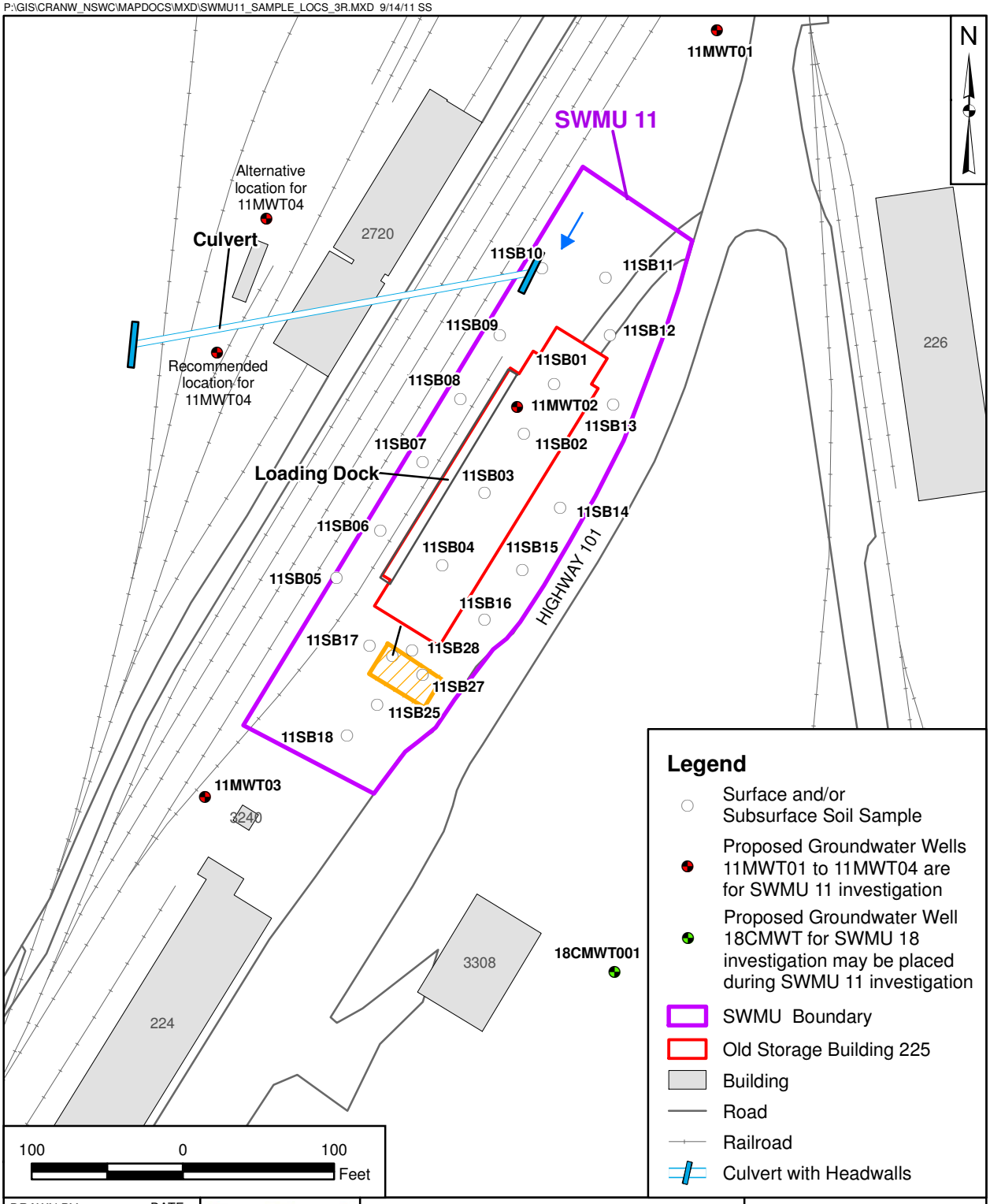

DRAWN BY	DATE			CONTRACT NUMBER CTO F27E	
S. STROZ	05/04/11	NAVFAC	PROPOSED GROUNDWATER MONITORING WELL LOCATIONS SWMU 11 - OLD STORAGE BUILDING 225 NSA CRANE CRANE, INDIANA	APPROVED BY T. KLIMEK	DATE 02/24/11
CHECKED BY K. LOSEKAMP	DATE 9/14/11			APPROVED BY —	DATE —
REVISED BY	DATE			FIGURE NO. 2-2	REV 0
SCALE AS NOTED					

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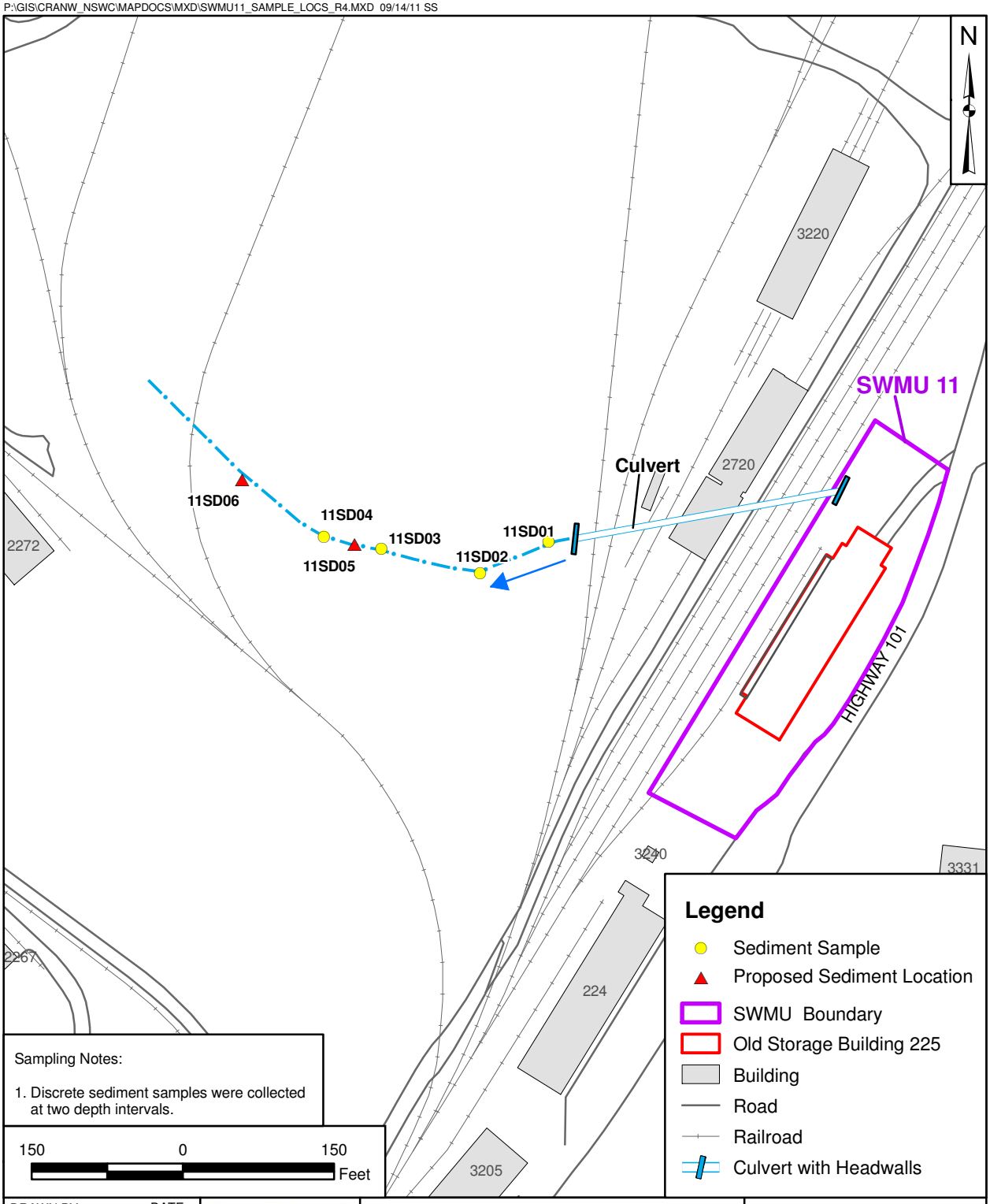


Sampling Notes:

1. Discrete sediment samples were collected at two depth intervals.

DRAWN BY	DATE			CONTRACT NUMBER
S. STROZ	05/05/11			CTO F27E
CHECKED BY	DATE			APPROVED BY / DATE
K. LOSEKAMP	09/14/11			T. KLIMEK / 02/24/11
REVISED BY	DATE			APPROVED BY / DATE
				— / —
SCALE				FIGURE NO. / REV
AS NOTED				2-3 / 0

NAVFAC

PROPOSED SEDIMENT SAMPLING LOCATIONS
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

SWMU 11 - TABLE

Table 2-1- Proposed Supplemental Sampling at SWMU 11

Table 2-1 Proposed Supplemental Sampling at SWMU 11

Sampling Location	ID Number	Matrix	Depth[1] (feet bgs)	Analysis	Number of Samples[1]	Sampling SOP Reference
11SB33	11SB33-XXXX and 11SB-FDXXXXXX[2]	Soil	>2	VOCs	1 + 1 FD	SOP-07, SOP-08, SOP-11
	11SB33-YYYY				1	
11SB34	11SB34-XXXX	Soil	>2	VOCs	1	SOP-07, SOP-08, SOP-11
	11SB34-YYYY				1	
11SB35	11SB35-XXXX	Soil	>2	VOCs	1	SOP-07, SOP-08, SOP-11
	11SB35-YYYY				1	
11SB36	11SB36-XXXX	Soil	>2	VOCs	1	SOP-07, SOP-08, SOP-11
	11SB36-YYYY				1	
11SB37	11SB37-XXXX	Soil	>2	VOCs	1	SOP-07, SOP-08, SOP-11
	11SB37-YYYY				1	
11SB38	11SB38-XXXX	Soil	>2	VOCs	1	SOP-07, SOP-08, SOP-11
	11SB38-YYYY				1	
11SB39	11SB39-XXXX	Soil	>2	VOCs	1	SOP-07, SOP-08, SOP-11
	11SB39-YYYY				1	
11SB40	11SB40-XXXX	Soil	>2	VOCs	1	SOP-07, SOP-08, SOP-11
	11SB40-YYYY				1	
11SB41	11SB41-XXXX	Soil	>2	VOCs	1	SOP-07, SOP-08, SOP-11
	11SB41-YYYY				1	
11SB42	11SB42-XXXX	Soil	>2	VOCs	1	SOP-07, SOP-08, SOP-11
	11SB42-YYYY				1	
11SB43	11SB43-XXXX	Soil	>2	VOCs	1	SOP-07, SOP-08, SOP-11
	11SB43-YYYY				1	
11SB44	11SB44-XXXX	Soil	>2	VOCs	1	SOP-07, SOP-08, SOP-11
	11SB44-YYYY				1	
11SB45	11SB45-XXXX	Soil	>2	VOCs	1	SOP-07, SOP-08, SOP-11
	11SB45-YYYY				1	
11SB46	11SB46-XXXX	Soil	>2	VOCs	1	SOP-07, SOP-08, SOP-11
	11SB46-YYYY				1	
11SB47	11SB47-XXXX	Soil	>2	VOCs	1	SOP-07, SOP-08, SOP-11
	11SB47-YYYY				1	

Table 2-1 Proposed Supplemental Sampling at SWMU 11

Sampling Location	ID Number	Matrix	Depth[1] (feet bgs)	Analysis	Number of Samples[1]	Sampling SOP Reference
11SB48	11SB48-XXXX	Soil	>2	VOCs	1	SOP-07, SOP-08, SOP-11
	11SB48-YYYY				1	
11SB49	11SB49-XXXX	Soil	>2	VOCs	1	SOP-07, SOP-08, SOP-11
	11SB49-YYYY				1	
11SB50	11SB50-XXXX	Soil	>2	VOCs	1	SOP-07, SOP-08, SOP-11
	11SB50-YYYY				1	
11SD05	11SD050006 and 11SD-FDXXXXXX[2]	Sediment	0 – 0.5	Dioxins/Furans	1 + 1FD	SOP-09
11SD06	11SD060006	Sediment	0 – 0.5	Dioxins/Furans	1	SOP-09
11MWT01	11MWT0101	Groundwater	Upper water Bearing Zone	VOCs	1 + 1FD	SOP-12,SOP-13, SOP-14, SOP-15, SOP-16, SOP-17, SOP-18
11MWT02	11MWT0201	Groundwater	Upper water Bearing Zone	VOCs	1	SOP-12, SOP-13, SOP-14, SOP-15, SOP-16, SOP-17, SOP-18
11MWT03	11MWT0301	Groundwater	Upper water Bearing Zone	VOCs	1	SOP-12, SOP-13, SOP-14, SOP-15, SOP-16, SOP-17, SOP-18
11MWT04	11MWT0401	Groundwater	Upper water Bearing Zone	VOCs	1	SOP-12, SOP-13, SOP-14, SOP-15, SOP-16, SOP-17, SOP-18
18CMWT001	18CMWT001	Groundwater	Upper water Bearing Zone	VOCs	1	SOP-12, SOP-13, SOP-14, SOP-15, SOP-16, SOP-17, SOP-18

Notes:

1. Two subsurface soil samples will be collected from sampling locations 33 through 50. “XXXX” and “YYYY” represents depth of the sample, which will be determined in the field. For example, if sample is collected from 4 to 6 feet, the depth will be recorded as 0406.
2. Field duplicate (FD) locations may change in the field based on visual observations and field conditions. “XXXXXX” represents date collected.

STANDARD OPERATING PROCEDURES

SOP -12 Monitoring Well Installation

SOP -18 Drilling and Geologic Logging of Boreholes in Bedrock

STANDARD OPERATING PROCEDURE
SOP-12

MONITORING WELL INSTALLATION

1.0 PURPOSE

This procedure provides general guidance and information pertaining to proper design and installation of ground water monitoring wells for the collection of groundwater samples in the upper water-bearing zone. The methods described herein are specific for monitoring well construction at the NSA Crane facility. Guidelines by South Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM, 1997) and the State of Indiana regulatory requirements in Article 16 Water Well Drillers of Chapter 310 of the Indiana Annotated Codes (310 IAC 16) should be consulted.

2.0 RESPONSIBILITIES

Driller - The driller provides adequate and operable equipment, sufficient quantities of materials, and an experienced and efficient labor force capable of performing all phases of proper monitoring well installation and construction. The drilling contractor personnel must have all the health and safety training required to perform the work, as specified in the health and safety plan. The driller is also responsible for obtaining, in advance, any required permits for drilling and monitoring well installation and construction.

Field Geologist - The field geologist supervises and documents well installation and construction performed by the driller and ensures that the screen interval for each monitoring well is properly placed to provide representative groundwater data from the monitored interval. Geotechnical engineers, field technicians, or other suitable trained personnel may also serve in this capacity.

3.0 REQUIRED EQUIPMENT/ITEMS

The following list includes equipment and items required for monitoring well installation:

Health and safety equipment as required by the HASP and the site safety officer.

Well drilling and installation equipment with associated materials (typically supplied by the driller).

Hydrogeologic equipment (weighted engineer's tape, water-level indicator, retractable engineer's rule, electronic calculator, clipboard, mirror and flashlight for observing downhole activities, paint and ink marker for marking monitoring wells, sample jars, well installation forms, boring logs, soil sample log forms, chain-of-custody records, sample coolers with ice, and a field notebook).

4.0 WELL DESIGN AND CONSTRUCTION

Overburden well borings will be drilled using minimum 4-inch inside diameter hollow-stem augers to the desired depth of each well boring. Rotary drilling with a roller bit and water wash or air rotary drilling can be used to extend the shallow well borings to allow well installation in the upper water-bearing zone. In no cases will the Mississippian Elwren Shale Formation be completely penetrated unless a steel casing is installed and grouted in place at the top of the Elwren Formation.

Bedrock monitoring well borings will be drilled using hollow-stem auger or rotary drilling techniques until the bedrock is reached. For shallow bedrock wells (i.e., those monitoring the upper water-bearing zone in bedrock) where no overburden soil contamination is present, a temporary 6-inch, steel casing will be installed to isolate the overburden while the upper bedrock is drilled. For wells to be installed in the upper water-bearing zone where soil contamination is known to be present, a 6-inch-diameter steel casing will be installed 3 feet to 5 feet into to the top of competent bedrock and will be grouted with cement-bentonite slurry in a manner to ensure that the entire annulus between the casing and borehole is sealed. Diamond coring (NX) or air rotary drilling will be initiated after the grout is allowed to cure for a minimum of 24 hours.

For wells using diamond coring, the coring will proceed from the bottom of the casing to the full depth of the boring. Once the coring has been completed and the core has been logged (see SOP-18), then the hole will be reamed out with a minimum 5-inch-diameter air rotary bit.

For wells using air rotary drilling, the drilling will be performed through the casing immediately after the grout has cured in those cases where coring is not anticipated. These borings will be logged using the rock chips and dust blown up the boring by the return air of the drill bit (see SOP-18). The borehole will then be cleaned out using compressed air from the drill bit. The air rotary equipment must have a filter on the compressed air line going to the borehole to prevent oil and other organics from being introduced.

All monitoring wells will be constructed of Schedule 40, flush-joint-threaded, 2-inch inside diameter polyvinyl chloride (PVC) riser pipe and flush joint threaded, factory slotted well screen with a threaded end cap. The well screens will be factory slotted to 0.010-inch size. Each section of well casing and

screen will be National Sanitation Foundation (NSF) approved. Well screens will be 10 feet long but may be longer or shorter based on the subsurface conditions that are encountered. A PVC cap will be placed on the bottom and will also be flush threaded. Other means of joining casings using glue, gaskets, pop rivets, or screws are not allowed. The screen will pass no more than 10 percent of the pack material or in-situ aquifer material.

Monitoring wells will be installed immediately upon completion of drilling or packer testing, if performed. A well screen section with bottom cap and the proper amount of riser pipe will be assembled and lowered down the borehole. Centralizers will be used as necessary to ensure that the casing and screen are centered and are aligned straight. The sand pack will be extended from 0.5 foot below the well screen to 2.0 feet above the top of the well screen. Clean silica sand of U.S. Standard Sieve Size No. 20 to 40 will be used.

A minimum 3-foot-thick bentonite pellet seal will be installed above the filter pack and allowed to hydrate for a minimum of 3 hours before grout is added above the seal. Only 100 percent, certified pure sodium bentonite will be used for well construction. The depths of backfill materials will be constantly monitored during well installation using a weighted stainless-steel or fiberglass tape measure.

The remaining annulus above the hydrated bentonite seal will be backfilled to the surface using a tremie pipe, with a 20:1 cement/bentonite grout. A maximum of 10 gallons of water per 94-pound bag of Type 1 cement will be used. The grout mixture should be blended in an above-ground rigid container or mixer to produce a thick lump-free mixture. This grout mixture will also be used for placement of steel casings in deep wells.

Bentonite expands by absorbing water and provides a seal between the screened interval and the overlying portion of the annular space and formation. Cement-bentonite grout is placed on top of the bentonite pellets extending to the surface. The grout effectively seals the well and eliminates the possibility for surface infiltration reaching the screened interval. Grouting also replaces material removed during drilling and prevents hole collapse and subsidence around the well. A tremie pipe should be used to introduce grout from the bottom of the hole upward to prevent bridging and to provide a better seal. However, in shallow boreholes that do not collapse, it may be more practical to pour the grout from the surface without a tremie pipe.

When the well is completed and grouted to the surface, a protective steel surface casing is placed over the top of the riser pipe. The finished well casing will extend at least 2 feet above the ground level. This casing will have a cap that can be locked to prevent vandalism. A vent hole will be provided in the cap to

allow venting of gases and maintain atmospheric pressure as water levels rise or fall in the well. The protective casing has a larger diameter than the riser pipe and is set into the wet cement grout over the well upon completion or can be placed between the steel casing and the riser pipe in the case of deep monitoring well borings. In addition, one hole is drilled just above the cement collar through the protective casing, which acts as a weep hole for the flow of water that may enter the annulus during well development, purging, or sampling. In traffic areas or high visibility areas, a flush-to-grade protective may be installed over the top of the riser pipe.

5.0 DOCUMENTATION OF FIELD ACTIVITIES

A critical part of monitoring well installation is recording of significant details and events in the site logbook, on field forms, and in a field logbook. Details of borehole logging are contained in SOP-09.

6.0 ATTACHMENTS

1. Bedrock Monitoring Well Sheet
2. Overburden Monitoring Well Sheet

ATTACHMENT 1

BEDROCK MONITORING WELL SHEET

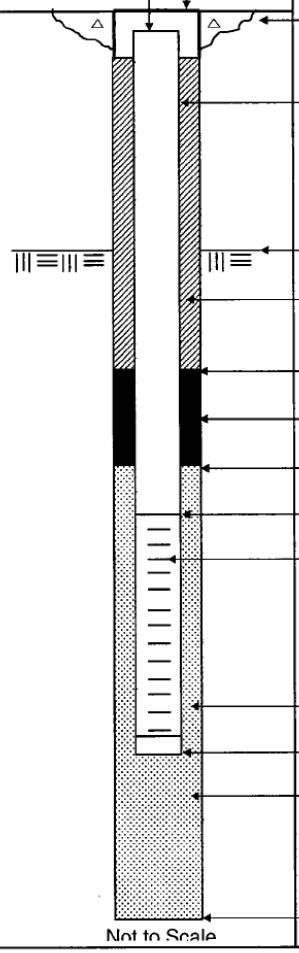
Tetra Tech NUS, Inc.

WELL No.: _____

MONITORING WELL SHEET

PROJECT:		DRILLING Co.:		BORING No.:	
PROJECT No.:		DRILLER:		DATE COMPLETED:	
SITE:		DRILLING METHOD:		NORTHING:	
GEOLOGIST:		DEV. METHOD:		EASTING:	

Ground Elevation =
Datum:



Elevation / Depth of Top of Riser: ____ / ____

Elevation / Height of Top of Surface Casing: ____ / ____

I.D. of Surface Casing: _____

Type of Surface Casing: _____

Type of Surface Seal: _____

I.D. of Riser: _____

Type of Riser: _____

Borehole Diameter: _____

Elevation / Depth Top of Rock: ____ / ____

Type of Backfill: _____

Elevation / Depth of Seal: ____ / ____

Type of Seal: _____

Elevation / Depth of Top of Filter Pack: ____ / ____

Elevation / Depth of Top of Screen: ____ / ____

Type of Screen: _____

Slot Size x Length: _____

I.D. of Screen: _____

Type of Filter Pack: _____

Elevation / Depth of Bottom of Screen: ____ / ____

Elevation / Depth of Bottom of Filter Pack: ____ / ____

Type of Backfill Below Well: _____

Elevation / Total Depth of Borehole: ____ / ____

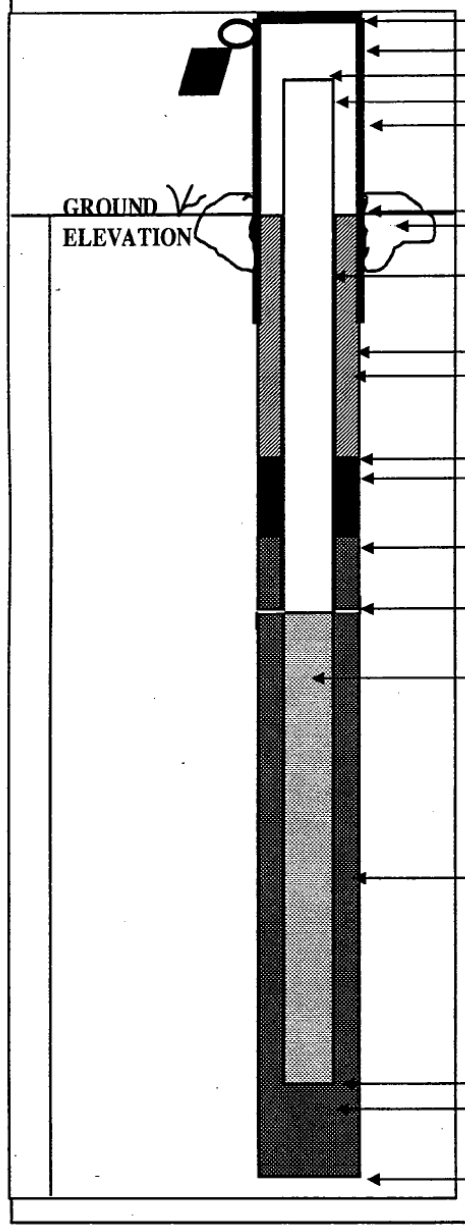
ATTACHMENT 2

OVERBURDEN MONITORING WELL SHEET

BORING NO.: _____

Tetra Tech NUS, Inc. **OVERBURDEN MONITORING WELL SHEET**

PROJECT:	NIROP FRIDLEY	DRILLING Co.:		BORING No.:	
PROJECT No.:	7842 CTO 0057	DRILLER:		DATE COMPLETED:	
SITE:	ANOKA PARK	DRILLING METHOD:		NORTHING:	
GEOLOGIST:		DEV. METHOD:		EASTING:	



ELEVATION OF TOP OF SURFACE CASING: _____
STICK -UP TOP OF SURFACE CASING: _____
ELEVATION OF TOP OF RISER PIPE: _____
RISER STICK-UP ABOVE GROUND SURFACE: _____
I.D. OF SURFACE CASING: _____
TYPE OF SURFACE CASING: _____

GROUND ELEVATION: _____
TYPE OF SURFACE SEAL: _____

RISER PIPE I.D.: 2"
TYPE OF RISER PIPE: CARBON STEEL

BOREHOLE DIAMETER: _____
TYPE OF SEAL: _____

ELEVATION / DEPTH OF SEAL: /
TYPE OF SEAL: BENTONITE CHIPS

ELEVATION / DEPTH TOP OF FILTER PACK: /

ELEVATION / DEPTH TOP OF SCREEN: /

TYPE OF SCREEN: CARBON STEEL

SLOT SIZE X LENGTH: 10 SLOT x

I.D. OF SCREEN: 2"

TYPE OF FILTER PACK: SILICA SAND
(No. 10-20 U.S. STANDARD SEIVE SIZE)

ELEVATION / DEPTH BOTTOM OF SCREEN: /
ELEVATION / DEPTH BOTTOM OF FILTER PACK: /
TYPE OF BACKFILL BELOW WELL: _____
ELEVATION / DEPTH OF BOREHOLE: /

STANDARD OPERATING PROCEDURE
SOP-18

DRILLING AND GEOLOGIC LOGGING OF BOREHOLES IN BEDROCK

1.0 PURPOSE

This procedure describes the methods and equipment necessary to drill bedrock borings and identify the equipment, sequence of events, and appropriate methods necessary to obtain rock cores and prepare boring logs during drilling activities. Up to four types of drilling activities and equipment will be used to drill holes and install monitoring wells at the NSA Crane facility:

- Auger drilling with continuous split-spoon sampling will be used to drill through the overburden material.

- Diamond coring equipment will be used to core through the bedrock. NX or similar size diamond core barrels will be used to collect 2- to 3-inch-diameter continuous rock core. These cores will be used to describe the lithologic characteristics and fracture distributions in the bedrock. Diamond coring is relatively slow and more expensive compared to the air rotary method of drilling, so one hole per subarea is proposed to be cored.

- Air-rotary or rotosonic drilling will be used to advance the boreholes not cored. The holes need to be a minimum of 5 inches in diameter in order to install a 2-inch-diameter monitoring well. Air rotary may also be used to deepen well borings in the event bedrock is encountered before the desired well boring depth is reached.

- Rotary drilling with a roller bit and water wash may be used to complete well borings in the event that bedrock is encountered before the desired well boring depth is reached.

2.0 RESPONSIBILITIES

Field Operations Leader (FOL) - The FOL is responsible for coordinating all on-site personnel and for providing technical assistance, when required. The FOL, or designee, will coordinate and lead all activities and will ensure the availability and maintenance of all materials and equipment. The FOL is responsible for the completion of all field activities and field and chain-of-custody documentation. The

FOL will assume custody of all samples and will ensure the proper handling and shipping of samples. The FOL is a highly experienced environmental professional who will report directly to the TtNUS Task Order Manager (TOM). Specific FOL responsibilities include the following:

- Function as a communications link among field staff members, the site quality assurance/quality control advisor, site safety officer, the site manager, and the TOM.
- Oversee the mobilization and demobilization of all field equipment and subcontractors.
- Coordinate and manage the field technical staff.
- Adhere to the work schedules provided by the TOM.
- Maintain the site logbook and field recordkeeping.
- Initiate field task modification requests, when necessary.
- Identify and resolve problems in the field, resolve difficulties in consultation with the NSA Crane Site Manager, implement and document corrective action procedures, and provide communication between the field team and upper management.

Field Geologist - The field geologist is responsible for ensuring that standard and approved drilling procedures are followed. The field geologist will generate a detailed boring log for each borehole. This log will include a description of geologic materials, samples (if any), method of sampling, and other pertinent information and observations that may be obtained during drilling.

Determination of the exact location for borings is the responsibility of the field geologist. The final location for drilling must be properly documented on the boring log. The general area in which the borings are to be located will be shown on a site map included in the QAPP.

Drilling Subcontractor - The subcontractor operates under the supervision of the FOL. He or she is responsible for obtaining all drilling permits and clearances and supplying all services (including labor), equipment, and material required to perform the drilling, testing, and well installation program, as well as maintenance and quality control of such required equipment except as stated in signed and approved subcontracts.

The driller must report any major technical problems encountered in the field to the FOL within 24 hours of determination and must provide advance written notification of any changes in field procedures, describing and justifying such changes. No such changes will be made unless requested and authorized in writing by the FOL (with the concurrence of the project manager). Depending on the subcontract, the project manager may need to obtain written authorization from appropriate administrative personnel before approving any changes.

The drilling subcontractor is responsible for following decontamination procedures specified for drilling and coring equipment specified in the project plan documents. The FOL will oversee the in-field equipment decontamination procedures to confirm compliance with the appropriate SOP and specific requirements of the NSA Crane Environmental Department. Upon completion of the work, the driller is responsible for demobilizing all equipment, cleaning up any materials deposited on site during drilling operations, and properly backfilling any open borings.

3.0 PROCEDURES

3.1 General

The purpose of drilling boreholes is

- To determine the type, thickness, and certain physical and chemical properties of the soil, water, and rock strata that underlie the site.
- To install monitoring wells or piezometers.

All drilling and sampling equipment will be cleaned between samples and borings using appropriate decontamination procedures. Unless otherwise specified, it is generally advisable to drill borings at "clean" locations first and at the most contaminated locations last to reduce the risk of spreading contamination between locations. All borings must be logged by the site geologist as they proceed.

3.2 Rock Coring

Drilling is done by rotating and applying downward pressure to the drill rods and drill bit. The drill bit is a circular, hollow, diamond-studded bit attached to the outer core barrel in a double-tube core barrel. The use of single-tube core barrels is not recommended because the rotation of the barrel erodes the sample and limits its use for detailed geological evaluation. Water or air is circulated down through the drill rods and annular space between the core barrel tubes to cool the bit and remove the cuttings. The bit cuts a core out of the rock that rises into an inner barrel mounted inside the outer barrel. The inner core barrel

and rock core are removed by lowering a wire line with a coupling into the drill rods, latching onto the inner barrel, and withdrawing the inner barrel. A less efficient variation of this method utilizes a core barrel that cannot be removed without pulling all the drill rods. This variation is practical only if fewer than 50 feet of core is required. When coring rock, the speed of the drill and the drilling pressure, amount and pressure of water, and length of run can be varied to give the maximum recovery from the rock being drilled.

Advantages of core drilling include

- Undisturbed rock cores can be recovered for examination and/or testing.
- In formations in which the cored hole will remain open without casing, water from the rock fractures may be recovered from the well without the installation of a well screen and gravel pack.
- Formation logging is extremely accurate.
- Drill rigs are relatively small and mobile.

Disadvantages include

- Water or air is needed for drilling.
- Coring is slower than rotary drilling (and more expensive).
- Depth to water cannot accurately be determined if water is used for drilling.
- The size of the borehole is limited.

This drilling method is useful if accurate determinations of rock lithology are desired or if open wells are to be installed into bedrock. To install monitoring wells in coreholes, the hole will be reamed out to the proper size after boring, using air rotary drilling methods. Rock coring enables a detailed assessment of borehole conditions to be made, showing precisely all lithologic changes and characteristics. Because coring is an expensive drilling method, it is commonly used for shallow studies of 500 feet or less or for specific intervals in the drill hole that require detailed logging and/or analyzing. Rock coring can, however, proceed for thousands of feet continuously, depending on the size of the drill rig, and can yield better quality data than air-rotary drilling, although at a substantially reduced drilling rate.

Borehole diameter can be drilled to various sizes, depending on the information needed. NX, or a similar size (2- to 3-inch-diameter core recovery), may be used.

Begin the core drilling using a double-tube swivel-core barrel of the desired size. After drilling no more than 10-feet (3-meters), remove the core barrel from the hole and take out the core. If the core blocks the flow of the drilling fluid during drilling, remove the core barrel immediately.

Since rock structures and the occurrence of bedding planes, porosity type and distribution, and fracture patterns are among the most important items to be detected and described, take special care to obtain and record these features. If such broken zones or cavities prevent further advance of the boring, one of the following three steps shall be taken: cement the hole, ream and case, or case and advance with the next smaller size core barrel, as conditions warrant.

3.3 Rock Core Management and Labeling

When the core barrel has been recovered, the rock core will be carefully removed from the barrel, placed in a core tray (previously labeled "top" and "bottom" to avoid confusion), classified, and measured for percentage of recovery as well as the rock quality designation (RQD). Each core will be described, classified, and logged using a uniform system (Sections 4.0 and 5.0 of this SOP).

Rock cores will be placed in the sequence of recovery in well-constructed wooden or cardboard boxes provided by the drilling contractor. Rock cores from two different borings will not be placed in the same core box. The core boxes will be constructed to accommodate at least 20 linear feet of core in rows of approximately 5 feet each. Wood partitions will be placed at the end of each core run. The depth from the surface of the boring to the top and bottom of the drill run and run number will be marked on the wooden partitions with indelible ink. These blocks will serve to separate successive core runs and indicate depth intervals for each run. The order of placing cores will be the same in all core boxes. Rock core will be placed in the box so that, when the box is open, with the inside of the lid facing the observer, the top of the cored interval contained within the box is in the upper left corner of the box and the bottom of the cored interval is in the lower right corner of the box. The top and bottom of each core obtained and their true depths will be clearly and permanently marked on each box. The width of each row must be compatible with the core diameter to prevent lateral movement of the core in the box. Similarly, an empty space in a row will be filled with an appropriate filler material or spacers to prevent longitudinal movement of the core in the box.

The inside and outside of the core-box lid will be marked by indelible ink to show all pertinent data about the box's contents. At a minimum, the following information will be included:

- Project name
- Project number
- Boring number
- Run numbers
- Footage (depths)
- Recovery
- RQD (%)
- Box number and total number of boxes for that boring (Example: Box 5 of 7)
- Contact person's name and telephone number

For easy retrieval when core boxes are stacked, the sides and ends of the box will also be labeled and will include project number, boring number, top and bottom depths of core, and box number.

Before final closing of the core box, a photograph will be taken of the recovered core and the labeling on the inside cover will be taken. If moisture content is not critical, the core shall be wetted and wiped clean for the photograph. (This will help to show true colors and bedding features in the cores.)

3.4 Air Rotary Drilling

Air-rotary drilling is a method of drilling where the drill rig simultaneously turns and exerts a downward pressure on the drilling rods and bit while circulating compressed air down the inside of the drill rods, around the bit, and out the annulus of the borehole. Air circulation serves to both cool the bit and remove the cuttings from the borehole.

Advantages of this method include

- The drilling rate is high (even in rock).
- The cost per foot of drilling is relatively low.
- Air-rotary rigs are common in most areas.
- No drilling fluid is required (except when water is injected to keep down dust).
- The borehole diameter is large to allow room for proper well installation procedures.

Disadvantages to using this method include

- Formations must be logged from the cuttings that are blown to the surface and thus the depths of materials logged are approximate.

- Air blown into the formation during drilling may "bind" the formation and impede well development and natural groundwater flow.

- In-situ samples cannot be taken, unless the hole is cased.

- Air-rotary drill rigs are large and heavy.

- Large amounts of investigation-derived waste (IDW) may be generated that may require containerization, sampling, and off-site disposal.

3.5 Rotosonic Drilling

The rotosonic drilling method employs a high frequency vibrational and low speed rotational motion coupled with down pressure to advance the cutting edge of a drill string. This produces a uniform borehole while providing a continuous, undisturbed core sample of both unconsolidated and most bedrock formations. Rotosonic drilling advances a 4-inch diameter to 12-inch diameter core barrel for sampling and can advance up to a 12-inch diameter outer casing for the construction of standard and telescoped monitoring wells. During drilling, the core barrel is advanced ahead of the outer barrel in increments as determined by the site geologist and depending upon type of material, degree of subsurface contamination and sampling objectives. The outer casing can be advanced at the same time as the inner drill string and core barrel, or advanced down over the inner drill rods and core barrel, or after the core barrel has moved ahead to collect the undisturbed sample and has been pulled out of the borehole. The outer casing can be advanced dry in most cases, or can be advanced with water or air depending upon the formations being drilled, the depth and diameter of the hole, or requirements of the project.

Advantages of this method include:

- Sampling and well installation are faster as compared to other drilling methods.

- Continuous sampling, with larger sample volume as compared to split-spoon sampling.

- The ability to drill through difficult formations such as cobbles or boulders, hard till and bedrock.

- Reduction of IDW by an average of 70 to 80 percent.

- Well installations are quick and controlled by elimination of potential bridging of annular materials during well installation, due to the ability to vibrate the outer casing during removal.

Disadvantages include:

- The cost for rotosonic drilling as compared to other methods are generally higher. However, the net result can be a significant savings considering reduced IDW and shortened project duration.

- Rotosonic drill rigs are large and need ample room to drill, however, rotosonic units can be placed on the ground or placed on an ATV.

- There are a limited number of rotosonic drilling contractors at the present time.

4.0 GEOLOGIC DESCRIPTION OF BOREHOLES IN ROCK

These procedures provide descriptions of the standard techniques for borehole and sample logging. These logging techniques will be used for each boring to provide consistent descriptions of subsurface lithology. While experience is the only method to develop confidence and accuracy in the description of soil and rock, the field geologist or engineer can do a good job of classification by careful, thoughtful observation and by being consistent throughout the classification procedure.

The classification of soil and rocks is one of the most important jobs of the field geologist or engineer. To maintain a consistent flow of information, it is imperative that the field geologist or engineer understand and accurately use the field classification system described in this SOP. This identification is based on visual examination and manual tests.

4.1 Required Field Forms and Equipment

When logging soil and rock samples, the geologist or engineer should be equipped with the following:

Rock hammer
Knife
Camera
10% Dilute hydrochloric acid (HCl)
Ruler (marked in tenths and hundredths of feet)

Hand lens

Writing utensil with indelible ink

Field logbook

Disposable medical-grade gloves (e.g., latex, nitrile)

Soil/rock classification sheets

4.2 Classification of Rocks

Sedimentary rocks are by far the predominant type exposed at the earth's surface and are the only type present at NSA Crane. Rocks are grouped into three main divisions: sedimentary, igneous, and metamorphic: in classifying a sedimentary rock, the following basic names are applied to the types of rocks found in sedimentary sequences:

Sandstone - Made up predominantly of granular materials ranging between 1/16 to 2 mm in diameter.

Siltstone - Made up of granular materials between 1/16 to 1/256 mm in diameter. Fractures irregularly. Medium thick to thick bedded.

Claystone - Very fine-grained rock made up of particle less than 1/256 mm in diameter. Fractures irregularly. Very smooth to touch. Generally has irregularly spaced pitting on surface of drilled cores.

Shale - A fissile, very fine-grained rock with particles less than 1/256 mm in diameter. Fractures along bedding planes.

Limestone - Rock made up predominantly of calcite ($CaCO_3$, which is mainly fossilized animal and plant debris). Effervesces strongly upon the application of dilute hydrochloric acid.

Coal – A very dark colored rock consisting mainly of organic (mainly fossilized plant debris) remains.

Others - Numerous other sedimentary rock types are present in lesser amounts in the stratigraphic record.

The local abundance of any of these rock types is dependent upon the depositional history of the area. Conglomerate, halite, gypsum, dolomite, anhydrite, lignite, etc. are some of the rock types found in lesser amounts.

4.2.1 Rock Type

As described above, there are numerous types of sedimentary rocks. In most cases, a rock will be a combination of several grain types; therefore, a modifier such as "sandy siltstone" or a "silty sandstone" can be used. The modifier indicates that a significant portion of the rock type is composed of the modifier. Other modifying descriptions can include carbonaceous, calcareous, siliceous, fossiliferous, etc.

Grain size is the basis for the classification of clastic (sandstones, siltstones, and shales) sedimentary rocks. The Udden-Wentworth classification will be assigned to sedimentary rocks (shown below). The individual boundaries are slightly different than the USGS subdivision for soil classification. For field determination of grain sizes, a scale can be used for the coarse-grained rocks. Alternatively, the division between siltstone and shale may be measurable in the field by the use of a hand lens. If the grains cannot be seen with the naked eye but are distinguishable with a hand lens, the rock is a siltstone. If the grains are not distinguishable with a hand lens, the rock is a shale.

GRAIN SIZE CLASSIFICATION FOR ROCKS

Particle Name	Grain Size Diameter
Cobbles	> 64 mm
Pebbles	4 - 64 mm
Granules	2 - 4 mm
Very Coarse Sand	1 - 2 mm
Coarse Sand	0.5 - 1 mm
Medium Sand	0.25 - 0.5 mm
Fine Sand	0.125 - 0.25 mm
Very Fine Sand	0.0625 - 0.125 mm
Silt	0.0039 - 0.0625 mm
After Wentworth, 1922	

4.2.2 Color

The color of a rock can be determined in a similar manner as for soil samples. Rock core samples will be classified while wet, when possible, and air-cored samples will be scraped clean of cuttings prior to color classifications. Soil colors will be described utilizing a single color descriptor preceded, when necessary, by a modifier to denote variations in shade or color mixtures. A soil could therefore be referred to as "gray" or "light gray" or "blue-gray." Since color can be utilized in correlating units between sampling locations, it is important for color descriptions to be consistent from one boring to another.

4.2.3 Bedding Thickness

The bedding thickness designations listed below will also be used for rock classification.

BEDDING THICKNESS CLASSIFICATION

Thickness (metric)	Thickness (Approximate English Equivalent)	Classification
> 1.0 meter	> 3.3'	Massive
30 cm - 1 meter	1.0' - 3.3'	Thick bedded
10 cm - 30 cm	4" - 1.0'	Medium bedded
3 cm - 10 cm	1" - 4"	Thin bedded
1 cm - 3 cm	2/5" - 1"	Very thin bedded
3 mm - 1 cm	1/8" - 2/5"	Laminated
1 mm - 3 mm	1/32" - 1/8"	Thinly laminated
< 1 mm	<1/32"	Micro laminated

(Ingram, 1954)

4.2.4 Hardness

The hardness of a rock is a function of the compaction, cementation, and mineralogical composition of the rock. A relative scale for sedimentary rock hardness is as follows:

Soft - Weathered, considerable erosion of core, easily gouged by screwdriver, scratched by fingernail. Soft rock crushes or deforms under pressure of a pressed hammer. This term is always used for the hardness of the saprolite (decomposed rock that occupies the zone between the lowest soil horizon and firm bedrock).

Medium soft - Slight erosion of core, slightly gouged by screwdriver, or breaks with crumbly edges from single hammer blow.

Medium hard - No core erosion, easily scratched by screwdriver, or breaks with sharp edges from single hammer blow.

Hard - Requires several hammer blows to break and has sharp conchoidal breaks. Cannot be scratched with screwdriver.

Note the difference in usage of the words "scratch" and "gouge." A scratch will be considered a slight depression in the rock (do not mistake the scraping off of rock flour from drilling with a scratch in the rock itself), and a gouge is much deeper.

4.2.5 Fracturing

Method of Calculating RQD
(After Deere, 1966)

Fractures should also be noted.

$$RQD\ \% = r/l \times 100$$

r = Total length of all pieces of the lithologic unit being measured that are greater than 4 inches in length and have resulted from natural breaks. Natural breaks include slickensides, joints, compaction slicks, bedding plane partings (not caused by drilling), friable zones, etc.

l = Total length of the coring run.

4.2.6 Weathering

The degree of weathering is a significant parameter that is important in determining weathering profiles and is also useful in engineering designs. The following terms can be applied to distinguish the degree of weathering:

Fresh - The rock shows little or no weathering effect. Fractures or joints have little or no staining and rock has a bright appearance.

Slight - The rock has some staining that may penetrate several centimeters into the rock. Clay filling of joints may occur. Feldspar grains may show some alteration. Oxidation and weathering may affect the degree of fracturing or brokenness of a rock. After eliminating drilling breaks, the average spacing of natural breaks is calculated and the fracturing is described by the following terms:

Very broken (V. BR.) - Less than 2-inch spacing between fractures
Broken (BR.) - 2-inch to 1-foot spacing between fractures
Blocky (BL.) - 1- to 3-foot spacing between fractures

Massive (M.) - 3- to 10-foot spacing between fractures

The structural integrity of the rock can be approximated by calculating the rock quality designation (RQD) of cores recovered. The RQD is determined by adding the total lengths of all pieces exceeding 4 inches and dividing by the total length of the coring run to obtain a percentage.

Moderate - Most of the rock, with exception of quartz grains, is stained. Rock is weakened due to weathering and can be easily broken with a hammer.

Severe - All rock including quartz grains is stained. Some of the rock is weathered to the extent of becoming a soil. Rock is very weak.

4.2.7 Other Characteristics

The following items will be included in the rock description:

Description of contact between two rock units. These can be sharp or gradational.

- Stratification (parallel, cross stratified).
- Description of any filled cavities or vugs.
- Cementation (calcareous, siliceous, hematitic).
- Description of any joints or open fractures.
- Observation of the presence of fossils.
- Notation of joints with depth, approximate angle to horizontal, any mineral filling or coating, and degree of weathering.

All information shown on the boring logs will be neat so it can be reproduced on a copy machine for report presentation. The data will be kept current to provide control of the drilling program and to indicate various areas requiring special consideration and sampling.

4.2.8 Additional Terms Used in the Description of Rock

The following terms are used to further identify rocks:

Seam - Thin (12 inches or less), probably continuous layer.

Some - Indicates significant (15 to 40 percent) amounts of the accessory material. For example, rock composed of seams of sandstone (70 percent) and shale (30 percent) would be "sandstone -- some shale seams."

Few - Indicates insignificant (0 to 15 percent) amounts of the accessory material. For example, rock composed of seam of sandstone (90 percent) and shale (10 percent) would be "sandstone -- few shale seams."

Interbedded - Used to indicate thin or very thin alternating seams of material occurring in approximately equal amounts. For example, rock composed of thin alternating seams of sandstone (50 percent) and shale (50 percent) would be "interbedded sandstone and shale."

Interlayered - Used to indicate thick alternating seams of material occurring in approximately equal amounts.

4.2.9 Abbreviations

Abbreviations may be used in the description of a rock. However, they will be kept at a minimum. Following are some of the abbreviations that may be used:

C	-	Coarse	Lt	-	Light	Yl	-	Yellow
Med	-	Medium	BR	-	Broken	Or	-	Orange
F	-	Fine	BL	-	Blocky	SS	-	Sandstone
V	-	Very	M	-	Massive	Sh	-	Shale
Sl	-	Slight	Br	-	Brown	LS	-	Limestone
Occ	-	Occasional	Bl	-	Black	Fgr	-	Fine-grained
Tr	-	Trace						

5.0 BORING LOGS AND DOCUMENTATION

This section describes in more detail the procedures to be used in completing boring logs in the field. Information obtained from the preceding sections will be used to complete the logs. A sample boring log is attached at the end of this SOP.

The field geologist or engineer will use this example as a guide in completing each boring log. Each boring log will be fully described by the geologist or engineer as the boring is being drilled. Every sheet contains space for 25 feet of log. Information regarding classification details is provided either on the

back of the boring log or on a separate sheet, for field use. All data will be written directly on the boring log. Additional notes may be entered in a field notebook if more space is needed.

5.1 Remarks Column

The following information will be entered under the "Remarks" column and will include, but is not limited to, the following:

- Moisture - Estimate moisture content using the following terms: dry, moist, wet, and saturated. These terms are determined by the individual. Whatever method is used to determine moisture should be consistent throughout the log.

- Angularity - Describe angularity of coarse-grained particles using the terms angular, subangular, subrounded, or rounded. Refer to ASTM D 2488 or the Earth Manual for criteria for these terms.

- Particle shape - flat, elongated, or flat and elongated.

- Maximum particle size or dimension.

- Water-level observations.

- Reaction with HCl - none, weak, or strong.

Additional comments:

- Indicate presence of mica, caving of hole, when water was encountered, difficulty in drilling, loss or gain of water.

- Indicate odor and photoionization detector (PID) readings.

- Indicate any change in lithology by drawing a line through the lithology change column and indicate the depth. This will help when cross-sections are subsequently constructed.

- At the bottom of the page, indicate type of rig, drilling method, hammer size and drop, and any other useful information (i.e., borehole size, casing set, changes in drilling method).

- Vertical lines shall be drawn in the Material Description column from the bottom of each sample to the top of the next sample to indicate consistency of material from sample to sample, if the material is consistent. Horizontal lines will be drawn if there is a change in lithology, then vertical lines will be drawn to that point.

- Indicate screened interval of well, as needed, in the lithology column. Show top and bottom of screen. Other details of well construction are provided on the well construction forms.

5.2 Rock Classification

Indicate depth at which coring began by drawing a line at the appropriate depth. Indicate core run depths by drawing coring run lines (as shown) under the first and fourth columns on the log sheet. Indicate core run number, RQD percent, and core recovery under the appropriate columns.

Indicate lithology change by drawing a line at the appropriate depth, as explained above.

Rock hardness is entered under designated column using terms as described on the back of the log or as explained earlier in this section.

Enter color as determined while the core sample is wet; if the sample is cored by air, the core is to be scraped clean before the color is described.

Enter rock type. For sedimentary rocks, use terms as described in Section 4.2. Again, be consistent in classification. Use modifiers and additional terms as needed.

Enter brokenness of rock or degree of fracturing under the appropriate column using symbols VBR, BR, BL, or M, as explained in Section 4.2.6 and as noted on the back of the boring log.

The following information will be entered under the remarks column. Items will include but are not limited to the following:

- Indicate depths of joints, fractures, and breaks and also approximate to horizontal angle (such as high, low) (i.e., 70° angle from horizontal, high angle).
- Indicate calcareous zones, description of any cavities or vugs.
- Indicate any loss or gain of drill water.

- Indicate drop of drill tools or change in color of drill water.

Remarks at the bottom of boring log will include

- Type and size of core obtained
- Depth casing was set
- Type of rig used

As a final check, the boring log will include the following:

- Vertical lines will be drawn as explained for soil classification to indicate consistency of bedrock material.

- If applicable, indicate screened interval in the lithology column. Show top and bottom of screen. Other details of well construction are provided on the well construction forms.

5.3 Classification of Soil and Rock from Drill Cuttings

The previous sections describe procedures for classifying rock samples when cores are obtained. However, some drilling methods (air/mud rotary) may require classification and borehole logging based on identifying drill cuttings removed from the borehole. Such cuttings provide only general information on subsurface lithology. Some procedures that will be followed when logging cuttings are as follows:

- Obtain cutting samples at approximately 5-foot intervals, sieve the cuttings (if mud rotary drilling) to obtain a cleaner sample, place the sample into a small sample bottle or ziplock bag for future reference, and label the jar or bag (i.e., hole number, depth, date, etc.). Cuttings will be closely examined to determine general lithology.

- Note any change in color of drilling fluid or cuttings to estimate changes in lithology.

- Note drop or chattering of drilling tools or a change in the rate of drilling to determine fracture locations or lithologic changes.

- Observe loss or gain of drilling fluids or air (if air rotary methods are used) to identify potential fracture zones.

- Record this and any other useful information onto the boring log.

This logging provides a general description of subsurface lithology, and adequate information can be obtained through careful observation of the drilling process. It is recommended that split-barrel and rock core sampling methods be used at selected boring locations during the field investigation to provide detailed information to supplement the less-detailed data generated through borings drilled using air and mud rotary methods.

5.4 Review

Upon completion of the borings logs, copies will be made and reviewed. Items to be reviewed include

- Checking for consistency of all logs
- Checking for conformance to the guideline
- Checking to see that all information is entered in their respective columns and spaces

Originals of the boring logs will be retained in the project files.

7.0 ATTACHMENTS

1. Boring Log

ATTACHMENT 1

BORING LOG

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: _____ BORING No.: _____
PROJECT NUMBER: _____ DATE: _____
DRILLING COMPANY: _____ GEOLOGIST: _____
DRILLING RIG: _____ DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**

* When rock coring, enter rock brokeness.
** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): _____

Remarks: _____

Converted to Well: Yes _____ No _____ Well I.D. #: _____

References

Deere, D.U. and Miller, R.P., (1966). Engineering Classification and Index Properties for Intact Rock, Air Force Weapons Lab. Tech. Report AFWL-TR-65-116, Kirtland Base, New Mexico.

Wentworth, C.K., 1922. A Scale of Grade and Class Terms for Caustic Sediments: Jour. Geology, v. 30, p. 377-392.

Ingram, R.L., 1954. Terminology for the Thickness of Stratification and Parting Units in Sedimentary Rocks: Geological Society of America Bulletin, v. 65. p. 937-938.

TECHNICAL MEMORANDUM

DATE: September 15, 2011

TO: Mr. Tom Brent, NSA Crane
Mr. Howard Hickey, NAVFAC Midwest

FROM: Tony Klimek, Tetra Tech; Cincinnati, OH
George Ten Eyck, Tetra Tech; Cincinnati, OH

cc: Mr. John Trepanowski, Tetra Tech
Mr. Ralph Basinski, Tetra Tech
Project File – CTO F27E

SUBJECT: NSA Crane - SWMU 11 – Old Storage Building 225
- Initial Sampling Summary
- Proposed Supplemental Sampling

Tetra Tech performed initial sampling and analysis for a RCRA Facility Investigation (RFI) at SMWU 11 – Old Storage Building 225 (site). RFI samples were collected in April 2011 in accordance with the March 2011 *Sampling and Analysis Plan (SAP)*. The sampling and analysis was performed to determine if any contaminants of potential concern (COPCs) exceeded the Project Screening Levels (PSLs) identified in the SAP. The objective of the sampling and analysis was to obtain sufficient data to define the nature and extent of contamination, perform a risk assessment, and to proceed with an RFI report

The initial April 2011 samples have been collected and analyzed. The analytical results have been validated and the data has been reviewed. Based on a review of the data, there are gaps in the data regarding the extent of contamination. Supplemental sampling is required to address those data gaps prior to preparing an RFI report.

The purpose of this memorandum is to: 1) describe the initial sampling and summarize the analytical results, 2) assess the analytical results and identify data gaps; and 3) present recommendations for supplemental sampling and analysis to delineate the extent of contamination and obtain sufficient data to prepare the RFI report.

Background

SWMU 11 – Old Storage Building 225 was destroyed by a fire on July 13, 1976. At the time Building 225 was used for inert storage of pentachlorophenol, paints, sodium flourescein dye, solvents (acetone, toluene, and methyl ethyl ketone), and various other items including inks, staples, and wax paraffin. Over 600,000 gallons of water used during the firefighting may have facilitated the spreading of chemicals in the immediate area of Building 225 and along a drainage way west of the site. The drainage way joins Broom Branch further downstream. Some water from the firefighting that collected in low lying areas near Building 225 and the drainage way was collected and temporarily stored presumably in the Building 2981 concrete tank located approximately one mile southwest of Building 225.

No previous environmental investigations have been performed at the site. The RFI environmental investigation program presented in the SAP was designed to determine if there was any evidence of environmental contamination at the site from building operations, the fire, or firefighting operations. The SAP also addressed the potential creation and deposition of dioxin/furan compounds from the partial burning of organic compounds associated with the burning of the building and the contents.

Initial RFI Investigation Results

In April, 2011, surface soil samples were collected from 28 locations, subsurface soil samples were collected from 8 locations, and sediment samples were collected from 4 locations in the drainage way. The soil and sediment sample locations in the former Building 225 area are shown on Figure 1-1. No groundwater samples were collected during the initial sampling. Direct push technology drilling equipment was used to collect soil samples. Bedrock was encountered at a depth of 7 to 10 feet below ground surface (bgs); no groundwater was encountered in the soil above the bedrock.

The analytical results of the surface soil, subsurface soil, and sediment are summarized on attached Tables 1, 2, and 3. Tag maps showing the sample locations and contaminant concentrations above project screening levels (PSLs) are shown of Figures 1-2 through 1-9.

Surface Soil: Twenty-four (24) surface soil samples were collected at the Old Storage Building 225 and four (4) surface soil samples were collected in the Building 2981 area. The surface soil samples were collected between 0 to 2 feet below (bgs). Surface soil samples were collected 6 inches below the former Building 225 concrete slab. Eleven (11) of the surface soil samples collected in the Old Storage Building 225 area were analyzed for dioxin/furans. Twenty-two (22) surface soil samples were analyzed for target analyte list metals, cyanide, polychlorinated biphenyls (PCBs), pesticides, polycyclic aromatic hydrocarbons (PAHs), and semi-volatile organic compounds (SVOCs). Four surface soil samples

collected below the former Building 225 concrete slab were analyzed for volatile organic compounds (VOCs). The analytical results of contaminants that were detected at the site in surface soil are shown on Table 1.

- **Dioxin/furans.** As shown on Table 1, all eleven (11) surface soil dioxin/furans samples had contaminant concentrations that exceeded the Ecological Risk Assessment (ERA) Project Screening levels (PSLs). As shown on Table 1 and Figure 1-2, two (2) surface soil samples had dioxin/furan concentrations that exceeded the Human Health Risk Assessment (HHRA) PSLs. Surface soil sample 11SB11 had HHRA PSL exceedances for three dioxin/furans components and surface soil sample 11SB14 had slight HHRA PSL exceedances for two dioxin/furans components.

- **Metals/Cyanide.** Most of the twenty two (22) surface soil samples analyzed for metals had HHRA or ERA exceedances of aluminum, arsenic, cobalt, iron, manganese, selenium, vanadium, and zinc. The metal concentrations that exceed PSLs in the Building 225 area are shown on Figure 1-3. The metal concentrations that exceed PSLs in the Building 2981 area are shown on Figure 1-8. All samples were less than the method detection limit for cyanide.

- **Pesticides/PCBs.** Twenty-two (22) surface soil samples were analyzed for Pesticides/PCBs. All pesticides concentrations were less than the method detection limit and no PCBs were detected in the samples.

- **PAHs/SVOCs.** Three (3) of the eighteen (18) surface soil samples (11SB11, 11SB13, and 11SB14) collected in the Building 225 area exceeded PSLs for PAHs concentrations and are shown on Figure 1-4. All four (4) of the surface soil samples collected in the Building 2981 area (11SB29, 11SB30, 11SB31, and 11SB32) exceeded PSLs for PAHs concentrations and are shown on Figure 1-9. No SVOC contaminants exceeded the PSLs.

- **VOCs.** One (1) surface soil sample (11SB01) showed a tetrachloroethene (PCE) concentration of 1.36 micrograms per kilogram (ug/Kg) that exceeded the Human Health Risk Assessment (HHRA) PSL of 0.98 ug/kg and is shown on Figure 1-5.

Subsurface Soil: Eight subsurface samples were collected at Old Storage Building 225; four borings were placed below the Building 225 concrete floor and four borings were placed in the area of a former underground storage tank associated with Building 225. All subsurface borings were drilled to the top of bedrock which ranged from 7 feet bgs (11SB28) to 10 feet bgs (11SB02). All subsurface soil samples were analyzed for metals, cyanide, pesticide/PCBs, PAHs/SVOCs, and VOCs. Subsurface samples were not analyzed for dioxins/furans. The analytical results of contaminants that were detected at the site in subsurface soil are shown on Table 2.

- **Building 225 Subslab.** Four subsurface soil samples were collected below the concrete slab at a depth of 4 to 6 feet bgs and were analyzed for metals, cyanide, pesticides/PCBs, PAHs/SVOCs, and VOCs. As shown on Table 2, all samples exceeded HHRA PSLs for metal concentrations. Pesticide/PCBs and PAHs/SVOCs were less than the method detection limit in all four subsurface samples. Three of the four subsurface samples had contaminant concentrations that exceeded VOCs PSLs, specifically for PCE, trichloroethene (TCE), and vinyl chloride (VC). The TCE concentrations ranged from 1.57 J ug/Kg (11SB03) to 826 ug/Kg (11SB02). All concentrations are shown on Figures 1-3 and 1-5.

- **Building 225 UST Area.** Four subsurface soil samples were collected in the UST area. The samples were analyzed for PAHs, SVOCs, and VOCs. The analytical results for these samples did not exceed PSLs for HHRA.

Sediment: Eight sediment samples were collected from four locations (11SD01, 11SD02, 11SD03, and 11SD04) in a drainage way that discharges into Broom Branch as shown on Figure 1-1. The sediment samples were collected at two depths, 0 to 6 inches bgs and 6 to 12 inches bgs at each location. All sediment samples were analyzed for metals, cyanide, pesticide/PCBs, and PAHs/SVOCs. One sediment sample (11SD02) was also analyzed for dioxin/furans. The analytical results of contaminants that were detected at the site in sediment are shown on Table 3 and Figures 1-2, 1-6, and 1-7.

- **Dioxin/furans.** As shown on Figure 1-2, the two sediment samples collected at locations 11SD02 had dioxin/furans concentrations that exceed ecological PSLs. Only the TEQ WHO-2005 component of dioxin/furans in the sediment samples exceeded HHRA PSLs.

- **Metals/Cyanide.** As shown on Figure 1-6, at least one of the four sediment locations exceeded one of the HHRA or ERA criteria for metals. The sediment samples exceeded aluminum, antimony, cadmium, chromium, cobalt, iron, lead, manganese, mercury, selenium, thallium, vanadium, and zinc. Four of the eight sediment samples exceeded ecological PSLs for cyanide. Cyanide concentrations ranged from 0.201 J mg/Kg (11SD020612) to 0.462 J mg/Kg (11SD040612).

- **Pesticides/PCBs.** All sediment samples were analyzed for pesticide/PCBs. As shown on Table 3, analytical results show that no pesticide and PCBs were detected in the samples.

- **PAHs/SVOCs.** Six of the eight sediment samples had PAH exceedances. The shallow sediment samples (0 to 6 inches bgs) collected at 11SD01 had three PAH compounds (benzo(a)pyrene,

benzo(b)fluoranthene, and dibenzo(a,h)anthracene) that exceeded HHRA PSLs. The benzo(b)fluoranthene and dibenzo(a,h)anthracene concentrations exceeded the HHRA PSL were only detected in the furthest upstream sample (11SD01). Five of eight sediment samples had benzo(a)pyrene concentrations ranging from 19.7 ug/kg (11SD040612) to 136 ug/Kg (11SD010006) that exceeded the HHRA PSL of 15 ug/Kg. The benzo(a)pyrene concentrations show a decrease for each successive downstream sediment sample. These analytical results are shown on Table 3. No SVOCs contaminants exceeded the PSLs.

Preliminary Data Assessment and Data Gaps

Three subsurface soil samples had PCE, TCE, and VC concentrations greater than the HHRA PSLs and two sediment samples from one location had dioxin/furans concentrations greater than the HHRA PSLs. The PCE, TCE, and VC were detected in 11SB01, 11SB02, and 11SB03 at depths of 4 feet to 6 feet bgs. The depth to bedrock in these borings range from 8.5 feet bgs to 10 feet bgs. PCE, TCE, and VC are dense non-aqueous phase liquids that can migrate vertically and can affect groundwater.

The two sediment samples collected from 11SD02 (0 to 6 inches bgs and 6 to 12 inches bgs) analyzed for dioxin/furans had concentrations above the HHRA and ERA PSLs. These were the only two sediment samples analyzed for dioxin/furans. It is possible dioxin/furans sediment contamination extends further downstream from the 11SD02 location.

Recommendations

Tetra Tech recommends obtaining additional data before preparing the RFI report. This additional data will be obtained by performing additional subsurface soil and sediment sampling and analysis, and the installation and subsequent sampling and analysis of five groundwater monitoring wells. The additional sampling and analysis described in this Tech Memo will be performed in accordance with a Field Task Modification Request (FTMR) form and the step-out provisions and requirements in the approved March 2011 SWMU 11 UFP-SAP. The approximate locations of the additional subsurface soil and sediment samples and the locations on the proposed groundwater monitoring wells are shown on Figures 2-1, 2-2, and 2-3; the additional sampling and analysis is presented on attached Table 2-1 and described as follows:

- **Subsurface samples below former Building 225.** Subsurface soil samples will be collected from eighteen (18) additional soil borings in the area of the Building 225 concrete floor to delineate and bound the extent of subsurface soil PCE, TCE, and VC contamination. Two subsurface samples will be collected at each soil boring at the 1 foot interval above bedrock and

at the 4 to 6 feet bgs interval if there are no obvious signs of contamination. The proposed locations are shown on Figure 2-1.

- **Groundwater Monitoring Wells.** Five groundwater monitoring wells will be installed to determine if PCE, TCE, or VC has migrated to the groundwater. The groundwater monitoring wells will be placed in bedrock to an approximate depth of 30 to 40 feet bgs or to the first water bearing zone. The proposed locations are shown on Figure 2-2. Monitoring well 11MWT01 will be installed approximately 290 feet north-northeast of soil boring 11SB02. Monitoring well 11MWT02 will be installed near soil boring 11SB02. Monitoring well 11MWT03 will be approximately 320 feet south-southwest of soil boring 11SB02 and 20 feet west of Building 3240. Monitoring well 11MWT04 will be approximately 200 feet west of 11SB02 with an alternate location approximately 210 feet northwest of 11SB02. The fifth monitoring well, 18CMWT001, will be located approximately 340 feet south of 11SB02. Monitoring well 18CMWT001 was previously proposed for adjacent SWMU 18; depending upon timing, this well may be installed as part of the additional work for SWMU 11 and used for both SWMU 11 and 18. The new monitoring wells will be drilled and logged according to the Tetra Tech Standard Operating Procedures (SOP) 18 and the monitoring wells will be installed according to the revised Tetra Tech SOP 12. The drilling, sampling, and well installation will be supervised by a Tetra Tech field geologist who has sufficient experience and familiarity with drilling and installing wells in the Lower Pennsylvanian Mansfield Formation at the NSA Crane facility. SOP 18 and SOP 12 will be attached to the FTMR form.

- **Sediment samples from the drainage way that discharges into Broom Branch.** Two additional sediment samples will be collected from two locations downstream of the sediment samples collected at 11SD02 to better define the extent of dioxin/furan contamination. The sediment samples will be collected between 0 to 6 inches bgs and will be analyzed for dioxins/furans. The proposed locations are shown on Figure 2-3.

SWMU 11 - TABLES

Table 1- Analytical Results for Surface Soil Samples
Table 2 - Analytical Results for Subsurface Soil Samples
Table 3 - Analytical Results for Sediment Samples
Table 2-1 - Proposed Supplemental Sampling at SWMU 11

Table 1 - Analytical Results for Surface Soil Samples

LOCATION	HHRA PSL		ERA PSL		11SB01			11SB02	11SB03	11SB04
SAMPLE ID					11SB010002	11SB010002-AVG	11SB010002-D	11SB020002	11SB030002	11SB040002
SAMPLE DATE					20110426	20110426	20110426	20110426	20110426	20110426
SAMPLE CODE					ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL
MATRIX					SO	SO	SO	SO	SO	SO
SAMPLE TYPE					NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX					SS	SS	SS	SS	SS	SS
TOP DEPTH					0	0	0	0	0	0
BOTTOM DEPTH					2	2	2	2	2	2
DIOXINS/FURANS (NG/KG)										
1,2,3,4,6,7,8,9-OCDD	15000	R-RSL	0.199	R5 ESL-S	NA	NA	NA	2830	NA	NA
1,2,3,4,6,7,8,9-OCDF	15000	R-RSL	38.6	R5 ESL-S	NA	NA	NA	2.96 J	NA	NA
1,2,3,4,6,7,8-HPCDD	450	R-RSL	0.199	R5 ESL-S	NA	NA	NA	66.4	NA	NA
1,2,3,4,6,7,8-HPCDF	450	R-RSL	38.6	R5 ESL-S	NA	NA	NA	0.622 J	NA	NA
1,2,3,4,7,8,9-HPCDF	450	R-RSL	38.6	R5 ESL-S	NA	NA	NA	3.28 U	NA	NA
1,2,3,4,7,8-HXCDD	45	R-RSL	0.199	R5 ESL-S	NA	NA	NA	0.655 J	NA	NA
1,2,3,4,7,8-HXCDF	45	R-RSL	38.6	R5 ESL-S	NA	NA	NA	3.28 U	NA	NA
1,2,3,6,7,8-HXCDD	45	R-RSL	0.199	R5 ESL-S	NA	NA	NA	0.767 J	NA	NA
1,2,3,6,7,8-HXCDF	45	R-RSL	38.6	R5 ESL-S	NA	NA	NA	3.28 U	NA	NA
1,2,3,7,8,9-HXCDD	45	R-RSL	0.199	R5 ESL-S	NA	NA	NA	1.31 J	NA	NA
1,2,3,7,8,9-HXCDF	45	R-RSL	38.6	R5 ESL-S	NA	NA	NA	3.28 U	NA	NA
1,2,3,7,8-PECDD	4.5	R-RSL	0.199	R5 ESL-S	NA	NA	NA	3.28 U	NA	NA
1,2,3,7,8-PECDF	150	R-RSL	38.6	R5 ESL-S	NA	NA	NA	3.28 U	NA	NA
2,3,4,6,7,8-HXCDF	45	R-RSL	38.6	R5 ESL-S	NA	NA	NA	3.28 U	NA	NA
2,3,4,7,8-PECDF	15	R-RSL	38.6	R5 ESL-S	NA	NA	NA	3.28 U	NA	NA
2,3,7,8-TCDD	4.5	R-RSL	0.199	R5 ESL-S	NA	NA	NA	0.653 U	NA	NA
TEQ WHO-2005	4.5	R-RSL	NC		NA	NA	NA	1.83	NA	NA
TEQ WHO-2005 - HALFND	4.5	R-RSL	NC		NA	NA	NA	2.12	NA	NA
TOTAL HPCDD	NC		NC		NA	NA	NA	119	NA	NA
TOTAL HPCDF	NC		NC		NA	NA	NA	3.28 U	NA	NA
TOTAL HXCDD	NC		NC		NA	NA	NA	8.91	NA	NA
TOTAL HXCDF	NC		NC		NA	NA	NA	0.273 J	NA	NA
TOTAL PECDD	NC		NC		NA	NA	NA	0.343 J	NA	NA
TOTAL PECDF	NC		NC		NA	NA	NA	3.28 U	NA	NA
TOTAL TCDD	NC		NC		NA	NA	NA	0.653 U	NA	NA
TOTAL TCDF	NC		NC		NA	NA	NA	0.49 U	NA	NA
METALS (MG/KG)										
ALUMINUM	7700	R-RSL	NC		19900	17850	15800	12700	16800	15100
ARSENIC	0.026	RBSL	18	Eco-SSL	12	10.18	8.36	7.18	3.57	6.39
BARIUM	1500	R-RSL	330	Eco-SSL	67.3	64.35	61.4	40.4	61.7	52.1
BERYLLIUM	16	R-RSL	21	Eco-SSL	0.833	0.7705	0.708	0.532 J	0.481 J	0.545 J
CADMIUM	7	R-RSL	0.36	Eco-SSL	0.251 U	0.248 U	0.245 U	0.243 U	0.245 U	0.239 U
CALCIUM	NC		NC		560 J	4320	8080 J	278 J	544 J	883
CHROMIUM	NC		26	Eco-SSL	21	21.85	22.7	20.9	17.8	17.2
COBALT	2.3	R-RSL	13	Eco-SSL	6.36 J	9.53	12.7 J	3.48	3.61	4.19
COPPER	310	R-RSL	28	Eco-SSL	18.3	15.8	13.3	10.6	15	13
IRON	5500	R-RSL	NC		27200	23850	20500	23800	14300	18400
LEAD	81	R-DCL	11	Eco-SSL	14	13.45	12.9	11.4	8.71	9.11
MAGNESIUM	NC		NC		2550	2675	2800	1370	1890	1830
MANGANESE	180	R-RSL	220	Eco-SSL	271 J	406.5	542 J	231	111	127
MERCURY	0.66	RBSL	0.1	R5 ESL-S	0.0512 J	0.03425	0.0173 J	0.0389 UJ	0.0446 J	0.0235 J
NICKEL	150	R-RSL	38	Eco-SSL	15.4	14.1	12.8	8.9	9.85	10.2
POTASSIUM	NC		NC		1040	948.5	857	516 J	839	748
SELENIUM	5.2	R-DCL	0.52	Eco-SSL	0.652 J	0.479	0.612 U	0.406 J	0.612 U	0.597 U
SODIUM	NC		NC		376 U	278 J	278 J	365 U	367 U	358 U
VANADIUM	39	R-RSL	7.8	Eco-SSL	41	36.95	32.9	35.2	22.9	29
ZINC	2300	R-RSL	46	Eco-SSL	52.5	44.05	35.6	21.6	33.1	27
PESTICIDES (UG/KG)										
4,4'-DDE	940	RBSL	21	Eco-SSL	0.417 U	0.4225 U	0.428 U	0.42 U	0.416 U	0.419 U
ALPHA-BHC	1.24	RBSL	99.4	R5 ESL-S	0.417 U	0.4225 U	0.428 U	0.42 U	0.416 U	0.419 U
BETA-BHC	4.4	RBSL	3.98	R5 ESL-S	0.417 U	0.4225 U	0.428 U	0.265 J	0.221 J	0.419 U
GAMMA-BHC (LINDANE)	7.2	RBSL	5	R5 ESL-S	0.417 U	0.4225 U	0.428 U	0.42 U	0.416 U	0.419 U
GAMMA-CHLORDANE	260	RBSL	224	R5 ESL-S	0.417 U	0.4225 U	0.428 UJ	0.42 U	0.416 U	0.419 UJ
METHOXYCHLOR	31000	R-RSL	19.9	R5 ESL-S	0.417 U	0.4225 U	0.428 U	0.42 U	0.416 U	0.419 U

Table 1 - Analytical Results for Surface Soil Samples

LOCATION	HHRA PSL		ERA PSL		11SB01			11SB02	11SB03	11SB04
SAMPLE ID					11SB010002	11SB010002-AVG	11SB010002-D	11SB020002	11SB030002	11SB040002
SAMPLE DATE					20110426	20110426	20110426	20110426	20110426	20110426
SAMPLE CODE					ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL
MATRIX					SO	SO	SO	SO	SO	SO
SAMPLE TYPE					NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX					SS	SS	SS	SS	SS	SS
TOP DEPTH					0	0	0	0	0	0
BOTTOM DEPTH					2	2	2	2	2	2
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)										
2-METHYLNAPHTHALENE	3100	R-DCL	29000	Eco-SSL	4.22 U	4.165 U	4.11 U	4.11 U	3.99 U	4.1 U
ACENAPHTHENE	130000	R-DCL	29000	Eco-SSL	4.22 U	4.165 U	4.11 U	4.11 U	3.99 U	4.1 U
ACENAPHTHYLENE	18000	R-DCL	29000	Eco-SSL	4.22 U	4.165 U	4.11 U	4.11 U	3.99 U	4.1 U
ANTHRACENE	1700000	R-RSL	29000	Eco-SSL	4.22 U	4.165 U	4.11 U	4.11 U	3.99 U	4.1 U
BENZO(A)ANTHRACENE	150	R-RSL	1100	Eco-SSL	4.22 U	4.165 U	4.11 U	4.11 U	3.99 U	4.1 U
BENZO(A)PYRENE	15	R-RSL	1100	Eco-SSL	4.22 U	4.165 U	4.11 U	4.11 U	3.99 U	4.1 U
BENZO(B)FLUORANTHENE	150	R-RSL	1100	Eco-SSL	4.22 U	4.165 U	4.11 U	4.11 U	3.99 U	4.1 U
BENZO(G,H,I)PERYLENE	170000	R-RSL	1100	Eco-SSL	4.22 U	4.165 U	4.11 U	4.11 U	3.99 U	4.1 U
BENZO(K)FLUORANTHENE	1500	R-RSL	1100	Eco-SSL	4.22 U	4.165 U	4.11 U	4.11 U	3.99 U	4.1 U
CHRYSENE	15000	R-RSL	1100	Eco-SSL	4.22 U	4.165 U	4.11 U	4.11 U	3.99 U	4.1 U
DIBENZO(A,H)ANTHRACENE	15	R-RSL	1100	Eco-SSL	4.22 U	4.165 U	4.11 U	4.11 U	3.99 U	4.1 U
FLUORANTHENE	230000	R-RSL	29000	Eco-SSL	4.22 U	4.165 U	4.11 U	4.11 U	3.99 U	4.1 U
FLUORENE	170000	R-DCL	29000	Eco-SSL	4.22 U	4.165 U	4.11 U	4.11 U	3.99 U	4.1 U
INDENO(1,2,3-CD)PYRENE	150	R-RSL	1100	Eco-SSL	4.22 U	4.165 U	4.11 U	4.11 U	3.99 U	4.1 U
NAPHTHALENE	9.4	RBSL	29000	Eco-SSL	4.22 U	4.165 U	4.11 U	4.11 U	3.99 U	4.1 U
PHENANTHRENE	13000	R-DCL	29000	Eco-SSL	4.22 U	4.165 U	4.11 U	2.24 J	3.99 U	4.1 U
PYRENE	170000	R-RSL	1100	Eco-SSL	4.22 U	4.165 U	4.11 U	4.11 U	3.99 U	4.1 U
SEMIVOLATILES (UG/KG)										
DIETHYL PHTHALATE	240000	RBSL	24800	R5 ESL-S	212 U	209 U	206 U	4440	200 U	206 U
VOLATILES (UG/KG)										
1,2-DICHLOROBENZENE	7200	RBSL	2960	R5 ESL-S	2.51 U	2.48 U	2.45 U	2.74 U	1.42 J	2.98 U
2-BUTANONE	30000	RBSL	89600	R5 ESL-S	5.03 U	4.965 U	4.9 U	5.47 U	5.62 U	3.68 J
ACETONE	28000	R-DCL	2500	R5 ESL-S	10.1 U	9.95 U	9.8 U	14.6 J	11.2 UR	25.8
CIS-1,2-DICHLOROETHENE	400	R-DCL	783.7	R5 ESL-S	2.19 J	6.295	10.4 J	3.27 J	2.81 U	2.98 U
TETRACHLOROETHENE	0.98	RBSL	9920	R5 ESL-S	**1.36 J**	**1.815**	**2.27 J**	2.74 U	2.81 U	2.98 UJ
TRICHLOROETHENE	14.4	RBSL	12400	R5 ESL-S	2.51 U	3.5025	5.75	2.74 U	2.81 U	2.98 U

Value Qualifer

XXXX Highlighted boxes - exceed revised project screening level

J- The results is an estimated quantity

UJ - The result is an estimated non-detected quantity

U - Value is a non-detect as reported by the laboratory

NC - No Criteria

Table 1 - Analytical Results for Surface Soil Samples

LOCATION	HHRA PSL		ERA PSL		11SB05	11SB06	11SB07	11SB08	11SB09	11SB10
SAMPLE ID					11SS050002	11SS060002	11SS070002	11SS080002	11SS090002	11SS100002
SAMPLE DATE					20110426	20110426	20110426	20110426	20110426	20110426
SAMPLE CODE					NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX					SO	SO	SO	SO	SO	SO
SAMPLE TYPE					NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX					SS	SS	SS	SS	SS	SS
TOP DEPTH					0	0	0	0	0	0
BOTTOM DEPTH					2	2	2	2	2	2
DIOXINS/FURANS (NG/KG)										
1,2,3,4,6,7,8,9-OCDD	15000	R-RSL	0.199	R5 ESL-S	NA	NA	NA	NA	**1510**	NA
1,2,3,4,6,7,8,9-OCDF	15000	R-RSL	38.6	R5 ESL-S	NA	NA	NA	NA	1.18 J	NA
1,2,3,4,6,7,8-HPCDD	450	R-RSL	0.199	R5 ESL-S	NA	NA	NA	NA	**22.9**	NA
1,2,3,4,6,7,8-HPCDF	450	R-RSL	38.6	R5 ESL-S	NA	NA	NA	NA	0.244 J	NA
1,2,3,4,7,8,9-HPCDF	450	R-RSL	38.6	R5 ESL-S	NA	NA	NA	NA	3.19 U	NA
1,2,3,4,7,8-HXCDD	45	R-RSL	0.199	R5 ESL-S	NA	NA	NA	NA	3.19 U	NA
1,2,3,4,7,8-HXCDF	45	R-RSL	38.6	R5 ESL-S	NA	NA	NA	NA	3.19 U	NA
1,2,3,6,7,8-HXCDD	45	R-RSL	0.199	R5 ESL-S	NA	NA	NA	NA	3.19 U	NA
1,2,3,6,7,8-HXCDF	45	R-RSL	38.6	R5 ESL-S	NA	NA	NA	NA	3.19 U	NA
1,2,3,7,8,9-HXCDD	45	R-RSL	0.199	R5 ESL-S	NA	NA	NA	NA	3.19 U	NA
1,2,3,7,8,9-HXCDF	45	R-RSL	38.6	R5 ESL-S	NA	NA	NA	NA	3.19 U	NA
1,2,3,7,8-PECDD	4.5	R-RSL	0.199	R5 ESL-S	NA	NA	NA	NA	3.19 U	NA
1,2,3,7,8-PECDF	150	R-RSL	38.6	R5 ESL-S	NA	NA	NA	NA	3.19 U	NA
2,3,4,6,7,8-HXCDF	45	R-RSL	38.6	R5 ESL-S	NA	NA	NA	NA	3.19 U	NA
2,3,4,7,8-PECDF	15	R-RSL	38.6	R5 ESL-S	NA	NA	NA	NA	3.19 U	NA
2,3,7,8-TCDD	4.5	R-RSL	0.199	R5 ESL-S	NA	NA	NA	NA	0.635 U	NA
TEQ WHO-2005	4.5	R-RSL	NC		NA	NA	NA	NA	0.722	NA
TEQ WHO-2005 - HALFND	4.5	R-RSL	NC		NA	NA	NA	NA	1.05	NA
TOTAL HPCDD	NC		NC		NA	NA	NA	NA	46	NA
TOTAL HPCDF	NC		NC		NA	NA	NA	NA	0.691 J	NA
TOTAL HXCDD	NC		NC		NA	NA	NA	NA	1.52 J	NA
TOTAL HXCDF	NC		NC		NA	NA	NA	NA	3.19 U	NA
TOTAL PECDD	NC		NC		NA	NA	NA	NA	3.19 U	NA
TOTAL PECDF	NC		NC		NA	NA	NA	NA	3.19 U	NA
TOTAL TCDD	NC		NC		NA	NA	NA	NA	0.635 U	NA
TOTAL TCDF	NC		NC		NA	NA	NA	NA	0.374 U	NA
METALS (MG/KG)										
ALUMINUM	7700	R-RSL	NC		**19200**	**12600**	**13300**	**12800**	**14000**	**13000**
ARSENIC	0.026	RBSL	18	Eco-SSL	**11.9**	**6.44**	**11**	**8.4**	**8.75**	**5.83**
BARIUM	1500	R-RSL	330	Eco-SSL	67.8	70.8	57.3	48.2	49.9	43.9
BERYLLIUM	16	R-RSL	21	Eco-SSL	0.837	0.752	0.642	0.665	0.58 J	0.511 J
CADMIUM	7	R-RSL	0.36	Eco-SSL	0.238 U	0.245 U	0.249 UJ	0.239 UJ	0.249 UJ	0.26 UJ
CALCIUM	NC		NC		1920	1420	1800	650	723	750
CHROMIUM	NC		26	Eco-SSL	19.2	14.4	16.4	14.4	23.8	15.6
COBALT	2.3	R-RSL	13	Eco-SSL	**9.55**	**5.82**	**5.51**	**26**	**4.83**	**4.73**
COPPER	310	R-RSL	28	Eco-SSL	17.4	13.4	13.7	11.5	14.7	10.2
IRON	5500	R-RSL	NC		**25900**	**19100**	**20300**	**22500**	**25800**	**19100**
LEAD	81	R-DCL	11	Eco-SSL	**14.2**	**13.2**	**13**	**27.7**	**11.9**	10
MAGNESIUM	NC		NC		2180	1590	1670	1430	1640	1460
MANGANESE	180	R-RSL	220	Eco-SSL	**279**	**191**	**187 J**	**835 J**	**190 J**	123 J
MERCURY	0.66	RBSL	0.1	R5 ESL-S	0.0407 J	0.0464 J	0.0478 J	0.0397 UJ	0.0645 J	0.0447 J
NICKEL	150	R-RSL	38	Eco-SSL	15.6	12.6	10.7	10.7	10.7	9.15
POTASSIUM	NC		NC		1110	613	667 J	636 J	677 J	577 J
SELENIUM	5.2	R-DCL	0.52	Eco-SSL	**0.67 J**	**0.565 J**	0.622 U	0.599 U	0.623 U	0.649 U
SODIUM	NC		NC		356 U	368 U	373 U	359 U	374 U	389 U
VANADIUM	39	R-RSL	7.8	Eco-SSL	**39.6**	**29**	**29.4 J**	**30.5 J**	**32.1 J**	**26.4 J**
ZINC	2300	R-RSL	46	Eco-SSL	**46.9**	37	36.6	31.8	37.8	29.6
PESTICIDES (UG/KG)										
4,4'-DDE	940	RBSL	21	Eco-SSL	0.395 U	0.402 U	0.421 U	0.409 U	0.426 U	0.462 U
ALPHA-BHC	1.24	RBSL	99.4	R5 ESL-S	0.395 U	0.402 U	0.421 U	0.93	0.426 U	0.226 J
BETA-BHC	4.4	RBSL	3.98	R5 ESL-S	0.395 U	0.402 U	0.421 U	0.409 U	0.426 U	0.462 U
GAMMA-BHC (LINDANE)	7.2	RBSL	5	R5 ESL-S	0.395 U	0.402 U	0.421 U	0.409 U	0.426 U	0.462 U
GAMMA-CHLORDANE	260	RBSL	224	R5 ESL-S	0.395 UJ	0.935 J	1.25 J	0.409 U	0.426 UJ	0.462 U
METHOXYCHLOR	31000	R-RSL	19.9	R5 ESL-S	0.395 UJ	0.402 UJ	0.421 UJ	0.409 UJ	0.426 UJ	0.462 UJ

Table 1 - Analytical Results for Surface Soil Samples

LOCATION	HHRA PSL		ERA PSL		11SB05	11SB06	11SB07	11SB08	11SB09	11SB10
SAMPLE ID					11SS050002	11SS060002	11SS070002	11SS080002	11SS090002	11SS100002
SAMPLE DATE					20110426	20110426	20110426	20110426	20110426	20110426
SAMPLE CODE					NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX					SO	SO	SO	SO	SO	SO
SAMPLE TYPE					NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX					SS	SS	SS	SS	SS	SS
TOP DEPTH					0	0	0	0	0	0
BOTTOM DEPTH					2	2	2	2	2	2
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)										
2-METHYLNAPHTHALENE	3100	R-DCL	29000	Eco-SSL	3.94 U	3.91 U	4.13 U	3.85 U	4.34 U	4.43 U
ACENAPHTHENE	130000	R-DCL	29000	Eco-SSL	3.94 U	3.91 U	4.13 U	3.85 U	4.34 U	4.43 U
ACENAPHTHYLENE	18000	R-DCL	29000	Eco-SSL	3.94 U	3.91 U	4.13 U	3.85 U	4.34 U	4.43 U
ANTHRACENE	1700000	R-RSL	29000	Eco-SSL	3.94 U	3.91 U	4.13 U	3.85 U	4.34 U	4.43 U
BENZO(A)ANTHRACENE	150	R-RSL	1100	Eco-SSL	3.94 U	3.91 U	5.49 J	3.85 U	4.34 U	4.43 U
BENZO(A)PYRENE	15	R-RSL	1100	Eco-SSL	3.94 U	3.91 U	3.9 J	3.85 U	4.34 U	4.43 U
BENZO(B)FLUORANTHENE	150	R-RSL	1100	Eco-SSL	4.63 J	3.91 U	8.6	3.85 U	4.34 U	4.43 U
BENZO(G,H,I)PERYLENE	170000	R-RSL	1100	Eco-SSL	3.94 U	2.71 J	4.98 J	3.85 U	4.34 U	4.43 U
BENZO(K)FLUORANTHENE	1500	R-RSL	1100	Eco-SSL	2.93 J	3.91 U	4.13 U	3.85 U	4.34 U	4.43 U
CHRYSENE	15000	R-RSL	1100	Eco-SSL	3.94 U	3.09 J	8.1 J	3.85 U	4.34 U	4.43 U
DIBENZO(A,H)ANTHRACENE	15	R-RSL	1100	Eco-SSL	3.94 U	3.91 U	4.13 U	3.85 U	4.34 U	4.43 U
FLUORANTHENE	230000	R-RSL	29000	Eco-SSL	3.94 U	2.92 J	9.91	3.85 U	4.34 U	4.43 U
FLUORENE	170000	R-DCL	29000	Eco-SSL	3.94 U	3.91 U	4.13 U	3.85 U	4.34 U	4.43 U
INDENO(1,2,3-CD)PYRENE	150	R-RSL	1100	Eco-SSL	3.94 U	2.64 J	3.85 J	3.85 U	4.34 U	4.43 U
NAPHTHALENE	9.4	RBSL	29000	Eco-SSL	3.94 U	3.91 U	4.13 U	3.85 U	4.34 U	4.43 U
PHENANTHRENE	13000	R-DCL	29000	Eco-SSL	3.94 U	2.35 J	2.64 J	3.85 U	4.34 U	4.43 U
PYRENE	170000	R-RSL	1100	Eco-SSL	2.46 J	2.87 J	10.6	3.85 U	4.34 U	4.43 U
SEMIVOLATILES (UG/KG)										
DIETHYL PHTHALATE	240000	RBSL	24800	R5 ESL-S	198 U	196 U	207 U	193 U	218 U	222 U
VOLATILES (UG/KG)										
1,2-DICHLOROBENZENE	7200	RBSL	2960	R5 ESL-S	NA	NA	NA	NA	NA	NA
2-BUTANONE	30000	RBSL	89600	R5 ESL-S	NA	NA	NA	NA	NA	NA
ACETONE	28000	R-DCL	2500	R5 ESL-S	NA	NA	NA	NA	NA	NA
CIS-1,2-DICHLOROETHENE	400	R-DCL	783.7	R5 ESL-S	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	0.98	RBSL	9920	R5 ESL-S	NA	NA	NA	NA	NA	NA
TRICHLOROETHENE	14.4	RBSL	12400	R5 ESL-S	NA	NA	NA	NA	NA	NA

Value Qualifer
XXXX Highlighted boxes - exceed revised project screening level
J- The results is an estimated quantity
UJ - The result is an estimated non-detected quantity
U - Value is a non-detect as reported by the laboratory
NC - No Criteria

Table 1 - Analytical Results for Surface Soil Samples

LOCATION	HHRA PSL		ERA PSL			11SB11		11SB12	11SB13	11SB14
SAMPLE ID					11SS110002	11SS110002-AVG	11SS110002-D	11SS120002	11SS130002	11SS140002
SAMPLE DATE					20110426	20110426	20110426	20110426	20110426	20110426
SAMPLE CODE					ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL
MATRIX					SO	SO	SO	SO	SO	SO
SAMPLE TYPE					NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX					SS	SS	SS	SS	SS	SS
TOP DEPTH					0	0	0	0	0	0
BOTTOM DEPTH					2	2	2	2	2	2
DIOXINS/FURANS (NG/KG)										
1,2,3,4,6,7,8,9-OCDD	15000	R-RSL	0.199	R5 ESL-S	6220 J	3940	1660 J	NA	NA	6710 J
1,2,3,4,6,7,8,9-OCDF	15000	R-RSL	38.6	R5 ESL-S	583 J	296.37	9.74 J	NA	NA	8.23 J
1,2,3,4,6,7,8-HPCDD	450	R-RSL	0.199	R5 ESL-S	772 J	407.3	42.6 J	NA	NA	91.7
1,2,3,4,6,7,8-HPCDF	450	R-RSL	38.6	R5 ESL-S	102 J	51.84	1.68 J	NA	NA	3.45 J
1,2,3,4,7,8,9-HPCDF	450	R-RSL	38.6	R5 ESL-S	7.82	4.6875	3.11 U	NA	NA	3.12 U
1,2,3,4,7,8-HXCDD	45	R-RSL	0.199	R5 ESL-S	8.54	5.0475	3.11 U	NA	NA	0.716 J
1,2,3,4,7,8-HXCDF	45	R-RSL	38.6	R5 ESL-S	3.91 J	2.7325	3.11 U	NA	NA	0.547 J
1,2,3,6,7,8-HXCDD	45	R-RSL	0.199	R5 ESL-S	24.7 J	12.697	0.694 J	NA	NA	0.976 J
1,2,3,6,7,8-HXCDF	45	R-RSL	38.6	R5 ESL-S	4.61 J	3.0825	3.11 U	NA	NA	0.737 J
1,2,3,7,8,9-HXCDD	45	R-RSL	0.199	R5 ESL-S	13.7 J	7.118	0.536 J	NA	NA	1.21 J
1,2,3,7,8,9-HXCDF	45	R-RSL	38.6	R5 ESL-S	1.56 J	1.56 J	3.11 U	NA	NA	3.12 U
1,2,3,7,8-PECDD	4.5	R-RSL	0.199	R5 ESL-S	2.45 J	2.45 J	3.11 U	NA	NA	3.12 U
1,2,3,7,8-PECDF	150	R-RSL	38.6	R5 ESL-S	2.14 J	2.14 J	3.11 U	NA	NA	0.849 J
2,3,4,6,7,8-HXCDF	45	R-RSL	38.6	R5 ESL-S	4.51 J	3.0325	3.11 U	NA	NA	1.68 J
2,3,4,7,8-PECDF	15	R-RSL	38.6	R5 ESL-S	1.04 J	1.04 J	3.11 U	NA	NA	3.12 J
2,3,7,8-TCDD	4.5	R-RSL	0.199	R5 ESL-S	0.637 U	0.6285 U	0.62 U	NA	NA	0.621 U
TEQ WHO-2005	4.5	R-RSL	NC		19.8	10.435	1.07	NA	NA	4.57
TEQ WHO-2005 - HALFND	4.5	R-RSL	NC		19.9	10.635	1.37	NA	NA	4.77
TOTAL HPCDD	NC		NC		1440 J	761.95	83.9 J	NA	NA	175
TOTAL HPCDF	NC		NC		430 J	218.28	6.56 J	NA	NA	8.24
TOTAL HXCDD	NC		NC		168 J	86.74	5.48 J	NA	NA	11.7
TOTAL HXCDF	NC		NC		108 J	54.655	1.31 J	NA	NA	28.7
TOTAL PECDD	NC		NC		18.5 J	10.0275	3.11 UJ	NA	NA	1.12 J
TOTAL PECDF	NC		NC		19.2 J	10.3775	3.11 UJ	NA	NA	36.6
TOTAL TCDD	NC		NC		1.17	0.74	0.62 U	NA	NA	0.621 U
TOTAL TCDF	NC		NC		1.74 U	1.18 U	0.62 U	NA	NA	8.4 U
METALS (MG/KG)										
ALUMINUM	7700	R-RSL	NC		14000	14300	14600	10400	12300	7490
ARSENIC	0.026	RBSL	18	Eco-SSL	8.81	8.495	8.18	3.16	6.73	5.86
BARIUM	1500	R-RSL	330	Eco-SSL	78.1	74.95	71.8	33.6	88.1	54.4
BERYLLIUM	16	R-RSL	21	Eco-SSL	0.737	0.6975	0.658	0.373 J	0.855	0.573 J
CADMIUM	7	R-RSL	0.36	Eco-SSL	0.242 UJ	0.245 U	0.248 UJ	0.24 UJ	0.243 UJ	0.246 UJ
CALCIUM	NC		NC		13700 J	9365	5030 J	1740	1860	10600
CHROMIUM	NC		26	Eco-SSL	17.8	18.1	18.4	12.7	14.2	13.7
COBALT	2.3	R-RSL	13	Eco-SSL	7.71	6.87	6.03	5.18	12.1	8.4
COPPER	310	R-RSL	28	Eco-SSL	15.2	15.05	14.9	6.37	10.4	13.6
IRON	5500	R-RSL	NC		22000	21450	20900	13400	17300	15700
LEAD	81	R-DCL	11	Eco-SSL	16.7	13.7	10.7	5.45 J	14.4	21.5
MAGNESIUM	NC		NC		2440	2310	2180	743	1330	1810
MANGANESE	180	R-RSL	220	Eco-SSL	380 J	339	298 J	251 J	622 J	486 J
MERCURY	0.66	RBSL	0.1	R5 ESL-S	0.0321 J	0.02595	0.0198 J	0.0303 J	0.0426	0.0346 J
NICKEL	150	R-RSL	38	Eco-SSL	13.1	12.6	12.1	6.12	12	10.5
POTASSIUM	NC		NC		667 J	691.5	716 J	368 J	602 J	445 J
SELENIUM	5.2	R-DCL	0.52	Eco-SSL	0.605 U	0.612 U	0.619 U	0.6 U	0.608 U	0.616 U
SODIUM	NC		NC		139 J	139 J	371 U	360 U	365 U	179 J
VANADIUM	39	R-RSL	7.8	Eco-SSL	29.1 J	29.8	30.5 J	19 J	27.2 J	17.6 J
ZINC	2300	R-RSL	46	Eco-SSL	43.7	42.35	41	18.2	32.8	39.6
PESTICIDES (UG/KG)										
4,4'-DDE	940	RBSL	21	Eco-SSL	0.411 U	0.415 U	0.419 U	0.392 U	0.402 U	1.4 J
ALPHA-BHC	1.24	RBSL	99.4	R5 ESL-S	0.411 U	0.415 U	0.419 U	0.392 U	0.402 U	0.41 U
BETA-BHC	4.4	RBSL	3.98	R5 ESL-S	0.411 U	0.415 U	0.419 U	0.392 U	0.402 U	0.41 U
GAMMA-BHC (LINDANE)	7.2	RBSL	5	R5 ESL-S	0.411 U	0.415 U	0.419 U	0.392 U	2.27 J	0.41 U
GAMMA-CHLORDANE	260	RBSL	224	R5 ESL-S	0.893 J	0.55125	0.419 U	0.244 J	0.859 J	0.902 J
METHOXYCHLOR	31000	R-RSL	19.9	R5 ESL-S	0.411 UJ	0.412 U	0.413 UJ	1.01 J	0.402 UJ	0.41 UJ

Table 1 - Analytical Results for Surface Soil Samples

LOCATION	HHRA PSL		ERA PSL		11SB11			11SB12	11SB13	11SB14
SAMPLE ID					11SS110002	11SS110002-AVG	11SS110002-D	11SS120002	11SS130002	11SS140002
SAMPLE DATE					20110426	20110426	20110426	20110426	20110426	20110426
SAMPLE CODE					ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL
MATRIX					SO	SO	SO	SO	SO	SO
SAMPLE TYPE					NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX					SS	SS	SS	SS	SS	SS
TOP DEPTH					0	0	0	0	0	0
BOTTOM DEPTH					2	2	2	2	2	2
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)										
2-METHYLNAPHTHALENE	3100	R-DCL	29000	Eco-SSL	3.84 U	3.96 U	4.08 U	3.91 U	10.8 J	4.05 U
ACENAPHTHENE	130000	R-DCL	29000	Eco-SSL	17.2 J	9.62	4.08 UJ	3.91 U	19.2 U	4.05 U
ACENAPHTHYLENE	18000	R-DCL	29000	Eco-SSL	3.57 J	4.705	5.84 J	3.91 U	86.9	10.2
ANTHRACENE	1700000	R-RSL	29000	Eco-SSL	28.6 J	16.87	5.14 J	3.91 U	52.3	3.9 J
BENZO(A)ANTHRACENE	150	R-RSL	1100	Eco-SSL	130 J	75.4	20.8 J	3.91 U	**322**	33.1
BENZO(A)PYRENE	15	R-RSL	1100	Eco-SSL	**136 J**	**81.9**	**27.8 J**	3.91 U	**348**	**34.5**
BENZO(B)FLUORANTHENE	150	R-RSL	1100	Eco-SSL	**183 J**	115.95	48.9 J	3.91 U	**454**	54.3
BENZO(G,H,I)PERYLENE	170000	R-RSL	1100	Eco-SSL	117 J	71.55	26.1 J	3.91 U	234	28.6
BENZO(K)FLUORANTHENE	1500	R-RSL	1100	Eco-SSL	83.1 J	50.2	17.3 J	3.91 U	202	26.5
CHRYSENE	15000	R-RSL	1100	Eco-SSL	157 J	97.75	38.5 J	3.91 U	427	37.3
DIBENZO(A,H)ANTHRACENE	15	R-RSL	1100	Eco-SSL	**25 J**	**16.02**	7.04 J	3.91 U	**82.1**	9.15
FLUORANTHENE	230000	R-RSL	29000	Eco-SSL	403 J	227.25	51.5 J	3.91 U	454	40.5
FLUORENE	170000	R-DCL	29000	Eco-SSL	12.4 J	7.22	4.08 U	3.91 U	16.1 J	4.05 U
INDENO(1,2,3-CD)PYRENE	150	R-RSL	1100	Eco-SSL	92.7 J	56.6	20.5 J	3.91 U	**187**	24.7
NAPHTHALENE	9.4	RBSL	29000	Eco-SSL	2.74 J	2.465	2.19 J	3.91 U	**14.4 J**	4.05 U
PHENANTHRENE	13000	R-DCL	29000	Eco-SSL	301 J	161.95	22.9 J	3.91 U	153 J	8.33 J
PYRENE	170000	R-RSL	1100	Eco-SSL	304 J	176.1	48.2 J	3.91 U	417 J	35.5 J
SEMIVOLATILES (UG/KG)										
DIETHYL PHTHALATE	240000	RBSL	24800	R5 ESL-S	193 U	198.5 U	204 U	196 U	193 U	203 U
VOLATILES (UG/KG)										
1,2-DICHLOROBENZENE	7200	RBSL	2960	R5 ESL-S	NA	NA	NA	NA	NA	NA
2-BUTANONE	30000	RBSL	89600	R5 ESL-S	NA	NA	NA	NA	NA	NA
ACETONE	28000	R-DCL	2500	R5 ESL-S	NA	NA	NA	NA	NA	NA
CIS-1,2-DICHLOROETHENE	400	R-DCL	783.7	R5 ESL-S	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	0.98	RBSL	9920	R5 ESL-S	NA	NA	NA	NA	NA	NA
TRICHLOROETHENE	14.4	RBSL	12400	R5 ESL-S	NA	NA	NA	NA	NA	NA

Value Qualifer
XXXX Highlighted boxes - exceed revised project screening level
J- The results is an estimated quantity
UJ - The result is an estimated non-detected quantity
U - Value is a non-detect as reported by the laboratory
NC - No Criteria

Table 1 - Analytical Results for Surface Soil Samples

LOCATION	HHRA PSL		ERA PSL		11SB15	11SB16	11SB17	11SB18	11SB19	11SB20
SAMPLE ID					11SS150002	11SS160002	11SS170002	11SS180002	11SS190002	11SS200002
SAMPLE DATE					20110426	20110426	20110426	20110426	20110426	20110426
SAMPLE CODE					NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX					SO	SO	SO	SO	SO	SO
SAMPLE TYPE					NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX					SS	SS	SS	SS	SS	SS
TOP DEPTH					0	0	0	0	0	0
BOTTOM DEPTH					2	2	2	2	2	2
DIOXINS/FURANS (NG/KG)										
1,2,3,4,6,7,8,9-OCDD	15000	R-RSL	0.199	R5 ESL-S	NA	NA	NA	1280	2060	6410 J
1,2,3,4,6,7,8,9-OCDF	15000	R-RSL	38.6	R5 ESL-S	NA	NA	NA	6.33 U	1.14 J	8.05 J
1,2,3,4,6,7,8-HPCDD	450	R-RSL	0.199	R5 ESL-S	NA	NA	NA	13.9	31.6	103
1,2,3,4,6,7,8-HPCDF	450	R-RSL	38.6	R5 ESL-S	NA	NA	NA	3.17 U	0.625 J	3.95 J
1,2,3,4,7,8,9-HPCDF	450	R-RSL	38.6	R5 ESL-S	NA	NA	NA	3.17 U	3.18 U	0.329 J
1,2,3,4,7,8-HXCDD	45	R-RSL	0.199	R5 ESL-S	NA	NA	NA	3.17 U	3.18 U	0.816 J
1,2,3,4,7,8-HXCDF	45	R-RSL	38.6	R5 ESL-S	NA	NA	NA	3.17 U	3.18 U	0.318 J
1,2,3,6,7,8-HXCDD	45	R-RSL	0.199	R5 ESL-S	NA	NA	NA	3.17 U	0.663 J	1.28 J
1,2,3,6,7,8-HXCDF	45	R-RSL	38.6	R5 ESL-S	NA	NA	NA	3.17 U	3.18 U	0.313 J
1,2,3,7,8,9-HXCDD	45	R-RSL	0.199	R5 ESL-S	NA	NA	NA	3.17 U	0.596 J	1.69 J
1,2,3,7,8,9-HXCDF	45	R-RSL	38.6	R5 ESL-S	NA	NA	NA	3.17 U	3.18 U	3.09 U
1,2,3,7,8-PECDD	4.5	R-RSL	0.199	R5 ESL-S	NA	NA	NA	3.17 U	3.18 U	3.09 U
1,2,3,7,8-PECDF	150	R-RSL	38.6	R5 ESL-S	NA	NA	NA	3.17 U	3.18 U	3.09 U
2,3,4,6,7,8-HXCDF	45	R-RSL	38.6	R5 ESL-S	NA	NA	NA	3.17 U	3.18 U	0.383 J
2,3,4,7,8-PECDF	15	R-RSL	38.6	R5 ESL-S	NA	NA	NA	3.17 U	3.18 U	3.09 U
2,3,7,8-TCDD	4.5	R-RSL	0.199	R5 ESL-S	NA	NA	NA	0.633 U	0.24 J	0.616 U
TEQ WHO-2005	4.5	R-RSL	NC		NA	NA	NA	0.57	1.35	3.52
TEQ WHO-2005 - HALFND	4.5	R-RSL	NC		NA	NA	NA	0.901	1.61	3.76
TOTAL HPCDD	NC		NC		NA	NA	NA	26.9	67.3	199
TOTAL HPCDF	NC		NC		NA	NA	NA	3.17 U	1.33 J	8.31
TOTAL HXCDD	NC		NC		NA	NA	NA	1.94 J	9.32	14.8
TOTAL HXCDF	NC		NC		NA	NA	NA	3.17 U	0.255 J	5.3
TOTAL PECDD	NC		NC		NA	NA	NA	0.332 J	0.491 J	1.11 J
TOTAL PECDF	NC		NC		NA	NA	NA	3.17 U	3.18 U	0.853 J
TOTAL TCDD	NC		NC		NA	NA	NA	0.633 U	0.634 U	0.616 U
TOTAL TCDF	NC		NC		NA	NA	NA	0.868 U	0.842 U	0.899 U
METALS (MG/KG)										
ALUMINUM	7700	R-RSL	NC		16900	16100	7930	14800	NA	NA
ARSENIC	0.026	RBSL	18	Eco-SSL	10.7	10.6	5.35	8.93	NA	NA
BARIUM	1500	R-RSL	330	Eco-SSL	76	76.6	21.4	69.6	NA	NA
BERYLLIUM	16	R-RSL	21	Eco-SSL	0.857	0.934	0.438 J	0.773	NA	NA
CADMIUM	7	R-RSL	0.36	Eco-SSL	0.246 UJ	0.261 UJ	0.232 UJ	0.24 UJ	NA	NA
CALCIUM	NC		NC		2110	1560	242 J	1980	NA	NA
CHROMIUM	NC		26	Eco-SSL	19.1	19.2	15.2	19.3	NA	NA
COBALT	2.3	R-RSL	13	Eco-SSL	9.64	13.1	2.85	5.92	NA	NA
COPPER	310	R-RSL	28	Eco-SSL	17.5	17	6.82	18.4	NA	NA
IRON	5500	R-RSL	NC		24800	25100	18100	23600	NA	NA
LEAD	81	R-DCL	11	Eco-SSL	14.6	14.6	13.7	13.1	NA	NA
MAGNESIUM	NC		NC		2260	2220	738	2490	NA	NA
MANGANESE	180	R-RSL	220	Eco-SSL	419 J	472 J	244 J	213 J	NA	NA
MERCURY	0.66	RBSL	0.1	R5 ESL-S	0.0588	0.0512	0.0296 U	0.0365 U	NA	NA
NICKEL	150	R-RSL	38	Eco-SSL	16.1	15.7	5.23	14.7	NA	NA
POTASSIUM	NC		NC		855 J	819 J	278 J	762 J	NA	NA
SELENIUM	5.2	R-DCL	0.52	Eco-SSL	0.517 J	0.542 J	0.58 U	0.599 U	NA	NA
SODIUM	NC		NC		340 J	342 J	348 U	174 J	NA	NA
VANADIUM	39	R-RSL	7.8	Eco-SSL	34.3 J	35.5 J	25 J	32 J	NA	NA
ZINC	2300	R-RSL	46	Eco-SSL	44.6	45.1	10.9	44.3	NA	NA
PESTICIDES (UG/KG)										
4,4'-DDE	940	RBSL	21	Eco-SSL	0.405 U	0.431 U	0.393 U	0.4 U	NA	NA
ALPHA-BHC	1.24	RBSL	99.4	R5 ESL-S	0.405 U	0.431 U	0.393 U	0.4 U	NA	NA
BETA-BHC	4.4	RBSL	3.98	R5 ESL-S	0.405 U	0.431 U	0.393 U	0.4 U	NA	NA
GAMMA-BHC (LINDANE)	7.2	RBSL	5	R5 ESL-S	0.405 U	0.431 U	0.393 U	0.4 U	NA	NA
GAMMA-CHLORDANE	260	RBSL	224	R5 ESL-S	0.405 U	0.431 U	0.393 U	0.4 U	NA	NA
METHOXYCHLOR	31000	R-RSL	19.9	R5 ESL-S	0.405 UJ	0.428 UJ	0.383 UJ	0.414 UJ	NA	NA

Table 1 - Analytical Results for Surface Soil Samples

LOCATION	HHRA PSL		ERA PSL		11SB15	11SB16	11SB17	11SB18	11SB19	11SB20
SAMPLE ID					11SS150002	11SS160002	11SS170002	11SS180002	11SS190002	11SS200002
SAMPLE DATE					20110426	20110426	20110426	20110426	20110426	20110426
SAMPLE CODE					NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX					SO	SO	SO	SO	SO	SO
SAMPLE TYPE					NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX					SS	SS	SS	SS	SS	SS
TOP DEPTH					0	0	0	0	0	0
BOTTOM DEPTH					2	2	2	2	2	2
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)										
2-METHYLNAPHTHALENE	3100	R-DCL	29000	Eco-SSL	4.13 U	4.28 U	3.98 U	3.87 U	NA	NA
ACENAPHTHENE	130000	R-DCL	29000	Eco-SSL	4.13 U	4.28 U	3.98 U	3.87 U	NA	NA
ACENAPHTHYLENE	18000	R-DCL	29000	Eco-SSL	4.13 U	4.28 U	3.98 U	3.87 U	NA	NA
ANTHRACENE	1700000	R-RSL	29000	Eco-SSL	4.13 U	4.28 U	3.98 U	3.87 U	NA	NA
BENZO(A)ANTHRACENE	150	R-RSL	1100	Eco-SSL	4.13 U	4.28 U	3.98 U	3.87 U	NA	NA
BENZO(A)PYRENE	15	R-RSL	1100	Eco-SSL	4.13 U	4.28 U	3.98 U	3.87 U	NA	NA
BENZO(B)FLUORANTHENE	150	R-RSL	1100	Eco-SSL	4.13 U	4.28 U	3.63 J	3.87 U	NA	NA
BENZO(G,H,I)PERYLENE	170000	R-RSL	1100	Eco-SSL	4.13 U	4.28 U	3.98 U	3.87 U	NA	NA
BENZO(K)FLUORANTHENE	1500	R-RSL	1100	Eco-SSL	4.13 U	4.28 U	2.59 J	3.87 U	NA	NA
CHRYSENE	15000	R-RSL	1100	Eco-SSL	4.13 U	4.28 U	3.98 U	3.87 U	NA	NA
DIBENZO(A,H)ANTHRACENE	15	R-RSL	1100	Eco-SSL	4.13 U	4.28 U	3.98 U	3.87 U	NA	NA
FLUORANTHENE	230000	R-RSL	29000	Eco-SSL	4.13 U	4.28 U	2.67 J	3.87 U	NA	NA
FLUORENE	170000	R-DCL	29000	Eco-SSL	4.13 U	4.28 U	3.98 U	3.87 U	NA	NA
INDENO(1,2,3-CD)PYRENE	150	R-RSL	1100	Eco-SSL	4.13 U	4.28 U	2.08 J	3.87 U	NA	NA
NAPHTHALENE	9.4	RBSL	29000	Eco-SSL	4.13 U	4.28 U	3.98 U	3.87 U	NA	NA
PHENANTHRENE	13000	R-DCL	29000	Eco-SSL	4.13 U	4.28 U	3.98 U	3.87 U	NA	NA
PYRENE	170000	R-RSL	1100	Eco-SSL	4.13 U	4.28 U	6.41 J	3.87 U	NA	NA
SEMIVOLATILES (UG/KG)										
DIETHYL PHTHALATE	240000	RBSL	24800	R5 ESL-S	207 U	214 U	200 U	194 U	NA	NA
VOLATILES (UG/KG)										
1,2-DICHLOROBENZENE	7200	RBSL	2960	R5 ESL-S	NA	NA	NA	NA	NA	NA
2-BUTANONE	30000	RBSL	89600	R5 ESL-S	NA	NA	NA	NA	NA	NA
ACETONE	28000	R-DCL	2500	R5 ESL-S	NA	NA	NA	NA	NA	NA
CIS-1,2-DICHLOROETHENE	400	R-DCL	783.7	R5 ESL-S	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	0.98	RBSL	9920	R5 ESL-S	NA	NA	NA	NA	NA	NA
TRICHLOROETHENE	14.4	RBSL	12400	R5 ESL-S	NA	NA	NA	NA	NA	NA

Value Qualifer
XXXX Highlighted boxes - exceed revised project screening level
J- The results is an estimated quantity
UJ - The result is an estimated non-detected quantity
U - Value is a non-detect as reported by the laboratory
NC - No Criteria

Table 1 - Analytical Results for Surface Soil Samples

LOCATION	HHRA PSL		ERA PSL			11SB21		11SB22	11SB23	11SB24
SAMPLE ID					11SS210002	11SS210002-AVG	11SS210002-D	11SS220002	11SS230002	11SS240002
SAMPLE DATE					20110426	20110426	20110426	20110426	20110426	20110426
SAMPLE CODE					ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL
MATRIX					SO	SO	SO	SO	SO	SO
SAMPLE TYPE					NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX					SS	SS	SS	SS	SS	SS
TOP DEPTH					0	0	0	0	0	0
BOTTOM DEPTH					2	2	2	2	2	2
DIOXINS/FURANS (NG/KG)										
1,2,3,4,6,7,8,9-OCDD	15000	R-RSL	0.199	R5 ESL-S	2310	2285	2260	1420	2490	443
1,2,3,4,6,7,8,9-OCDF	15000	R-RSL	38.6	R5 ESL-S	1.36 J	1.36 J	6.03 U	17.1	6.36 U	6.22 U
1,2,3,4,6,7,8-HPCDD	450	R-RSL	0.199	R5 ESL-S	39.6	43.3	47	47.9	25.3	4.84
1,2,3,4,6,7,8-HPCDF	450	R-RSL	38.6	R5 ESL-S	0.839 J	0.839 J	3.02 U	7.44	3.19 U	3.12 U
1,2,3,4,7,8,9-HPCDF	450	R-RSL	38.6	R5 ESL-S	3.21 U	3.115 U	3.02 U	0.455 J	3.19 U	3.12 U
1,2,3,4,7,8-HXCDD	45	R-RSL	0.199	R5 ESL-S	3.21 U	3.115 U	3.02 U	0.57 J	3.19 U	3.12 U
1,2,3,4,7,8-HXCDF	45	R-RSL	38.6	R5 ESL-S	0.321 J	0.321 J	3.02 U	2.53 J	3.19 U	3.12 U
1,2,3,6,7,8-HXCDD	45	R-RSL	0.199	R5 ESL-S	0.642 J	0.617	0.592 J	1.18 J	3.19 U	3.12 U
1,2,3,6,7,8-HXCDF	45	R-RSL	38.6	R5 ESL-S	3.21 U	3.115 U	3.02 U	0.553 J	3.19 U	3.12 U
1,2,3,7,8,9-HXCDD	45	R-RSL	0.199	R5 ESL-S	0.671 J	0.828	0.985 J	1.16 J	3.19 U	3.12 U
1,2,3,7,8,9-HXCDF	45	R-RSL	38.6	R5 ESL-S	3.21 U	3.115 U	3.02 U	3.19 U	3.19 U	3.12 U
1,2,3,7,8-PECDD	4.5	R-RSL	0.199	R5 ESL-S	3.21 U	3.115 U	3.02 U	0.51 J	3.19 U	3.12 U
1,2,3,7,8-PECDF	150	R-RSL	38.6	R5 ESL-S	3.21 U	3.115 U	3.02 U	2.5 J	3.19 U	3.12 U
2,3,4,6,7,8-HXCDF	45	R-RSL	38.6	R5 ESL-S	3.21 U	3.115 U	3.02 U	1.31 J	3.19 U	3.12 U
2,3,4,7,8-PECDF	15	R-RSL	38.6	R5 ESL-S	3.21 U	3.115 U	3.02 U	2.03 J	3.19 U	3.12 U
2,3,7,8-TCDD	4.5	R-RSL	0.199	R5 ESL-S	0.641 U	0.622 U	0.603 U	0.69 J	0.636 U	0.622 U
TEQ WHO-2005	4.5	R-RSL	NC		1.24	1.3	1.36	3.16	1.04	0.232
TEQ WHO-2005 - HALFND	4.5	R-RSL	NC		1.55	1.595	1.64	3.34	1.37	0.558
TOTAL HPCDD	NC		NC		82.9	86.5	90.1	162	50.1	9.63
TOTAL HPCDF	NC		NC		1.53 J	1.53 J	3.02 U	18.6	3.19 U	3.12 U
TOTAL HXCDD	NC		NC		5.5	5.925	6.35	23	1.38 J	3.12 U
TOTAL HXCDF	NC		NC		1.25 J	1.25 J	3.02 U	20.2	3.19 U	3.12 U
TOTAL PECDD	NC		NC		3.21 U	3.115 U	3.02 U	2.48 J	3.19 U	3.12 U
TOTAL PECDF	NC		NC		3.21 U	3.115 U	3.02 U	26.6	3.19 U	3.12 U
TOTAL TCDD	NC		NC		0.641 U	0.622 U	0.603 U	0.69 J	0.636 U	0.622 U
TOTAL TCDF	NC		NC		0.641 U	0.7965 U	0.952 U	10	0.369 U	0.506 U
METALS (MG/KG)										
ALUMINUM	7700	R-RSL	NC		NA	NA	NA	NA	NA	NA
ARSENIC	0.026	RBSL	18	Eco-SSL	NA	NA	NA	NA	NA	NA
BARIUM	1500	R-RSL	330	Eco-SSL	NA	NA	NA	NA	NA	NA
BERYLLIUM	16	R-RSL	21	Eco-SSL	NA	NA	NA	NA	NA	NA
CADMIUM	7	R-RSL	0.36	Eco-SSL	NA	NA	NA	NA	NA	NA
CALCIUM	NC		NC		NA	NA	NA	NA	NA	NA
CHROMIUM	NC		26	Eco-SSL	NA	NA	NA	NA	NA	NA
COBALT	2.3	R-RSL	13	Eco-SSL	NA	NA	NA	NA	NA	NA
COPPER	310	R-RSL	28	Eco-SSL	NA	NA	NA	NA	NA	NA
IRON	5500	R-RSL	NC		NA	NA	NA	NA	NA	NA
LEAD	81	R-DCL	11	Eco-SSL	NA	NA	NA	NA	NA	NA
MAGNESIUM	NC		NC		NA	NA	NA	NA	NA	NA
MANGANESE	180	R-RSL	220	Eco-SSL	NA	NA	NA	NA	NA	NA
MERCURY	0.66	RBSL	0.1	R5 ESL-S	NA	NA	NA	NA	NA	NA
NICKEL	150	R-RSL	38	Eco-SSL	NA	NA	NA	NA	NA	NA
POTASSIUM	NC		NC		NA	NA	NA	NA	NA	NA
SELENIUM	5.2	R-DCL	0.52	Eco-SSL	NA	NA	NA	NA	NA	NA
SODIUM	NC		NC		NA	NA	NA	NA	NA	NA
VANADIUM	39	R-RSL	7.8	Eco-SSL	NA	NA	NA	NA	NA	NA
ZINC	2300	R-RSL	46	Eco-SSL	NA	NA	NA	NA	NA	NA
PESTICIDES (UG/KG)										
4,4'-DDE	940	RBSL	21	Eco-SSL	NA	NA	NA	NA	NA	NA
ALPHA-BHC	1.24	RBSL	99.4	R5 ESL-S	NA	NA	NA	NA	NA	NA
BETA-BHC	4.4	RBSL	3.98	R5 ESL-S	NA	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	7.2	RBSL	5	R5 ESL-S	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	260	RBSL	224	R5 ESL-S	NA	NA	NA	NA	NA	NA
METHOXYCHLOR	31000	R-RSL	19.9	R5 ESL-S	NA	NA	NA	NA	NA	NA

Table 1 - Analytical Results for Surface Soil Samples

LOCATION	HHRA PSL		ERA PSL		11SB21			11SB22	11SB23	11SB24
SAMPLE ID					11SS210002	11SS210002-AVG	11SS210002-D	11SS220002	11SS230002	11SS240002
SAMPLE DATE					20110426	20110426	20110426	20110426	20110426	20110426
SAMPLE CODE					ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL
MATRIX					SO	SO	SO	SO	SO	SO
SAMPLE TYPE					NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX					SS	SS	SS	SS	SS	SS
TOP DEPTH					0	0	0	0	0	0
BOTTOM DEPTH					2	2	2	2	2	2
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)										
2-METHYLNAPHTHALENE	3100	R-DCL	29000	Eco-SSL	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	130000	R-DCL	29000	Eco-SSL	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	18000	R-DCL	29000	Eco-SSL	NA	NA	NA	NA	NA	NA
ANTHRACENE	1700000	R-RSL	29000	Eco-SSL	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	150	R-RSL	1100	Eco-SSL	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	15	R-RSL	1100	Eco-SSL	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	150	R-RSL	1100	Eco-SSL	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	170000	R-RSL	1100	Eco-SSL	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	1500	R-RSL	1100	Eco-SSL	NA	NA	NA	NA	NA	NA
CHRYSENE	15000	R-RSL	1100	Eco-SSL	NA	NA	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	15	R-RSL	1100	Eco-SSL	NA	NA	NA	NA	NA	NA
FLUORANTHENE	230000	R-RSL	29000	Eco-SSL	NA	NA	NA	NA	NA	NA
FLUORENE	170000	R-DCL	29000	Eco-SSL	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	150	R-RSL	1100	Eco-SSL	NA	NA	NA	NA	NA	NA
NAPHTHALENE	9.4	RBSL	29000	Eco-SSL	NA	NA	NA	NA	NA	NA
PHENANTHRENE	13000	R-DCL	29000	Eco-SSL	NA	NA	NA	NA	NA	NA
PYRENE	170000	R-RSL	1100	Eco-SSL	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/KG)										
DIETHYL PHTHALATE	240000	RBSL	24800	R5 ESL-S	NA	NA	NA	NA	NA	NA
VOLATILES (UG/KG)										
1,2-DICHLOROBENZENE	7200	RBSL	2960	R5 ESL-S	NA	NA	NA	NA	NA	NA
2-BUTANONE	30000	RBSL	89600	R5 ESL-S	NA	NA	NA	NA	NA	NA
ACETONE	28000	R-DCL	2500	R5 ESL-S	NA	NA	NA	NA	NA	NA
CIS-1,2-DICHLOROETHENE	400	R-DCL	783.7	R5 ESL-S	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	0.98	RBSL	9920	R5 ESL-S	NA	NA	NA	NA	NA	NA
TRICHLOROETHENE	14.4	RBSL	12400	R5 ESL-S	NA	NA	NA	NA	NA	NA

Value Qualifer

XXXX Highlighted boxes - exceed revised project screening level

J- The results is an estimated quantity

UJ - The result is an estimated non-detected quantity

U - Value is a non-detect as reported by the laboratory

NC - No Criteria

Table 1 - Analytical Results for Surface Soil Samples

LOCATION	HHRA PSL		ERA PSL		11SB29	11SB30	11SB31			11SB32
SAMPLE ID					11SS290002	11SS300002	11SS310002	11SS310002-AVG	11SS310002-D	11SS320002
SAMPLE DATE					20110427	20110427	20110426	20110426	20110427	20110426
SAMPLE CODE					NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
MATRIX					SO	SO	SO	SO	SO	SO
SAMPLE TYPE					NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX					SS	SS	SS	SS	SS	SS
TOP DEPTH					0	0	0	0	0	0
BOTTOM DEPTH					2	2	2	2	2	2
DIOXINS/FURANS (NG/KG)										
1,2,3,4,6,7,8,9-OCDD	15000	R-RSL	0.199	R5 ESL-S	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8,9-OCDF	15000	R-RSL	38.6	R5 ESL-S	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDD	450	R-RSL	0.199	R5 ESL-S	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDF	450	R-RSL	38.6	R5 ESL-S	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HPCDF	450	R-RSL	38.6	R5 ESL-S	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HXCDD	45	R-RSL	0.199	R5 ESL-S	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HXCDF	45	R-RSL	38.6	R5 ESL-S	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDD	45	R-RSL	0.199	R5 ESL-S	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDF	45	R-RSL	38.6	R5 ESL-S	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDD	45	R-RSL	0.199	R5 ESL-S	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDF	45	R-RSL	38.6	R5 ESL-S	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDD	4.5	R-RSL	0.199	R5 ESL-S	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDF	150	R-RSL	38.6	R5 ESL-S	NA	NA	NA	NA	NA	NA
2,3,4,6,7,8-HXCDF	45	R-RSL	38.6	R5 ESL-S	NA	NA	NA	NA	NA	NA
2,3,4,7,8-PECDF	15	R-RSL	38.6	R5 ESL-S	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDD	4.5	R-RSL	0.199	R5 ESL-S	NA	NA	NA	NA	NA	NA
TEQ WHO-2005	4.5	R-RSL	NC		NA	NA	NA	NA	NA	NA
TEQ WHO-2005 - HALFND	4.5	R-RSL	NC		NA	NA	NA	NA	NA	NA
TOTAL HPCDD	NC		NC		NA	NA	NA	NA	NA	NA
TOTAL HPCDF	NC		NC		NA	NA	NA	NA	NA	NA
TOTAL HXCDD	NC		NC		NA	NA	NA	NA	NA	NA
TOTAL HXCDF	NC		NC		NA	NA	NA	NA	NA	NA
TOTAL PECDD	NC		NC		NA	NA	NA	NA	NA	NA
TOTAL PECDF	NC		NC		NA	NA	NA	NA	NA	NA
TOTAL TCDD	NC		NC		NA	NA	NA	NA	NA	NA
TOTAL TCDF	NC		NC		NA	NA	NA	NA	NA	NA
METALS (MG/KG)										
ALUMINUM	7700	R-RSL	NC		**10200**	**8830**	**13400**	**13350**	**13300**	**14400**
ARSENIC	0.026	RBSL	18	Eco-SSL	**4.37**	**3.48**	**7.85**	**7.855**	**7.86**	**8.78**
BARIUM	1500	R-RSL	330	Eco-SSL	44.7	65.7	142	115.3	88.6	109
BERYLLIUM	16	R-RSL	21	Eco-SSL	0.622 J	0.731	0.925	0.897	0.869	1.14
CADMIUM	7	R-RSL	0.36	Eco-SSL	0.256 UJ	0.174 J	0.139 J	0.139 J	0.259 UJ	0.238 UJ
CALCIUM	NC		NC		14600	96200	1950	2070	2190	2280
CHROMIUM	NC		26	Eco-SSL	10.9	12.7	13.6	16.7	19.8	**27.6**
COBALT	2.3	R-RSL	13	Eco-SSL	**4.98**	**12.6**	**13.2**	**11.105**	**9.01**	**16.2**
COPPER	310	R-RSL	28	Eco-SSL	9.24	11.2	12.6	12.65	12.7	12.3
IRON	5500	R-RSL	NC		**16400**	**19400**	**18300**	**21300**	**24300**	**30100**
LEAD	81	R-DCL	11	Eco-SSL	7.26	8.75	**17.1**	**17.85**	**18.6**	**19.2**
MAGNESIUM	NC		NC		1310	4260	1390	1310	1230	1490
MANGANESE	180	R-RSL	220	Eco-SSL	101 J	**253 J**	**1070 J**	**751.5**	**433 J**	**839 J**
MERCURY	0.66	RBSL	0.1	R5 ESL-S	0.0252 J	0.0402 U	0.0448	0.0374	0.03 J	0.0327 J
NICKEL	150	R-RSL	38	Eco-SSL	7.05	17.1	14.3	13.5	12.7	14.7
POTASSIUM	NC		NC		481 J	690 J	710 J	677.5	645 J	686 J
SELENIUM	5.2	R-DCL	0.52	Eco-SSL	0.64 U	0.577 U	0.516 J	0.516 J	0.648 U	0.472 J
SODIUM	NC		NC		384 U	397 J	360 U	374.5 U	389 U	357 U
VANADIUM	39	R-RSL	7.8	Eco-SSL	**18.6 J**	**18.3 J**	**27 J**	**28.75**	**30.5 J**	**36 J**
ZINC	2300	R-RSL	46	Eco-SSL	26.8	**50**	44	**50.75**	**57.5**	**50.2**
PESTICIDES (UG/KG)										
4,4'-DDE	940	RBSL	21	Eco-SSL	0.42 U	0.39 U	0.411 U	0.414 U	0.417 U	0.413 U
ALPHA-BHC	1.24	RBSL	99.4	R5 ESL-S	0.42 U	0.39 U	0.411 U	0.414 U	0.417 U	0.413 U
BETA-BHC	4.4	RBSL	3.98	R5 ESL-S	0.42 U	0.39 U	0.411 U	0.414 U	0.417 U	0.413 U
GAMMA-BHC (LINDANE)	7.2	RBSL	5	R5 ESL-S	0.42 U	0.39 U	0.411 U	0.414 U	0.417 U	0.413 U
GAMMA-CHLORDANE	260	RBSL	224	R5 ESL-S	0.42 U	0.39 U	0.411 U	0.414 U	0.417 U	0.413 U
METHOXYCHLOR	31000	R-RSL	19.9	R5 ESL-S	0.431 UJ	0.387 UJ	0.403 UJ	0.413 U	0.423 UJ	0.427 UJ

Table 1 - Analytical Results for Surface Soil Samples

LOCATION	HHRA PSL		ERA PSL		11SB29	11SB30	11SB31			11SB32
SAMPLE ID					11SS290002	11SS300002	11SS310002	11SS310002-AVG	11SS310002-D	11SS320002
SAMPLE DATE					20110427	20110427	20110426	20110426	20110427	20110426
SAMPLE CODE					NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
MATRIX					SO	SO	SO	SO	SO	SO
SAMPLE TYPE					NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX					SS	SS	SS	SS	SS	SS
TOP DEPTH					0	0	0	0	0	0
BOTTOM DEPTH					2	2	2	2	2	2
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)										
2-METHYLNAPHTHALENE	3100	R-DCL	29000	Eco-SSL	4.25 U	3.77 U	2.52 J	2.52 J	4.19 U	2.52 J
ACENAPHTHENE	130000	R-DCL	29000	Eco-SSL	4.25 U	3.91 U	4.05 U	4.12 U	4.19 U	2.57 J
ACENAPHTHYLENE	18000	R-DCL	29000	Eco-SSL	5.09 J	12.9	19	22.6	26.2	20.8
ANTHRACENE	1700000	R-RSL	29000	Eco-SSL	4.25 U	18.3	9.88	10.84	11.8	15.8
BENZO(A)ANTHRACENE	150	R-RSL	1100	Eco-SSL	12.1	107	37	45.05	53.1	97.3
BENZO(A)PYRENE	15	R-RSL	1100	Eco-SSL	**16.1**	**122**	**60.2**	**69.4**	**78.6**	**130**
BENZO(B)FLUORANTHENE	150	R-RSL	1100	Eco-SSL	20.1	**152**	81	99.5	118	**170**
BENZO(G,H,I)PERYLENE	170000	R-RSL	1100	Eco-SSL	18.2	94.6	55.8	70.2	84.6	104
BENZO(K)FLUORANTHENE	1500	R-RSL	1100	Eco-SSL	9.14	64.2	36	38.15	40.3	60.2
CHRYSENE	15000	R-RSL	1100	Eco-SSL	16.1	136	66.8	74.55	82.3	117
DIBENZO(A,H)ANTHRACENE	15	R-RSL	1100	Eco-SSL	4.25 U	**22.3**	**15.7**	**18.05**	**20.4**	**30.8**
FLUORANTHENE	230000	R-RSL	29000	Eco-SSL	9.7	221	73.4	67.45	61.5	147
FLUORENE	170000	R-DCL	29000	Eco-SSL	4.25 U	3.93 J	4.05 U	4.12 U	4.19 U	3.25 J
INDENO(1,2,3-CD)PYRENE	150	R-RSL	1100	Eco-SSL	12.4	72.6	41.4	51.3	61.2	79.4
NAPHTHALENE	9.4	RBSL	29000	Eco-SSL	4.25 U	2.26 J	3.7 J	3.675	3.65 J	4.82 J
PHENANTHRENE	13000	R-DCL	29000	Eco-SSL	2.33 J	72.7 J	31.6 J	22.95	14.3 J	48.9 J
PYRENE	170000	R-RSL	1100	Eco-SSL	14.4 J	198 J	78.4 J	80	81.6 J	145 J
SEMIVOLATILES (UG/KG)										
DIETHYL PHTHALATE	240000	RBSL	24800	R5 ESL-S	213 U	189 U	203 U	206.5 U	210 U	204 U
VOLATILES (UG/KG)										
1,2-DICHLOROBENZENE	7200	RBSL	2960	R5 ESL-S	NA	NA	NA	NA	NA	NA
2-BUTANONE	30000	RBSL	89600	R5 ESL-S	NA	NA	NA	NA	NA	NA
ACETONE	28000	R-DCL	2500	R5 ESL-S	NA	NA	NA	NA	NA	NA
CIS-1,2-DICHLOROETHENE	400	R-DCL	783.7	R5 ESL-S	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	0.98	RBSL	9920	R5 ESL-S	NA	NA	NA	NA	NA	NA
TRICHLOROETHENE	14.4	RBSL	12400	R5 ESL-S	NA	NA	NA	NA	NA	NA

Value Qualifer
XXXX Highlighted boxes - exceed revised project screening level
J- The results is an estimated quantity
UJ - The result is an estimated non-detected quantity
U - Value is a non-detect as reported by the laboratory
NC - No Criteria

Table 2 - Analytical Results for Subsurface Soil Samples

LOCATION	HHRA PSL		11SB01			11SB02	11SB03	11SB04	11SB25
SAMPLE ID			11SB010406	11SB010406-AVG	11SB010406-D	11SB020406	11SB030406	11SB040406	11SB250507
SAMPLE DATE			20110426	20110426	20110426	20110426	20110426	20110426	20110426
SAMPLE CODE			ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX			SO	SO	SO	SO	SO	SO	SO
SAMPLE TYPE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX			SB	SB	SB	SB	SB	SB	SB
TOP DEPTH			4	4	4	4	4	4	5
BOTTOM DEPTH			6	6	6	6	6	6	7
METALS (MG/KG)									
ALUMINUM	7700	R-RSL	14000	13050	12100	15400	12300	8150	NA
ARSENIC	0.026	RBSL	6.41	5.325	4.24	20.4	2.49	6.22	NA
BARIUM	1500	R-RSL	53 J	88.5	124 J	53.8	60.9	49.1	NA
BERYLLIUM	16	R-RSL	0.554 J	0.5235	0.493 J	0.827 J	0.392 J	0.571	NA
CALCIUM	NC		310 J	365	420 J	418 J	688	168 J	NA
CHROMIUM	NC		27.4 J	21	14.6 J	74.9	13.8	19.4	NA
COBALT	2.3	R-RSL	3.13	3.275	3.42	2.56 J	1.88	5.73	NA
COPPER	310	R-RSL	12.7	12.7	12.7	10.1	6.05	7.28	NA
IRON	5500	R-RSL	20800	18800	16800	75600	11400	21300	NA
LEAD	81	R-DCL	10.2	8.995	7.79	28.5 J	6.76	15.3	NA
MAGNESIUM	NC		1460	1505	1550	900 J	1030	792	NA
MANGANESE	180	R-RSL	66.8	58	49.2	109	12.5	593	NA
MERCURY	0.66	RBSL	0.0203 J	0.0203 J	0.0439 UJ	0.0353 UJ	0.0337 UJ	0.025 J	NA
NICKEL	150	R-RSL	9.53	9.71	9.89	9.71	6.59	5.71	NA
POTASSIUM	NC		643	576.5	510 J	401 J	489 J	294 J	NA
SELENIUM	5.2	R-DCL	0.59 U	0.6065 U	0.623 U	1.26 J	0.588 U	0.559 U	NA
VANADIUM	39	R-RSL	32.4	27.15	21.9	86.2	17.6	32.9	NA
ZINC	2300	R-RSL	27.1	25.65	24.2	19.9 J	11.1	11.4	NA
PESTICIDES (UG/KG)									
BETA-BHC	4.4	RBSL	0.402 U	0.404 U	0.406 U	0.437 U	0.488 J	0.377 U	NA
GAMMA-CHLORDANE	260	RBSL	0.402 UJ	0.404 U	0.406 UJ	0.437 UJ	0.355 J	0.377 UJ	NA
SEMIVOLATILES (UG/KG)									
DIETHYL PHTHALATE	240000	RBSL	300 J	199.25	197 U	211 U	189 U	189 U	NA
VOLATILES (UG/KG)									
1,1-DICHLOROETHENE	58	R-DCL	2.38 U	2.39 U	2.4 U	1.9 J	2.38 U	2.51 U	2.9 U
1,2-DICHLOROBENZENE	7200	RBSL	2.38 U	2.39 U	2.4 U	2.55 U	1.4 J	2.51 U	2.9 U
CIS-1,2-DICHLOROETHENE	400	R-DCL	61.6 J	43.15	24.7 J	357	2.38 U	2.51 U	2.9 U
METHYLENE CHLORIDE	23	R-DCL	4.75 U	4.77 U	4.79 U	5.1 U	4.77 U	5.03 U	5.79 U
TETRACHLOROETHENE	0.98	RBSL	14.2 J	10.59	6.98 J	826	1.57 J	2.51 UJ	2.9 UJ
TOLUENE	12000	R-DCL	2.38 U	2.39 U	2.4 U	10.6	2.38 U	2.51 U	2.9 U
TRANS-1,2-DICHLOROETHENE	620	RBSL	2.38 U	2.39 U	2.4 U	1.45 J	2.38 U	2.51 U	2.9 U
TRICHLOROETHENE	14.4	RBSL	159 J	112.3	65.6 J	243 J	2.38 U	2.51 U	2.9 U
VINYL CHLORIDE	0.112	RBSL	2.38 U	2.39 U	2.4 U	154	2.38 U	2.51 U	2.9 U

Value Qualifier

xxxx Highlighted boxes - exceed revised project screening level

J - The results is an estimated quantity

UJ - The results is an estimated non-detected quantity

U - Value is a non-detect as reported by the laboratory

NC - No Criteria

Table 2 - Analytical Results for Subsurface Soil Samples

LOCATION	HHRA PSL		11SB26	11SB27	11SB28
SAMPLE ID			11SB260507	11SB270507	11SB280507
SAMPLE DATE			20110427	20110426	20110426
SAMPLE CODE			NORMAL	NORMAL	NORMAL
MATRIX			SO	SO	SO
SAMPLE TYPE			NORMAL	NORMAL	NORMAL
SUBMATRIX			SB	SB	SB
TOP DEPTH			5	5	5
BOTTOM DEPTH			7	7	7
METALS (MG/KG)					
ALUMINUM	7700	R-RSL	NA	NA	NA
ARSENIC	0.026	RBSL	NA	NA	NA
BARIUM	1500	R-RSL	NA	NA	NA
BERYLLIUM	16	R-RSL	NA	NA	NA
CALCIUM	NC		NA	NA	NA
CHROMIUM	NC		NA	NA	NA
COBALT	2.3	R-RSL	NA	NA	NA
COPPER	310	R-RSL	NA	NA	NA
IRON	5500	R-RSL	NA	NA	NA
LEAD	81	R-DCL	NA	NA	NA
MAGNESIUM	NC		NA	NA	NA
MANGANESE	180	R-RSL	NA	NA	NA
MERCURY	0.66	RBSL	NA	NA	NA
NICKEL	150	R-RSL	NA	NA	NA
POTASSIUM	NC		NA	NA	NA
SELENIUM	5.2	R-DCL	NA	NA	NA
VANADIUM	39	R-RSL	NA	NA	NA
ZINC	2300	R-RSL	NA	NA	NA
PESTICIDES (UG/KG)					
BETA-BHC	4.4	RBSL	NA	NA	NA
GAMMA-CHLORDANE	260	RBSL	NA	NA	NA
SEMIVOLATILES (UG/KG)					
DIETHYL PHTHALATE	240000	RBSL	186 U	193 U	226 U
VOLATILES (UG/KG)					
1,1-DICHLOROETHENE	58	R-DCL	2.79 U	2.24 U	3.31 U
1,2-DICHLOROBENZENE	7200	RBSL	2.79 U	2.24 U	3.31 U
CIS-1,2-DICHLOROETHENE	400	R-DCL	2.79 U	2.24 U	3.31 U
METHYLENE CHLORIDE	23	R-DCL	11.1 J	4.48 U	6.62 U
TETRACHLOROETHENE	0.98	RBSL	2.79 U	2.24 UJ	3.31 UJ
TOLUENE	12000	R-DCL	2.79 U	2.24 U	3.31 U
TRANS-1,2-DICHLOROETHENE	620	RBSL	2.79 U	2.24 U	3.31 U
TRICHLOROETHENE	14.4	RBSL	2.79 U	2.24 U	3.31 U
VINYL CHLORIDE	0.112	RBSL	2.79 U	2.24 U	3.31 U

Value Qualifier

xxxx Highlighted boxes - exceed revised prc

J - The results is an estimated quantity

UJ - The results is an estimated non-detected q

U - Value is a non-detect as reported by the lab

NC - No Criteria

Table 3 - Analytical Results for Sediment Samples

LOCATION	HHRA PSL		ERA PSL		11SD01		11SD02			
SAMPLE ID					11SD010006	11SD010612	11SD020006	11SD020006-AVG	11SD020006-D	11SD020612
SAMPLE DATE					20110428	20110428	20110428	20110428	20110428	20110428
SAMPLE CODE					NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
MATRIX					SD	SD	SD	SD	SD	SD
SAMPLE TYPE					NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX					SD	SD	SD	SD	SD	SD
TOP DEPTH					0	0.5	0	0	0	0.5
BOTTOM DEPTH					0.5	1	0.5	0.5	0.5	1
DIOXINS/FURANS (NG/KG)										
1,2,3,4,6,7,8,9-OCDD	15000	R-RSL	3.3	R5 SED	NA	NA	2240	1870	1500	2710
1,2,3,4,6,7,8,9-OCDF	15000	R-RSL	0.013	R5 SED	NA	NA	192 J	149	106 J	219
1,2,3,4,6,7,8-HPCDD	450	R-RSL	3.3	R5 SED	NA	NA	243 J	188.5	134 J	260
1,2,3,4,6,7,8-HPCDF	450	R-RSL	0.013	R5 SED	NA	NA	35.3 J	27.35	19.4 J	37.2
1,2,3,4,7,8,9-HPCDF	450	R-RSL	0.013	R5 SED	NA	NA	2.15 J	2.15 J	3.26 U	2.75 J
1,2,3,4,7,8-HXCDD	45	R-RSL	3.3	R5 SED	NA	NA	4.87	3.395	1.92 J	4.48 J
1,2,3,4,7,8-HXCDF	45	R-RSL	0.013	R5 SED	NA	NA	1.09 J	1.09 J	3.26 U	1.2 J
1,2,3,6,7,8-HXCDD	45	R-RSL	3.3	R5 SED	NA	NA	7.26	5.92	4.58 J	8.28
1,2,3,6,7,8-HXCDF	45	R-RSL	0.013	R5 SED	NA	NA	1.01 J	0.894	0.778 J	1.07 J
1,2,3,7,8,9-HXCDD	45	R-RSL	3.3	R5 SED	NA	NA	4.47 J	3.675	2.88 J	4.62 J
1,2,3,7,8-PECDD	4.5	R-RSL	3.3	R5 SED	NA	NA	1.38 J	1.1065	0.833 J	1.08 J
1,2,3,7,8-PECDF	150	R-RSL	0.013	R5 SED	NA	NA	1.02 J	0.9	0.78 J	0.562 J
2,3,4,6,7,8-HXCDF	45	R-RSL	0.013	R5 SED	NA	NA	1.36 J	1.154	0.948 J	1.15 J
2,3,4,7,8-PECDF	15	R-RSL	0.013	R5 SED	NA	NA	0.559 J	0.559 J	3.26 U	0.48 J
2,3,7,8-TCDD	4.5	R-RSL	0.12	R5 SED	NA	NA	0.494 J	0.494 J	0.651 U	0.65 U
TEQ WHO-2005	4.5	R-RSL	NC		NA	NA	6.3	5.18	4.06	7.25
TEQ WHO-2005 - HALFND	4.5	R-RSL	NC		NA	NA	6.47	5.31	4.15	7.3
TOTAL HPCDD	NC		NC		NA	NA	487 J	371	255 J	489
TOTAL HPCDF	NC		NC		NA	NA	147 J	110.85	74.7 J	150
TOTAL HXCDD	NC		NC		NA	NA	71.6 J	53.7	35.8 J	67.5
TOTAL HXCDF	NC		NC		NA	NA	31.8 J	25.65	19.5 J	33.7
TOTAL PECDD	NC		NC		NA	NA	9.64 J	7.385	5.13 J	9.47
TOTAL PECDF	NC		NC		NA	NA	9.89 J	6.6	3.31 J	7.86
METALS (MG/KG)										
ALUMINUM	7700	R-RSL	NC		7560	7950	6800 J	9100	11400 J	11300
ANTIMONY	3.1	R-RSL	0.27	Eco-SSL	1.15 UJ	0.637 J	1.04 U	1.025 U	1.01 U	0.971 U
ARSENIC	0.39	R-RSL	9.79	R5 SED	18.5	15.2	20.6	20.75	20.9	15.1
BARIUM	1500	R-RSL	330	Eco-SSL	163	109	129	109.3	89.6	89.1
BERYLLIUM	16	R-RSL	21	Eco-SSL	0.551 J	0.558	0.804	0.997	1.19	0.894
CADMIUM	7	R-RSL	0.99	R5 SED	2.6 J	2.48 J	0.95 J	0.6755	0.401 J	0.338 J
CALCIUM	NC		NC		55500	33900	46000 J	23820	1640 J	1880
CHROMIUM	NC		43.4	R5 SED	85.1	132	67.4	59.7	52	44.9
COBALT	2.3	R-RSL	50	R5 SED	18.6	17.3	17.6	15.75	13.9	13.5
COPPER	310	R-RSL	31.6	R5 SED	26.6	26.7	12	12.2	12.4	10.1
IRON	5500	R-RSL	35.8	R5 SED	17700	18000	22200 J	35450	48700 J	31000
LEAD	81	R-DCL	11	Eco-SSL	139	148	79.6 J	57.6	35.6 J	28.2
MAGNESIUM	NC		NC		3050	3760	1580 J	1196.5	813 J	837
MANGANESE	180	R-RSL	220	Eco-SSL	2030 J	1060 J	2190 J	1437.5	685 J	915
MERCURY	1	R-RSL	0.1	R5 ESL-S	0.115	0.153	0.056	0.04775	0.0395	0.0591
NICKEL	150	R-RSL	22.7	R5 SED	12.6	13.2	11.7	13.55	15.4	14.5
POTASSIUM	NC		NC		435 J	442 J	338 J	357.5	377 J	423 J
SELENIUM	5.2	R-DCL	0.52	Eco-SSL	0.722 J	0.774	0.447 J	0.447 J	0.63 U	0.607 U
SODIUM	NC		NC		215 J	93.4 J	390 U	384 U	378 U	364 U
THALLIUM	0.078	R-RSL	0.0569	R5 ESL-S	0.656 J	0.278 U	0.742 J	0.497	0.504 U	0.485 U
VANADIUM	39	R-RSL	7.8	Eco-SSL	19.7 J	20.9 J	25.8 J	35.7	45.6 J	39.1
ZINC	2300	R-RSL	121	R5 SED	357	392	220 J	157.75	95.5 J	88
MISCELLANEOUS PARAMETERS (MG/KG)										
CYANIDE	0.94	R-DCL	0.0001	R5 SED	0.383 UJ	0.349 U	0.395 J	0.287	0.179 J	0.201 J
TOTAL ORGANIC CARBON	NC		NC		14400	7560	11000	10800	10600	7070
PCBS (UG/KG)										
AROCLOR-1260	220	R-RSL	59.8	R5 SED	48.5	11.1 U	12.7 J	9.935	7.17 J	7.95 J

Table 3 - Analytical Results for Sediment Samples

LOCATION	HHRA PSL		ERA PSL		11SD01		11SD02			
SAMPLE ID					11SD010006	11SD010612	11SD020006	11SD020006-AVG	11SD020006-D	11SD020612
SAMPLE DATE					20110428	20110428	20110428	20110428	20110428	20110428
SAMPLE CODE					NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
MATRIX					SD	SD	SD	SD	SD	SD
SAMPLE TYPE					NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX					SD	SD	SD	SD	SD	SD
TOP DEPTH					0	0.5	0	0	0	0.5
BOTTOM DEPTH					0.5	1	0.5	0.5	0.5	1
PESTICIDES (UG/KG)										
4,4'-DDD	2000	R-RSL	4.88	R5 SED	0.328 J	1.13 J	0.422 U	0.413 U	0.404 U	0.418 U
4,4'-DDE	1400	R-RSL	3.16	R5 SED	0.47 U	3.09 J	0.422 U	0.413 U	0.404 U	0.418 U
4,4'-DDT	1700	R-RSL	4.16	R5 SED	0.47 U	1.45 J	0.422 U	0.413 U	0.404 U	0.418 U
ALPHA-BHC	7.2	R-DCL	6	R5 SED	2.39	2.02 J	0.422 U	1.3405	2.47	0.418 U
ENDRIN	990	R-DCL	2.22	R5 SED	0.637 J	0.747 J	0.411 UJ	0.405 U	0.399 UJ	0.42 UJ
GAMMA-CHLORDANE	1600	R-RSL	4.5	R5 SED	1.32	2.3	0.623 J	0.7225	0.822	0.182 J
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)										
2-METHYLNAPHTHALENE	3100	R-DCL	20.2	R5 SED	23.6 U	22.7 U	4.16 U	4.115 U	4.07 U	4.14 U
ACENAPHTHYLENE	18000	R-DCL	5.87	R5 SED	**27 J**	22.7 U	**7.96 J**	5.28	2.6 J	**6.11 J**
ANTHRACENE	1700000	R-RSL	57.2	R5 SED	28.6 J	20.7 J	8.52	5.6	2.68 J	7.63 J
BENZO(A)ANTHRACENE	150	R-RSL	108	R5 SED	107	56.3	18.7	12.96	7.22 J	21.9
BENZO(A)PYRENE	15	R-RSL	150	R5 SED	**136**	**84.4**	**32.6 J**	**21.02**	9.44 J	**30**
BENZO(B)FLUORANTHENE	150	R-RSL	10400	R5 SED	**298**	121	84.8 J	49.6	14.4 J	48.3
BENZO(G,H,I)PERYLENE	170000	R-RSL	170	R5 SED	121	81.3	45.7 J	29.15	12.6 J	28.4
BENZO(K)FLUORANTHENE	1500	R-RSL	240	R5 SED	95.1	49.2	27.2 J	17.12	7.04 J	23.5
CHRYSENE	15000	R-RSL	166	R5 SED	**279**	99	64.5 J	37.8	11.1 J	35.9
DIBENZO(A,H)ANTHRACENE	15	R-RSL	33	R5 SED	**29.7 J**	22.7 U	14.6	10.995	7.39 J	9.83
FLUORANTHENE	230000	R-RSL	423	R5 SED	**594**	183	52.8 J	33.8	14.8 J	43.6
INDENO(1,2,3-CD)PYRENE	150	R-RSL	200	R5 SED	102	63.6	39.3 J	24.055	8.81 J	22.6
NAPHTHALENE	700	R-DCL	176	R5 SED	23.6 U	15.7 J	3.01 J	3.01 J	4.07 U	2.38 J
PHENANTHRENE	13000	R-DCL	204	R5 SED	153 J	96 J	24.5 J	16	7.5 J	16.4 J
PYRENE	170000	R-RSL	195	R5 SED	**468**	173	46.2 J	30.35	14.5 J	42.1

Value Qualifier

XXXX Highlighted boxes - exceed revised project screening level

J - The result is an estimated quantity

UJ - The result is an estimated non-detected quantity

U - Value is a non-detect as reported by the laboratory

NC -No Criteria

Table 3 - Analytical Results for Sediment Samples

LOCATION	HHRA PSL		ERA PSL		11SD03		11SD04	
SAMPLE ID					11SD030006	11SD030612	11SD040006	11SD040612
SAMPLE DATE					20110428	20110428	20110428	20110428
SAMPLE CODE					NORMAL	NORMAL	NORMAL	NORMAL
MATRIX					SD	SD	SD	SD
SAMPLE TYPE					NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX					SD	SD	SD	SD
TOP DEPTH					0	0.5	0	0.5
BOTTOM DEPTH					0.5	1	0.5	1
DIOXINS/FURANS (NG/KG)								
1,2,3,4,6,7,8,9-OCDD	15000	R-RSL	3.3	R5 SED	NA	NA	NA	NA
1,2,3,4,6,7,8,9-OCDF	15000	R-RSL	0.013	R5 SED	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDD	450	R-RSL	3.3	R5 SED	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDF	450	R-RSL	0.013	R5 SED	NA	NA	NA	NA
1,2,3,4,7,8,9-HPCDF	450	R-RSL	0.013	R5 SED	NA	NA	NA	NA
1,2,3,4,7,8-HXCDD	45	R-RSL	3.3	R5 SED	NA	NA	NA	NA
1,2,3,4,7,8-HXCDF	45	R-RSL	0.013	R5 SED	NA	NA	NA	NA
1,2,3,6,7,8-HXCDD	45	R-RSL	3.3	R5 SED	NA	NA	NA	NA
1,2,3,6,7,8-HXCDF	45	R-RSL	0.013	R5 SED	NA	NA	NA	NA
1,2,3,7,8,9-HXCDD	45	R-RSL	3.3	R5 SED	NA	NA	NA	NA
1,2,3,7,8-PECDD	4.5	R-RSL	3.3	R5 SED	NA	NA	NA	NA
1,2,3,7,8-PECDF	150	R-RSL	0.013	R5 SED	NA	NA	NA	NA
2,3,4,6,7,8-HXCDF	45	R-RSL	0.013	R5 SED	NA	NA	NA	NA
2,3,4,7,8-PECDF	15	R-RSL	0.013	R5 SED	NA	NA	NA	NA
2,3,7,8-TCDD	4.5	R-RSL	0.12	R5 SED	NA	NA	NA	NA
TEQ WHO-2005	4.5	R-RSL	NC		NA	NA	NA	NA
TEQ WHO-2005 - HALFND	4.5	R-RSL	NC		NA	NA	NA	NA
TOTAL HPCDD	NC		NC		NA	NA	NA	NA
TOTAL HPCDF	NC		NC		NA	NA	NA	NA
TOTAL HXCDD	NC		NC		NA	NA	NA	NA
TOTAL HXCDF	NC		NC		NA	NA	NA	NA
TOTAL PECDD	NC		NC		NA	NA	NA	NA
TOTAL PECDF	NC		NC		NA	NA	NA	NA
METALS (MG/KG)								
ALUMINUM	7700	R-RSL	NC		6500	**11100**	**8000**	**8830**
ANTIMONY	3.1	R-RSL	0.27	Eco-SSL	1.05 U	0.929 U	1.09 U	1.09 U
ARSENIC	0.39	R-RSL	9.79	R5 SED	**14.3**	**15**	**18.1**	**27**
BARIUM	1500	R-RSL	330	Eco-SSL	104	66.3	114	255
BERYLLIUM	16	R-RSL	21	Eco-SSL	0.786	0.989	0.94	1.21
CADMIUM	7	R-RSL	0.99	R5 SED	0.554 J	0.195 J	0.687 J	0.601 J
CALCIUM	NC		NC		5160	3360	4820	5550
CHROMIUM	NC		43.4	R5 SED	**66.7**	42.3	**47.5**	**92.3**
COBALT	2.3	R-RSL	50	R5 SED	**14.4**	**14.7**	**18.8**	**28.3**
COPPER	310	R-RSL	31.6	R5 SED	13.4	10.3	13	19.7
IRON	5500	R-RSL	35.8	R5 SED	**16300**	**31500**	**18600**	**37800**
LEAD	81	R-DCL	11	Eco-SSL	**40.8**	**21.3**	**41.3**	**44.1**
MAGNESIUM	NC		NC		998	820	1010	987
MANGANESE	180	R-RSL	220	Eco-SSL	**1510**	**597**	**1730**	**4530**
MERCURY	1	R-RSL	0.1	R5 ESL-S	0.0558	0.0337 J	0.0523	0.0388
NICKEL	150	R-RSL	22.7	R5 SED	10.7	14.4	12.8	16.6
POTASSIUM	NC		NC		335 J	418 J	370 J	381 J
SELENIUM	5.2	R-DCL	0.52	Eco-SSL	**0.568 J**	0.451 J	**0.694 J**	3.42 U
SODIUM	NC		NC		394 U	348 U	407 U	410 U
THALLIUM	0.078	R-RSL	0.0569	R5 ESL-S	**0.516 J**	0.464 U	**0.487 J**	2.73 U
VANADIUM	39	R-RSL	7.8	Eco-SSL	**23.4**	**43.1**	**24.5**	**39.9**
ZINC	2300	R-RSL	121	R5 SED	105	54.2	**144**	**128**
MISCELLANEOUS PARAMETERS (MG/KG)								
CYANIDE	0.94	R-DCL	0.0001	R5 SED	**0.266 J**	0.298 U	0.357 U	**0.462 J**
TOTAL ORGANIC CARBON	NC		NC		23500	15600	15000	12500
PCBS (UG/KG)								
AROCLOR-1260	220	R-RSL	59.8	R5 SED	10.3 J	9.47 U	11.2 U	10.9 U

Table 3 - Analytical Results for Sediment Samples

LOCATION	HHRA PSL		ERA PSL		11SD03		11SD04	
SAMPLE ID					11SD030006	11SD030612	11SD040006	11SD040612
SAMPLE DATE					20110428	20110428	20110428	20110428
SAMPLE CODE					NORMAL	NORMAL	NORMAL	NORMAL
MATRIX					SD	SD	SD	SD
SAMPLE TYPE					NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX					SD	SD	SD	SD
TOP DEPTH					0	0.5	0	0.5
BOTTOM DEPTH					0.5	1	0.5	1
PESTICIDES (UG/KG)								
4,4'-DDD	2000	R-RSL	4.88	R5 SED	0.445 U	0.386 U	0.457 U	0.447 U
4,4'-DDE	1400	R-RSL	3.16	R5 SED	0.445 U	0.386 U	0.457 U	0.447 U
4,4'-DDT	1700	R-RSL	4.16	R5 SED	0.445 U	0.386 U	0.457 U	0.447 U
ALPHA-BHC	7.2	R-DCL	6	R5 SED	2.2	1.46	2.02	1.61
ENDRIN	990	R-DCL	2.22	R5 SED	0.445 UJ	0.379 UJ	0.448 UJ	0.459 UJ
GAMMA-CHLORDANE	1600	R-RSL	4.5	R5 SED	0.445 U	0.386 U	0.457 U	0.447 U
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)								
2-METHYLNAPHTHALENE	3100	R-DCL	20.2	R5 SED	4.3 U	3.69 U	4.45 U	2.85 J
ACENAPHTHYLENE	18000	R-DCL	5.87	R5 SED	**6.72 J**	3.69 U	4.45 U	4.49 J
ANTHRACENE	1700000	R-RSL	57.2	R5 SED	6.96 J	3.69 U	4.45 U	4.26 J
BENZO(A)ANTHRACENE	150	R-RSL	108	R5 SED	29.6	3.69 U	3.34 J	14.8
BENZO(A)PYRENE	15	R-RSL	150	R5 SED	**36.3**	5.92 J	5.01 J	**19.7**
BENZO(B)FLUORANTHENE	150	R-RSL	10400	R5 SED	62.8	11.9	7.48 J	38.1
BENZO(G,H,I)PERYLENE	170000	R-RSL	170	R5 SED	25.8	6.61 J	6.85 J	26.5
BENZO(K)FLUORANTHENE	1500	R-RSL	240	R5 SED	24.7	5.11 J	3.9 J	14.4
CHRYSENE	15000	R-RSL	166	R5 SED	40.3	3.69 U	5.68 J	39.3
DIBENZO(A,H)ANTHRACENE	15	R-RSL	33	R5 SED	11.3	3.69 U	4.45 U	14.5
FLUORANTHENE	230000	R-RSL	423	R5 SED	46.8	9.72	6.68 J	32.3
INDENO(1,2,3-CD)PYRENE	150	R-RSL	200	R5 SED	26.1	5.41 J	4.76 J	16.2
NAPHTHALENE	700	R-DCL	176	R5 SED	4.3 U	3.69 U	4.45 U	4.46 U
PHENANTHRENE	13000	R-DCL	204	R5 SED	18.9 J	4.6 J	3.25 J	9.75
PYRENE	170000	R-RSL	195	R5 SED	50.1	11	7.39 J	32.5

Value Qualifier

XXXX Highlighted boxes - exceed revised project screening level

J - The result is an estimated quantity

UJ - The result is an estimated non-detected quantity

U - Value is a non-detect as reported by the laboratory

NC -No Criteria

Table 2-1 Proposed Supplemental Sampling at SWMU 11

Sampling Location	ID Number	Matrix	Depth[1] (feet bgs)	Analysis	Number of Samples[1]	Sampling SOP Reference
11SB33	11SB33-XXXX and 11SB-FDXXXXXX[2]	Soil	>2	VOCs	1 + 1 FD	SOP-07, SOP-08, SOP-11
	11SB33-YYYY				1	
11SB34	11SB34-XXXX	Soil	>2	VOCs	1	SOP-07, SOP-08, SOP-11
	11SB34-YYYY				1	
11SB35	11SB35-XXXX	Soil	>2	VOCs	1	SOP-07, SOP-08, SOP-11
	11SB35-YYYY				1	
11SB36	11SB36-XXXX	Soil	>2	VOCs	1	SOP-07, SOP-08, SOP-11
	11SB36-YYYY				1	
11SB37	11SB37-XXXX	Soil	>2	VOCs	1	SOP-07, SOP-08, SOP-11
	11SB37-YYYY				1	
11SB38	11SB38-XXXX	Soil	>2	VOCs	1	SOP-07, SOP-08, SOP-11
	11SB38-YYYY				1	
11SB39	11SB39-XXXX	Soil	>2	VOCs	1	SOP-07, SOP-08, SOP-11
	11SB39-YYYY				1	
11SB40	11SB40-XXXX	Soil	>2	VOCs	1	SOP-07, SOP-08, SOP-11
	11SB40-YYYY				1	
11SB41	11SB41-XXXX	Soil	>2	VOCs	1	SOP-07, SOP-08, SOP-11
	11SB41-YYYY				1	
11SB42	11SB42-XXXX	Soil	>2	VOCs	1	SOP-07, SOP-08, SOP-11
	11SB42-YYYY				1	
11SB43	11SB43-XXXX	Soil	>2	VOCs	1	SOP-07, SOP-08, SOP-11
	11SB43-YYYY				1	
11SB44	11SB44-XXXX	Soil	>2	VOCs	1	SOP-07, SOP-08, SOP-11
	11SB44-YYYY				1	
11SB45	11SB45-XXXX	Soil	>2	VOCs	1	SOP-07, SOP-08, SOP-11
	11SB45-YYYY				1	
11SB46	11SB46-XXXX	Soil	>2	VOCs	1	SOP-07, SOP-08, SOP-11
	11SB46-YYYY				1	
11SB47	11SB47-XXXX	Soil	>2	VOCs	1	SOP-07, SOP-08, SOP-11
	11SB47-YYYY				1	

Table 2-1 Proposed Supplemental Sampling at SWMU 11

Sampling Location	ID Number	Matrix	Depth[1] (feet bgs)	Analysis	Number of Samples[1]	Sampling SOP Reference
11SB48	11SB48-XXXX	Soil	>2	VOCs	1	SOP-07, SOP-08, SOP-11
	11SB48-YYYY				1	
11SB49	11SB49-XXXX	Soil	>2	VOCs	1	SOP-07, SOP-08, SOP-11
	11SB49-YYYY				1	
11SB50	11SB50-XXXX	Soil	>2	VOCs	1	SOP-07, SOP-08, SOP-11
	11SB50-YYYY				1	
11SD05	11SD050006 and 11SD-FDXXXXXX[2]	Sediment	0 – 0.5	Dioxins/Furans	1 + 1FD	SOP-09
11SD06	11SD060006	Sediment	0 – 0.5	Dioxins/Furans	1	SOP-09
11MWT01	11MWT0101	Groundwater	Upper water Bearing Zone	VOCs	1 + 1FD	SOP-12,SOP-13, SOP-14, SOP-15, SOP-16, SOP-17, SOP-18
11MWT02	11MWT0201	Groundwater	Upper water Bearing Zone	VOCs	1	SOP-12, SOP-13, SOP-14, SOP-15, SOP-16, SOP-17, SOP-18
11MWT03	11MWT0301	Groundwater	Upper water Bearing Zone	VOCs	1	SOP-12, SOP-13, SOP-14, SOP-15, SOP-16, SOP-17, SOP-18
11MWT04	11MWT0401	Groundwater	Upper water Bearing Zone	VOCs	1	SOP-12, SOP-13, SOP-14, SOP-15, SOP-16, SOP-17, SOP-18
18CMWT001	18CMWT001	Groundwater	Upper water Bearing Zone	VOCs	1	SOP-12, SOP-13, SOP-14, SOP-15, SOP-16, SOP-17, SOP-18

Notes:

1. Two subsurface soil samples will be collected from sampling locations 33 through 50. “XXXX” and “YYYY” represents depth of the sample, which will be determined in the field. For example, if sample is collected from 4 to 6 feet, the depth will be recorded as 0406.
2. Field duplicate (FD) locations may change in the field based on visual observations and field conditions. “XXXXXX” represents date collected.

SWMU 11 – Figures

Figure 1-1 Soil and Sediment Locations
Figure 1-2 Dioxin/Furan HHRA PSL Exceedances in Surface Soil and Sediment
Figure 1-3 Metal PSL Exceedances in Surface and Subsurface Soil
Figure 1-4 PAH PSL Exceedances in Surface and Subsurface Soil
Figure 1-5 VOC PSL Exceedances in Surface and Subsurface Soil
Figure 1-6 Metal PSL Exceedances in Sediment
Figure 1-7 Pesticides and PAH PSL Exceedances in Sediment
Figure 1-8 Metals PSL Exceedances in Surface Soil - Building 2981 Concrete Tank Offsite Area
Figure 1-9 PAH PSL Exceedances in Surface Soil - Building 2981 Concrete Tank Offsite Area
Figure 2-1 Proposed Subsurface Soil Sampling Locations
Figure 2-2 Proposed Groundwater Monitoring Well Locations
Figure 2-3 Proposed Sediment Sampling Locations

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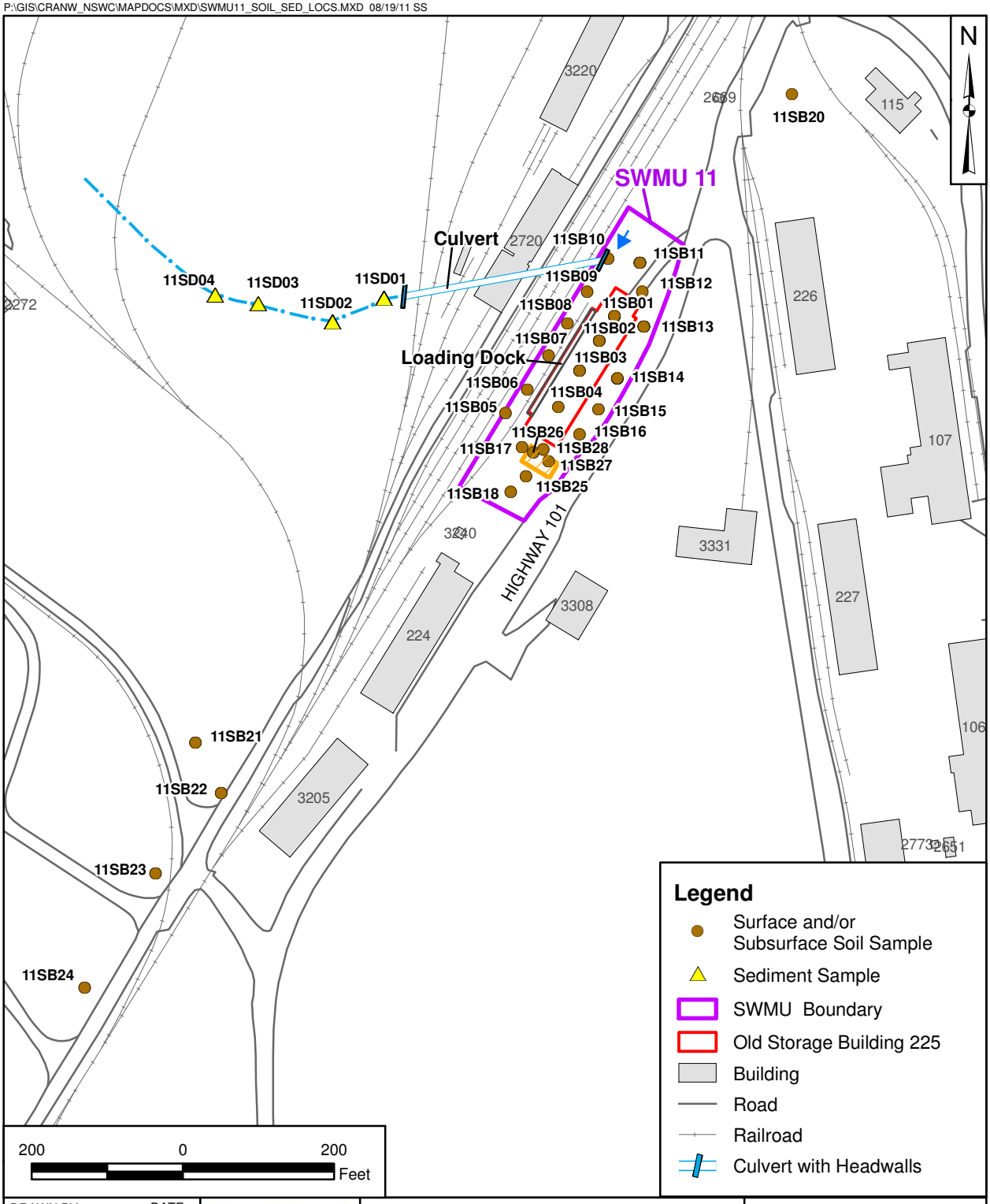

DRAWN BY	DATE			CONTRACT NUMBER CTO F27E	
S. STROZ	08/18/11				
CHECKED BY	DATE			APPROVED BY	DATE
K. SMITH	08/19/11			T. KLIMEK	08/18/11
REVISED BY	DATE			APPROVED BY	DATE
				—	—
SCALE				FIGURE NO.	REV
AS NOTED				1-1	0

SOIL AND SEDIMENT LOCATIONS
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

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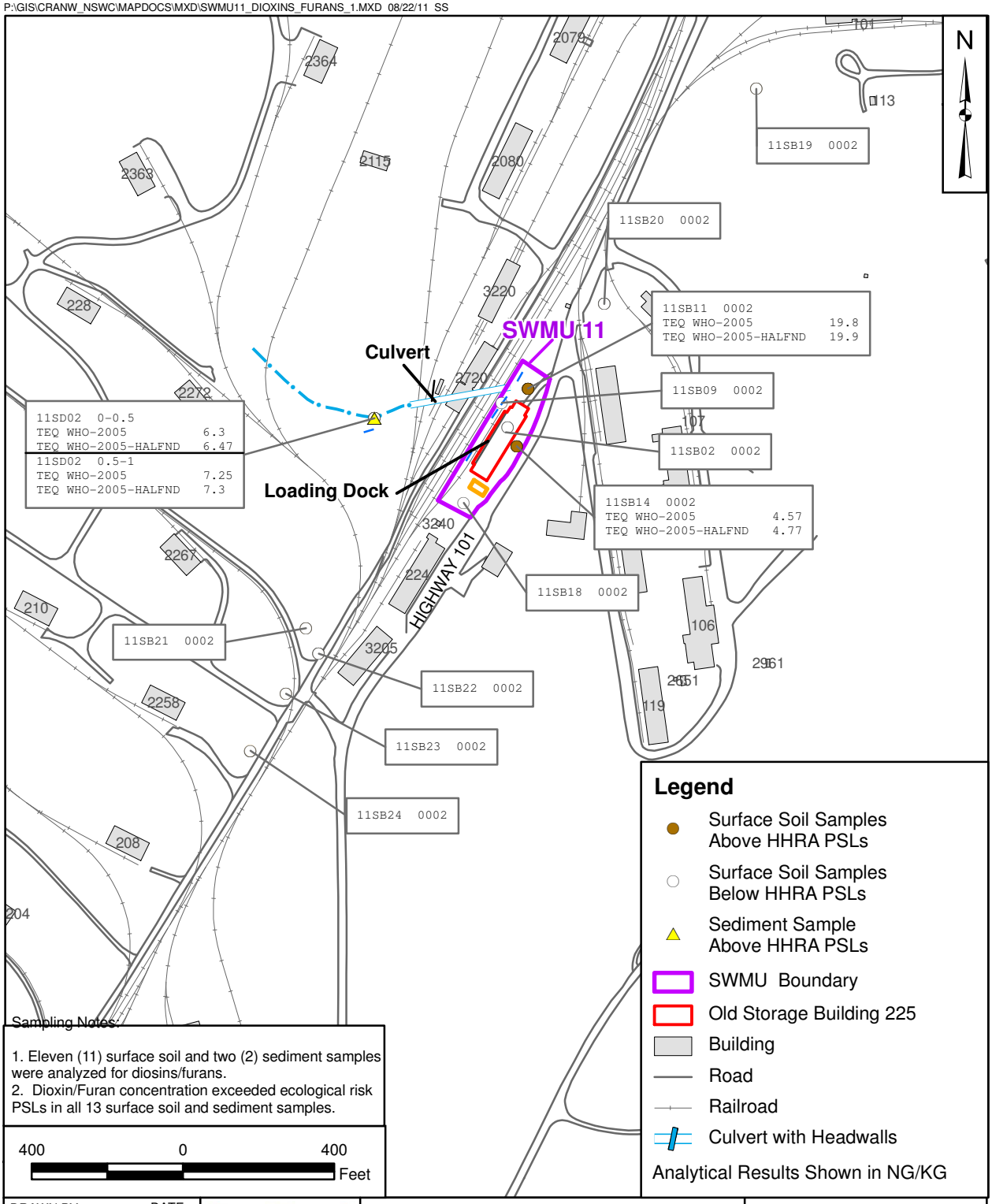

Legend

- Surface Soil Samples Above HHRA PSLs
- Surface Soil Samples Below HHRA PSLs
- Sediment Sample Above HHRA PSLs
- SWMU Boundary
- Old Storage Building 225
- Building
- Road
- Railroad
- Culvert with Headwalls

Analytical Results Shown in NG/KG

Sampling Notes:

1. Eleven (11) surface soil and two (2) sediment samples were analyzed for diosins/furans.
2. Dioxin/Furan concentration exceeded ecological risk PSLs in all 13 surface soil and sediment samples.

DRAWN BY S. STROZ	DATE 08/16/11	DIOXIN/FURAN HHRA PSL EXCEEDANCES IN SURFACE SOIL AND SEDIMENT SWMU 11 - OLD STORAGE BUILDING 225 NSA CRANE CRANE, INDIANA	CONTRACT NUMBER CTO F27E
CHECKED BY K. SMITH	DATE 08/22/11		APPROVED BY / DATE
REVISED BY	DATE		APPROVED BY / DATE
SCALE AS NOTED			FIGURE NO. 1-2 / REV 0

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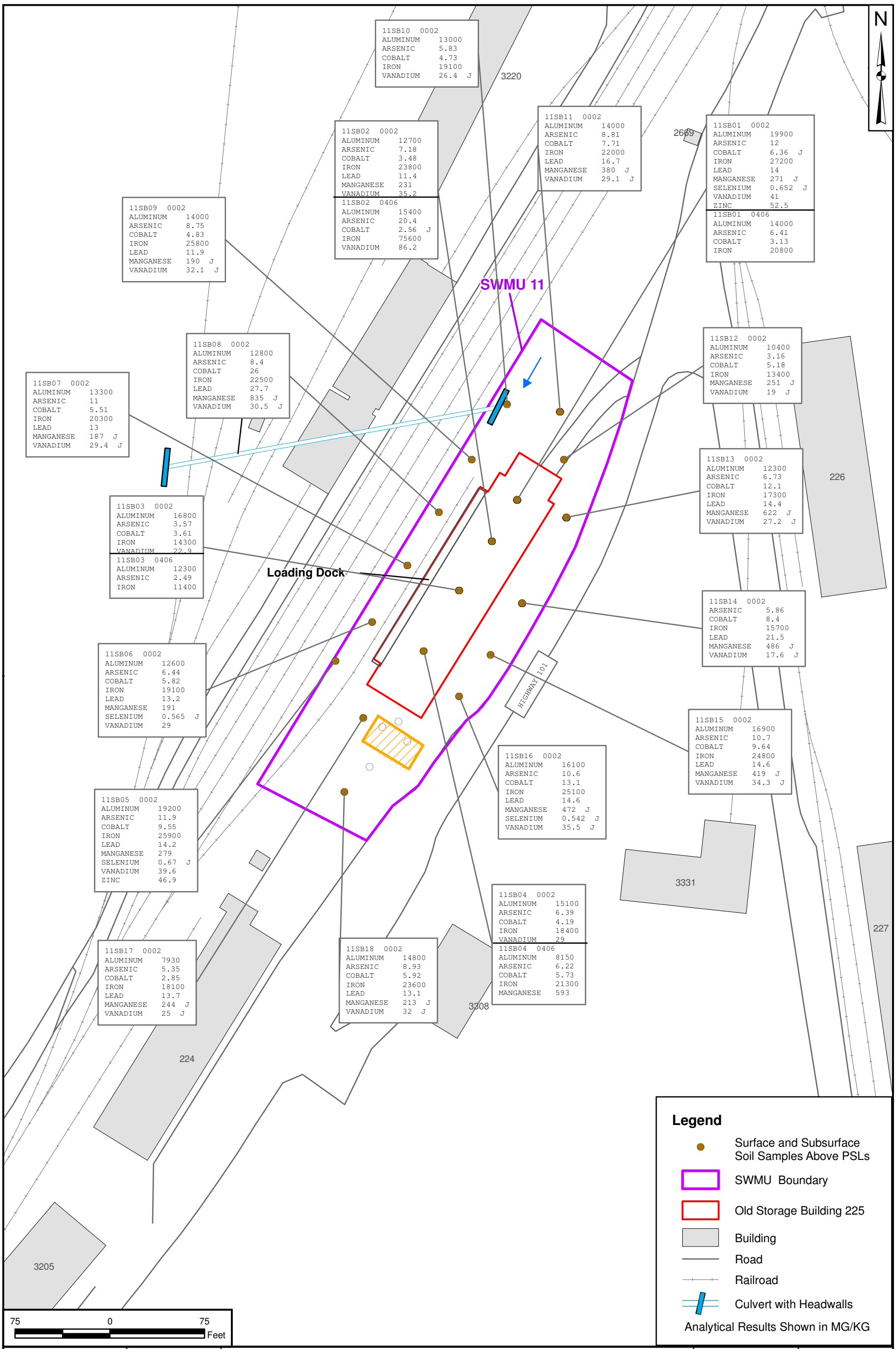

DRAWN BY	DATE
S. STROZ	08/16/11
CHECKED BY	DATE
K. SMITH	08/23/11
REVISED BY	DATE
SCALE	
AS NOTED	

NAVFAC

METAL PSL EXCEEDANCES IN SURFACE AND SUBSURFACE SOIL
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

CONTRACT NUMBER	CTO NUMBER
APPROVED BY	DATE
APPROVED BY	DATE
FIGURE NO. 1-3	REV 0

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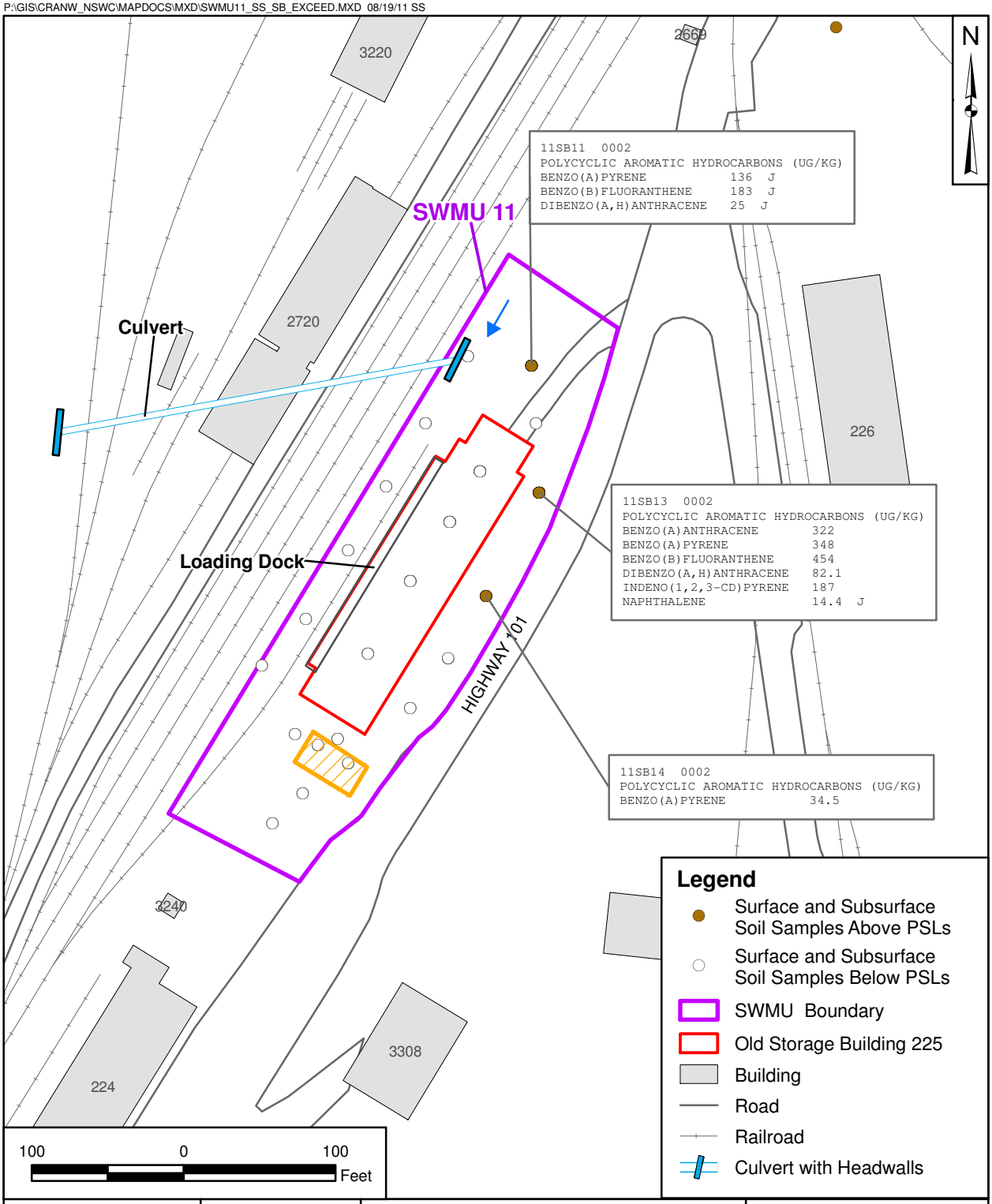

DRAWN BY	DATE			CONTRACT NUMBER
S. STROZ	08/08/11		PAH PSL EXCEEDANCES IN SURFACE	CTO F27E
CHECKED BY	DATE		AND SUBSURFACE SOIL	APPROVED BY / DATE
K. SMITH	08/19/11		SWMU 11 - OLD STORAGE BUILDING 225	T. KLIMEK / 08/18/11
REVISED BY	DATE		NSA CRANE	APPROVED BY / DATE
			CRANE, INDIANA	— / —
SCALE		NAVFAC		FIGURE NO. / REV
AS NOTED				1-4 / 0

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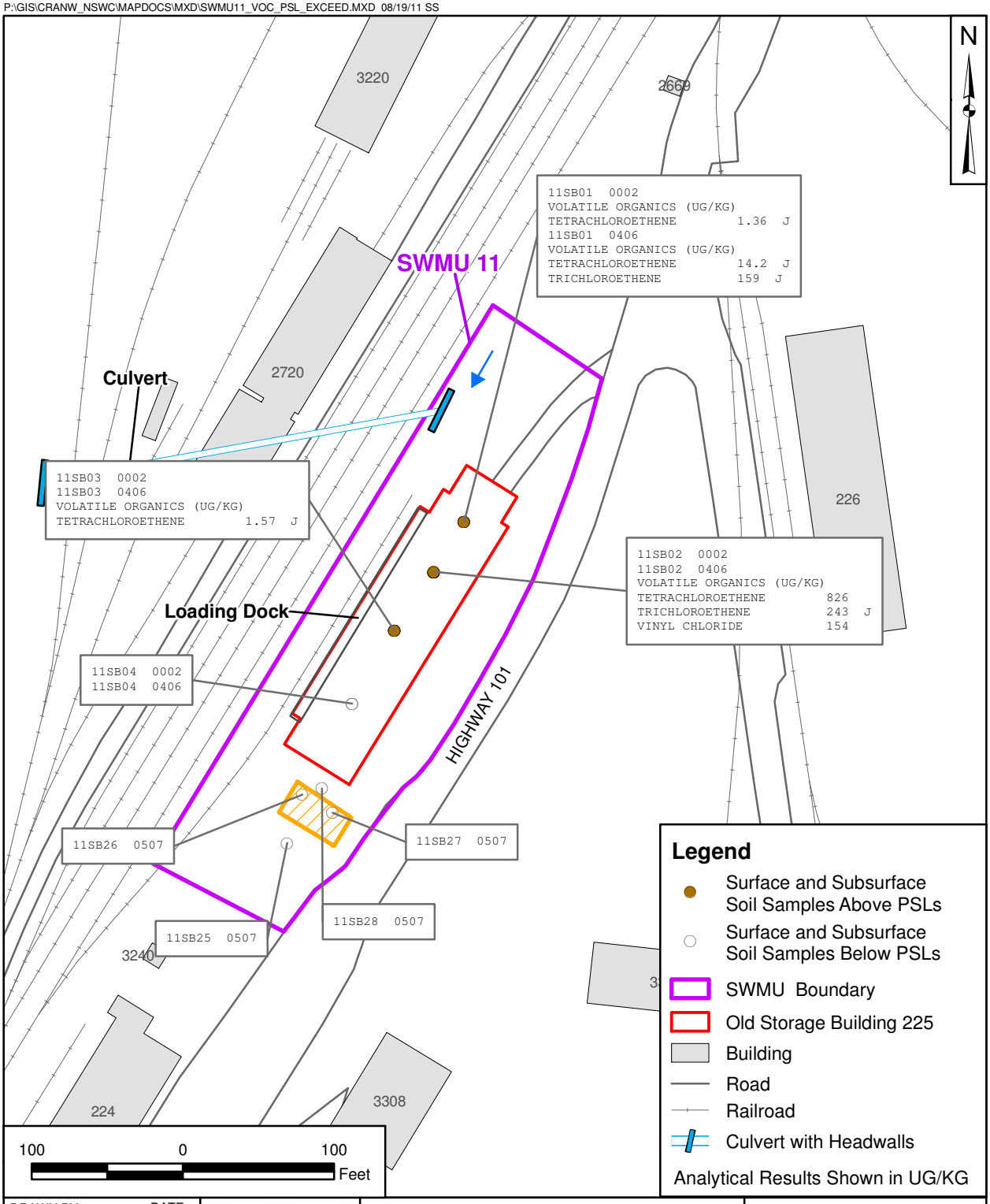

DRAWN BY	DATE			CONTRACT NUMBER CTO F27E
S. STROZ	08/18/11			
CHECKED BY	DATE			APPROVED BY / DATE
K. SMITH	08/19/11			T. KLIMEK / 02/24/11
REVISED BY	DATE			APPROVED BY / DATE
				— / —
SCALE		NAVFAC	VOC PSL EXCEEDANCES IN SURFACE AND SUBSURFACE SOIL SWMU 11 - OLD STORAGE BUILDING 225 NSA CRANE CRANE, INDIANA	FIGURE NO. 1-5 / REV 0
AS NOTED				

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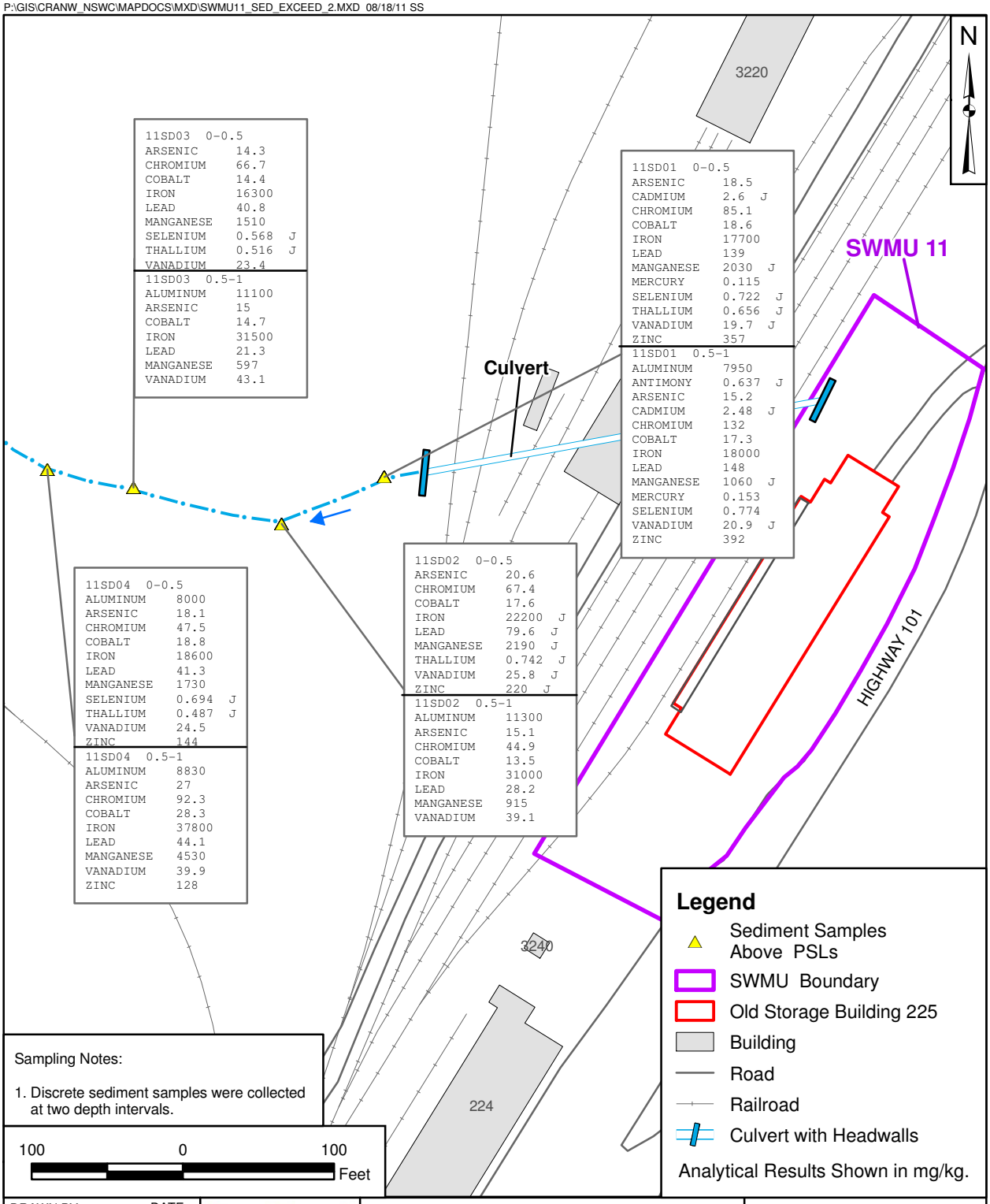

DRAWN BY	DATE	METAL PSL EXCEEDANCES IN SEDIMENT SWMU 11 - OLD STORAGE BUILDING 225 NSA CRANE CRANE, INDIANA	CONTRACT NUMBER CTO F27E
S. STROZ	08/16/11		APPROVED BY / DATE
CHECKED BY	DATE		
K. SMITH	08/18/11		APPROVED BY / DATE
REVISED BY	DATE		FIGURE NO. 1-6 / REV 0
SCALE AS NOTED		NAVFAC	

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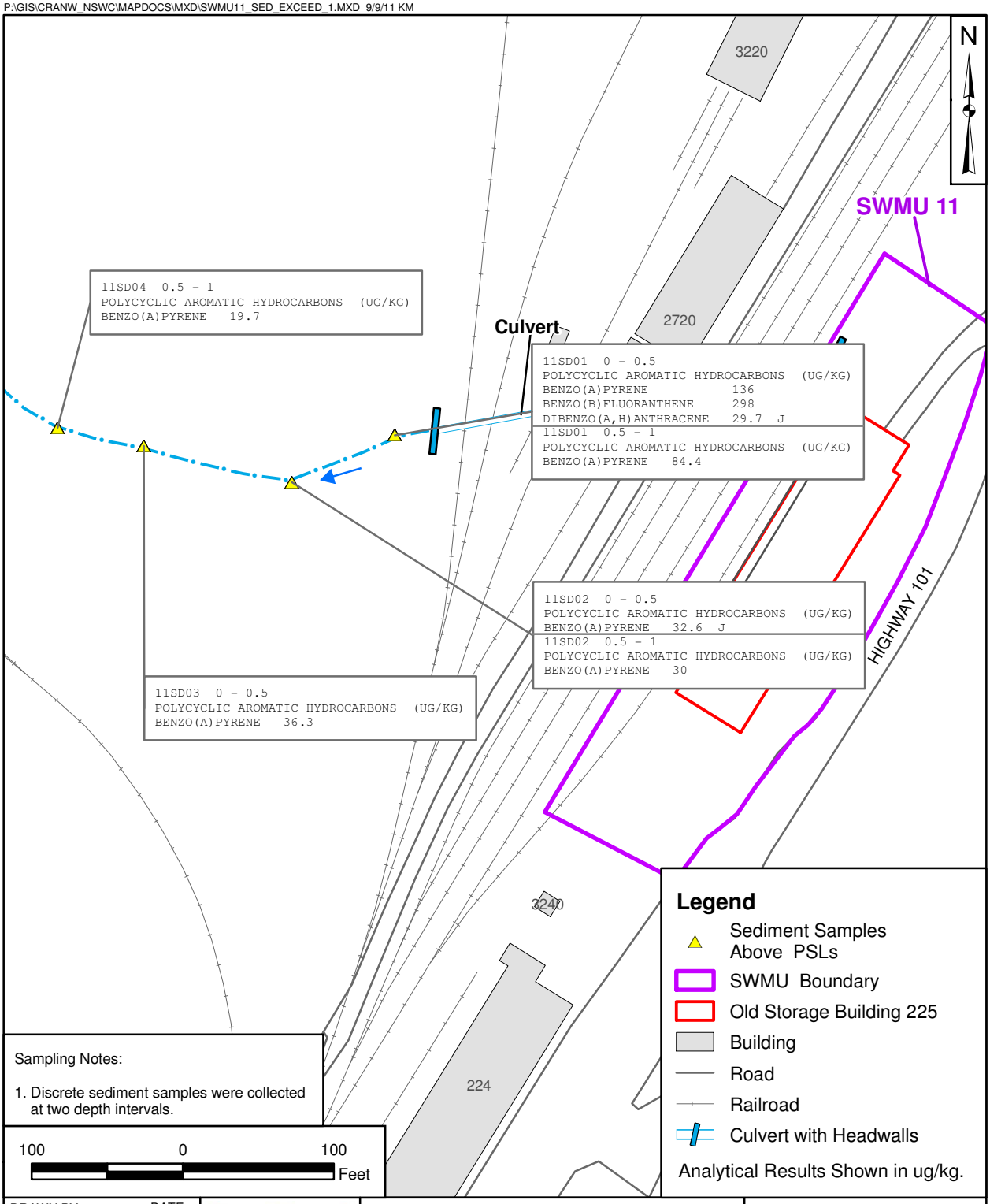

Sampling Notes:

1. Discrete sediment samples were collected at two depth intervals.

DRAWN BY S. STROZ	DATE 08/16/11	PESTICIDES AND PAH PSL EXCEEDANCES IN SEDIMENT SWMU 11 - OLD STORAGE BUILDING 225 NSA CRANE CRANE, INDIANA	CONTRACT NUMBER CTO F27E
CHECKED BY G. TEN EYCK	DATE 08/18/11		APPROVED BY DATE
REVISED BY	DATE		APPROVED BY DATE
SCALE AS NOTED			FIGURE NO. 1-7 / REV 0

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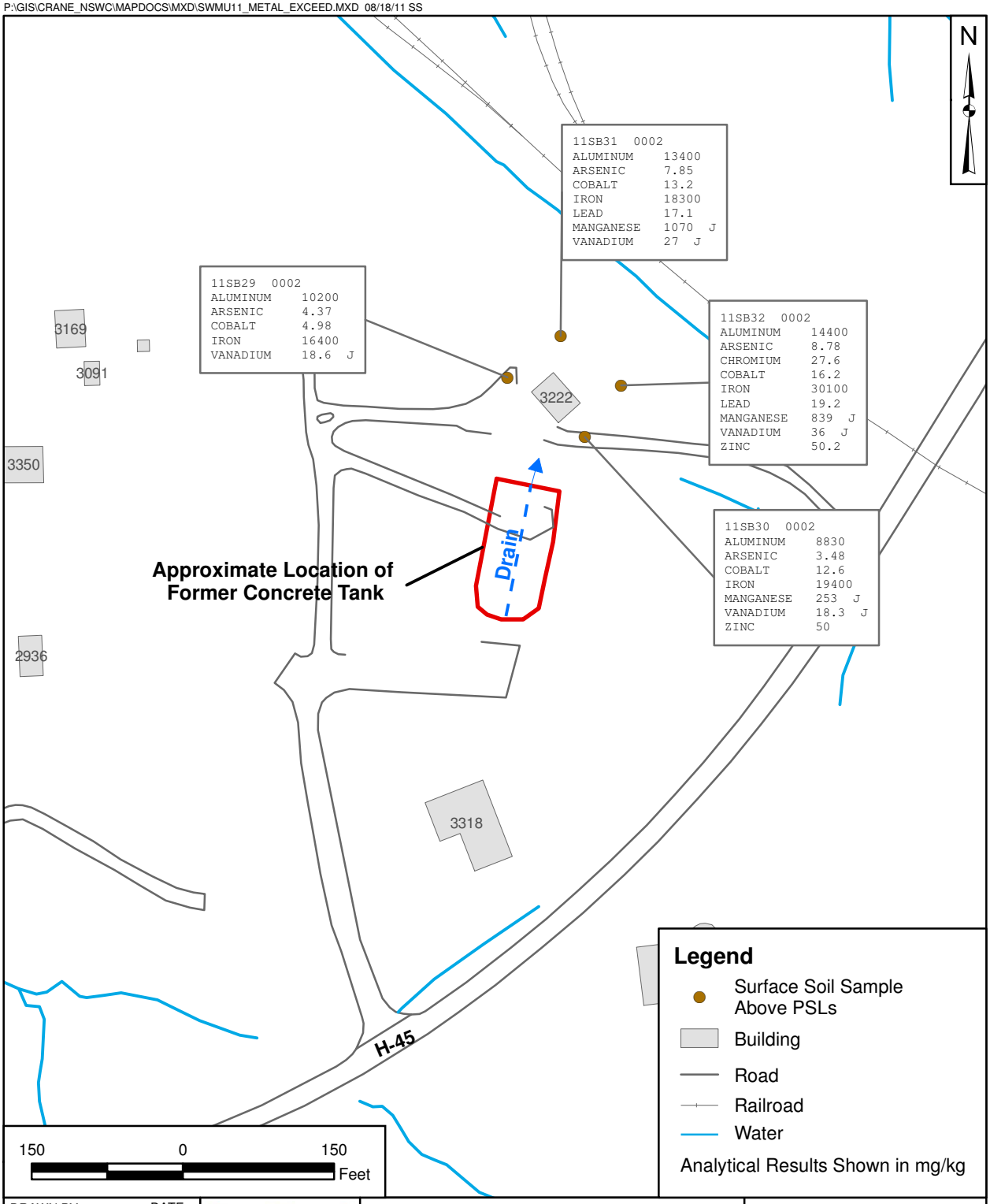

DRAWN BY	DATE	METALS PSL EXCEEDANCES IN SURFACE SOIL BUILDING 2981 CONCRETE TANK OFFSITE AREA FOR SWMU 11 NSA CRANE CRANE, INDIANA	CONTRACT NUMBER CTO F27E	
S. STROZ	08/16/11		APPROVED BY	DATE
CHECKED BY	DATE		A. KLIMEK	02/24/11
K. SMITH	08/18/11		APPROVED BY	DATE
REVISED BY	DATE		—	—
SCALE			FIGURE NO.	REV
AS NOTED			1-8	0

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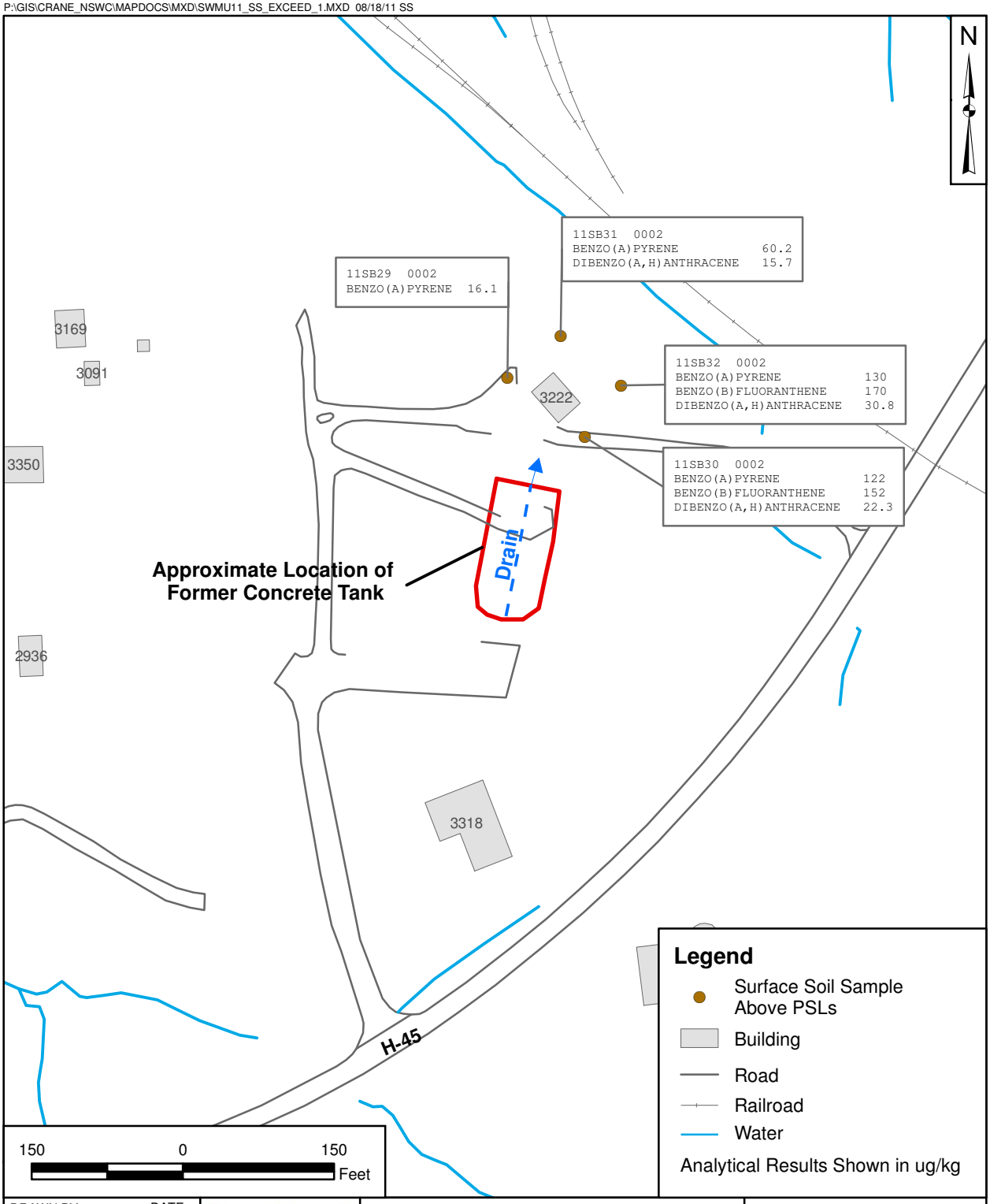

DRAWN BY	DATE			CONTRACT NUMBER CTO F27E
S. STROZ	08/16/11		PAH PSL EXCEEDANCES IN SURFACE SOIL BUILDING 2981 CONCRETE TANK OFFSITE AREA FOR SWMU 11 NSA CRANE CRANE, INDIANA	APPROVED BY / DATE: A. KLIMEK 02/24/11
CHECKED BY	DATE			
K. SMITH	08/18/11			
REVISED BY	DATE			APPROVED BY / DATE: — —
SCALE: AS NOTED		NAVFAC		FIGURE NO. 1-9 / REV 0

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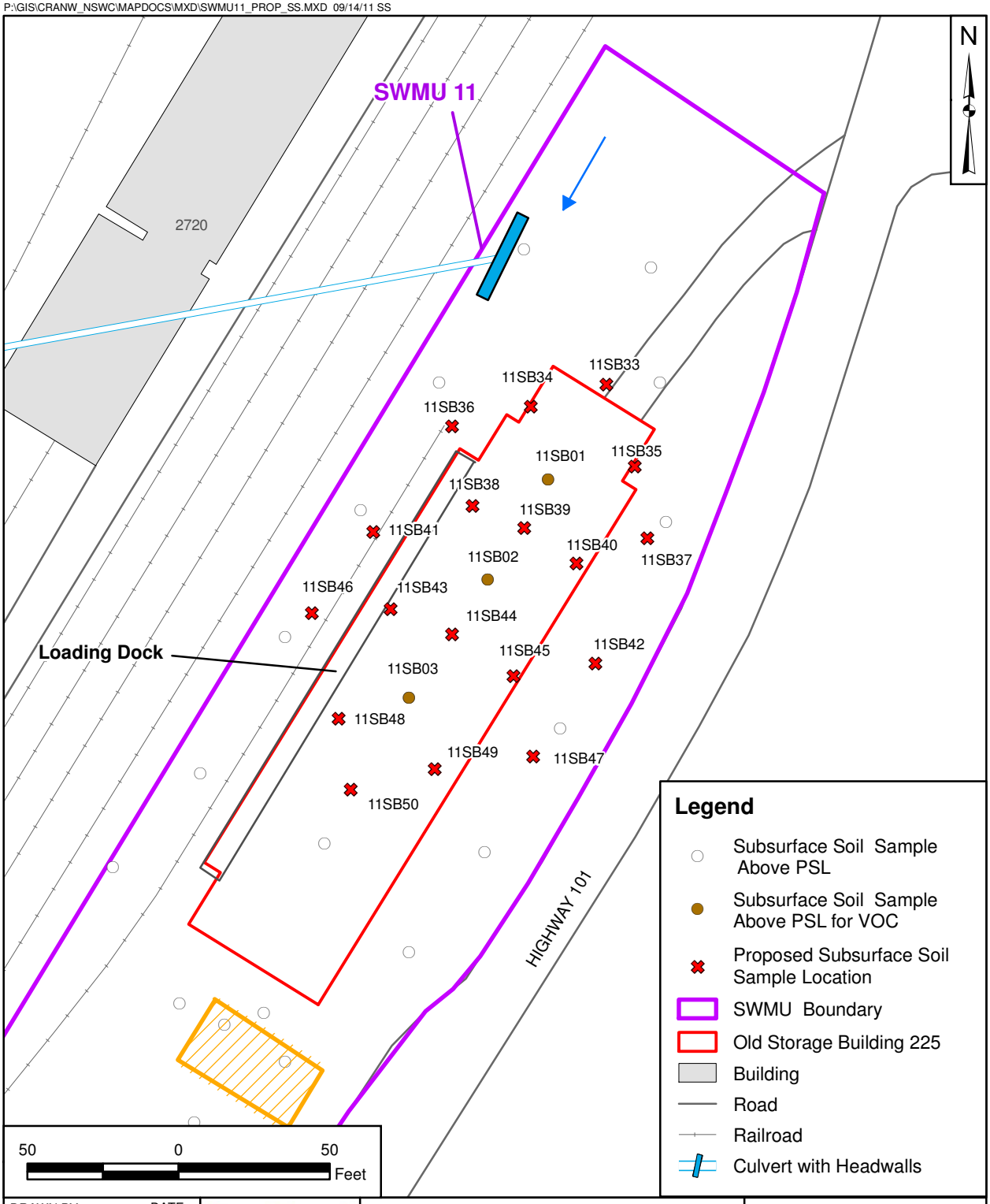

DRAWN BY	DATE			CONTRACT NUMBER CTO F27E	
S. STROZ	08/22/11		PROPOSED SUBSURFACE SOIL SAMPLING LOCATIONS SWMU 11 - OLD STORAGE BUILDING 225 NSA CRANE CRANE, INDIANA	APPROVED BY	DATE
CHECKED BY	DATE			T. KLIMEK	02/24/11
K. LOSEKAMP	09/14/11			APPROVED BY	DATE
REVISED BY	DATE			—	—
SCALE				FIGURE NO.	REV
AS NOTED				2-1	0

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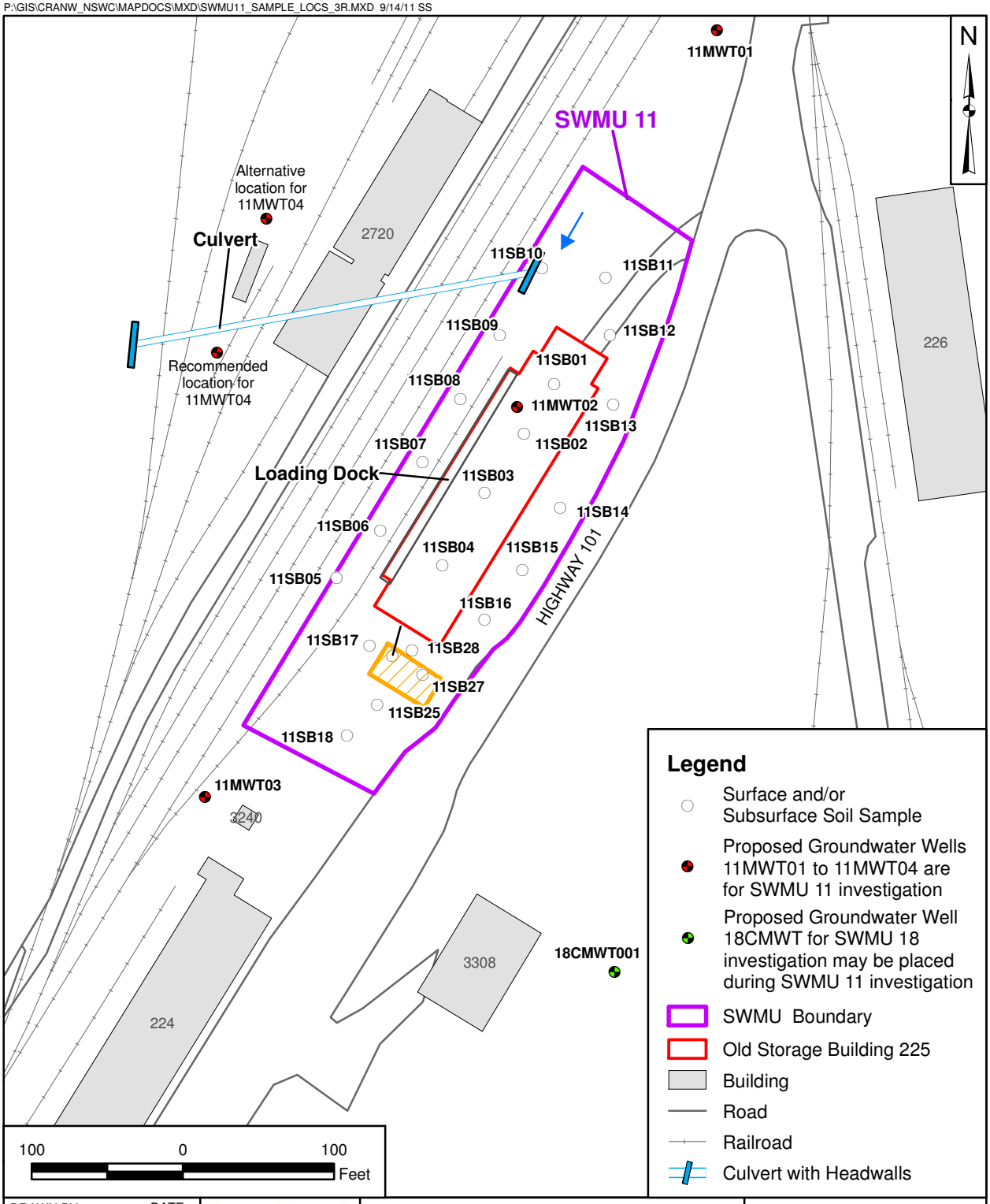

DRAWN BY	DATE			CONTRACT NUMBER CTO F27E	
S. STROZ	05/04/11	NAVFAC	PROPOSED GROUNDWATER MONITORING WELL LOCATIONS SWMU 11 - OLD STORAGE BUILDING 225 NSA CRANE CRANE, INDIANA	APPROVED BY T. KLIMEK	DATE 02/24/11
CHECKED BY K. LOSEKAMP	DATE 9/14/11			APPROVED BY —	DATE —
REVISED BY	DATE			FIGURE NO. 2-2	REV 0
SCALE AS NOTED					

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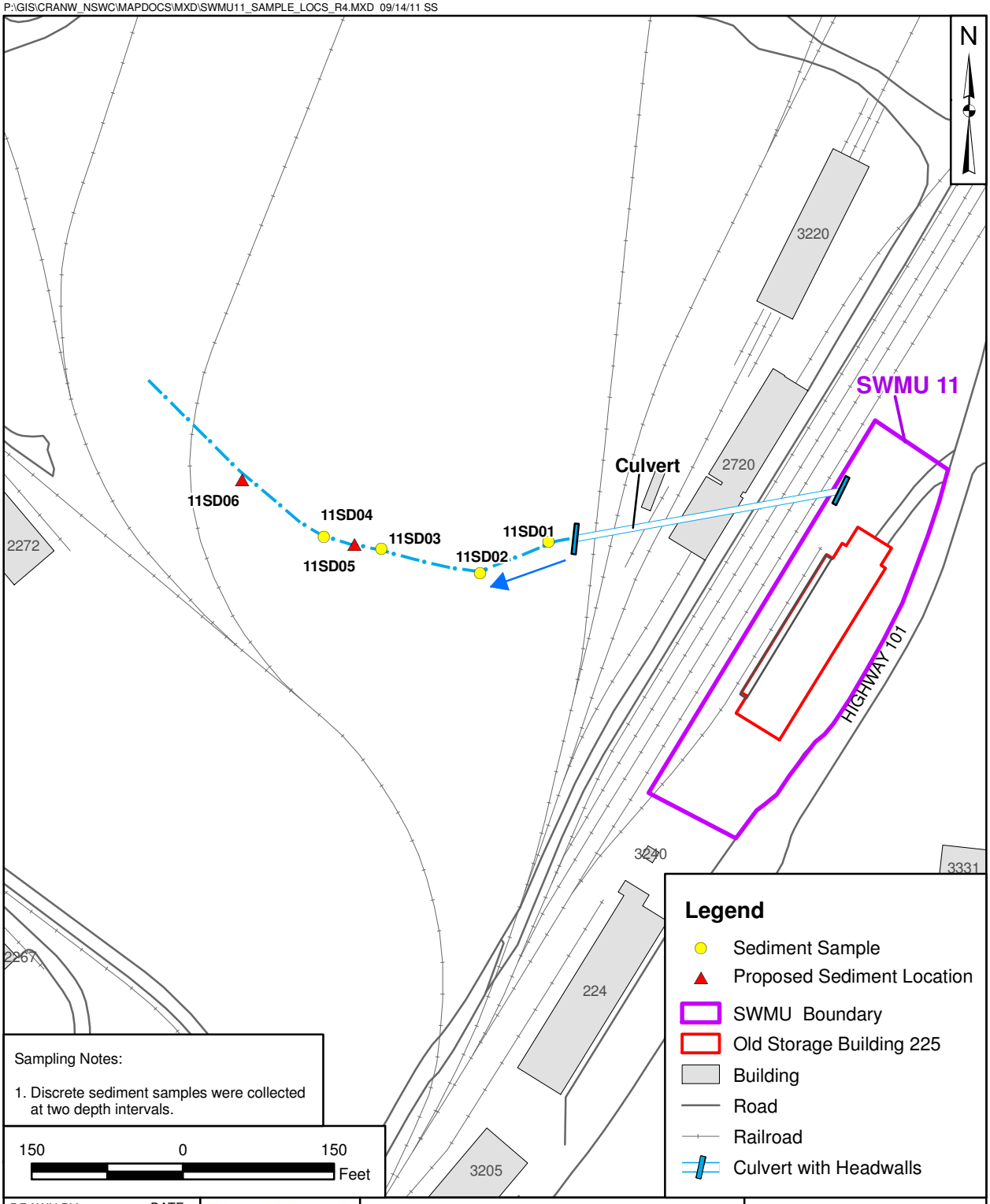


Sampling Notes:

1. Discrete sediment samples were collected at two depth intervals.

DRAWN BY	DATE			CONTRACT NUMBER
S. STROZ	05/05/11			CTO F27E
CHECKED BY	DATE			APPROVED BY / DATE
K. LOSEKAMP	09/14/11			T. KLIMEK / 02/24/11
REVISED BY	DATE			APPROVED BY / DATE
				— / —
SCALE				FIGURE NO. / REV
AS NOTED				2-3 / 0

NAVFAC

PROPOSED SEDIMENT SAMPLING LOCATIONS
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Tetra Tech, Inc.
FIELD TASK MODIFICATION REQUEST FORM

Project/Installation Name NSA Crane, SWMU 11 – Old Storage Building 225	**CTO & Project Number** CTO F27E; 112G02635.	**Task Modification Number** 002
Modification to: March 2011 SWMU 11 Sampling and Analysis Plan (SAP), and September 2011 FTMR for Supplemental Sampling	**Site Location** NSA Crane	**Date of Request** September 25, 2012

Background. Initial RFI fieldwork performed by Tetra Tech in April 2011 at SWMU 11 included collection of surface and subsurface soil, and sediment samples. Soil samples were analyzed for potential contaminants including volatile organic compounds (VOCs); VOCs detected in the subsurface soil included tetrachloroethene (PCE), trichloroethene (TCE), and vinyl chloride (VC). There were data gaps regarding the extent of VOC contamination in the subsurface soil and potential impacts to groundwater. Therefore, in November and December 2011, additional subsurface soil samples were collected and five groundwater monitoring wells were installed in the upper groundwater zone and sampled. All of these additional samples were analyzed for VOCs.

Subsurface soil VOC analytical data is presented on Figure 1. The extent of VOC contamination in the subsurface soil that will be evaluated in the corrective measures evaluation phase is not sufficiently defined to estimate quantities of soil that may require remediation. Supplemental soil sampling is required to define the extent of VOC contamination above proposed media cleanup standards (MCSs). Proposed MCSs for SWMU 11 soils were estimated by multiplying the Regional Screening Level (RSL) protection of groundwater Maximum Contaminant Level (MCL) Site Screening Levels (SSL) by 20 to correspond to a dilution attenuation factor (DAF) of 20. The MCL based SSLs and the proposed MCSs for VOCs in the subsurface soil are presented on the table below.

Contaminant	**Protection of Groundwater-MCL Based SSL (ug/kg)**	**Proposed MCSs (20 x DAF (ug/kg)**
PCE	2.3	46
TCE	1.8	36
VC	0.69	14

As shown on attached Figure 5-8, the extent of VOC contamination in the groundwater is also not defined. A groundwater sample collected from the upper water bearing zone in monitoring well 11MWT02 located in the center of the site had VOC concentrations that exceed US EPA Regional Screening Level Tap Water values.

Purpose of FTMR. The purpose of this FTMR form is to present the proposed plan to: 1) collect subsurface soil samples to define the extent of VOC contamination above MCSs, and 2) install two additional groundwater monitoring wells and sample seven (two new and five existing) wells on the site to better define VOC contamination in the groundwater. This additional sampling will be performed as described in this FTMR form and the approved March 2011 SAP.

Proposed Supplemental Sampling. The approximate locations of the supplemental subsurface soil and proposed groundwater monitoring wells are shown on Figures 2 and 3; the supplemental sampling and analysis is presented on attached Table 1. All soil sampling, groundwater monitoring well drilling and construction, and groundwater sampling will be performed in accordance with Tetra Tech SOPs.

- **Subsurface Soil.** Subsurface soil samples will initially be collected at nine new soil boring locations (11SB51 to 11SB59 shown on Figure 2) west, north, and east of the former Building 225 concrete floor to delineate the extent of subsurface soil VOC contamination. These sample locations are approximately 25-foot step outs from existing subsurface soil samples that exceed the VOC MCSs. Two subsurface samples will be collected from each soil boring; one sample will be collected from the 1 foot interval above bedrock and the other sample from the interval with the highest potential for contamination based on field observations (visual, odor or instrument reading). The upper sample will be collected from the 4 to 6 feet bgs interval if there are no obvious signs of contamination. Each soil sample will be sent to an off-site laboratory for quick turnaround VOC analysis. If any of these soil samples exceed VOC MCSs, additional soil samples will be collected and analyzed at approximate 25-foot step-out locations. The approximate location of some of these additional step-out locations are shown on Figure 2 and listed as contingent samples on Table 1.

- **Groundwater.** Two new groundwater monitoring wells will be installed. One groundwater monitoring well (11MWT05) will be placed in the upper groundwater zone approximately 150 feet west of 11MWT02 to determine the extent of VOC groundwater contamination. A second groundwater monitoring well (11MWT06) will be placed approximately 60 feet south-southwest of 11MWT02 to determine if VOCs have migrated downward from the upper groundwater zone to the deeper middle groundwater zone. The upper groundwater monitoring well (11MWT05) will be placed in bedrock to an approximate depth of 30 to 40 feet bgs or to the first water bearing zone. Groundwater monitoring well (11MWT06) will be placed in bedrock to an approximate depth of 60 to 70 feet bgs or to the middle water bearing zone in accordance with revised Tetra Tech SOP 12 (Revision 1 attached). The location of 11MW06 (shown on Figure 3) was placed outside the area of known subsurface soil VOC contamination to avoid cross contamination and not interfere with possible future soil remediation efforts. The new monitoring wells will be drilled and logged according to the Tetra Tech SOPs; both monitoring wells will be installed in accordance with procedures that prevent potential vertical migration of contaminants. Samples from all seven groundwater monitoring wells will be collected and analyzed for VOCs

Attachments to this FTMR include:

Figures

- Figure 1 Soil VOC Concentrations
- Figure 2 Proposed and Existing Surface and Subsurface soil Sample Locations
- Figure 3 Proposed Groundwater Monitoring Well Locations
- Figure 5-8 Groundwater VOC Concentrations above Human Health PSLs

Table

- Table 1 - Proposed Supplemental Sampling at SWMU 11

Standard Operating Procedures (SOP)

- SOP-12 – Monitoring Well Installation – Revision 1

Reason for Change/Modification: Supplemental Sampling to address data gaps

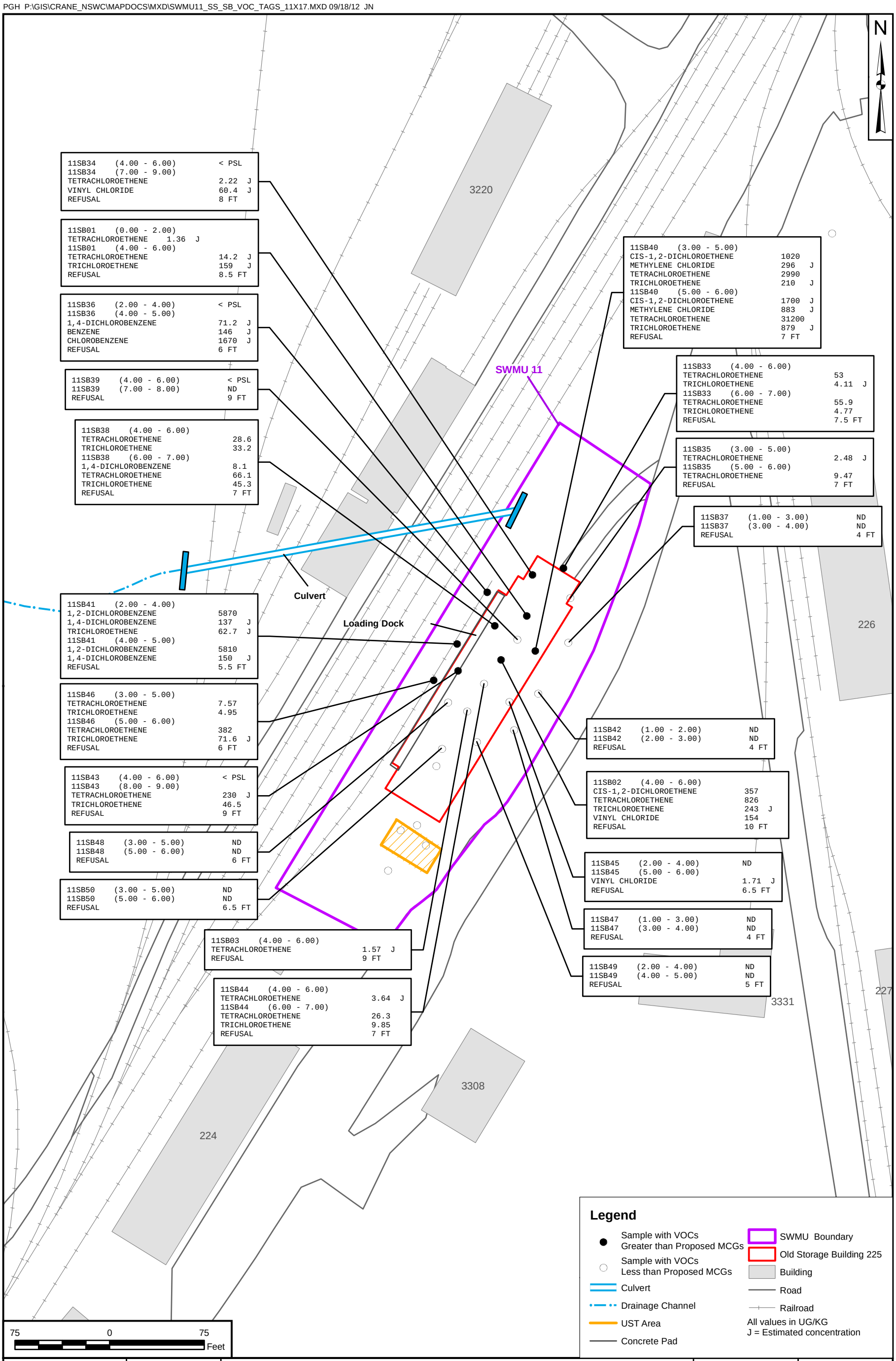
Person Requesting Change/Modification:

_____

George L. Ten Eyck, Project Geologist / Date

Approvals: Anthony P. Klimek September 25, 2012 **Anthony Klimek, Tetra Tech Project Manager / Date**
Modifications to the HASP required based on this change? ☐ Yes ☒ No ☐ NA

PGH P:\GIS\CRANE_NSWC\MAPDOCS\MXD\SWMU11_SS_SB_VOC_TAGS_11X17.MXD 09/18/12 JN



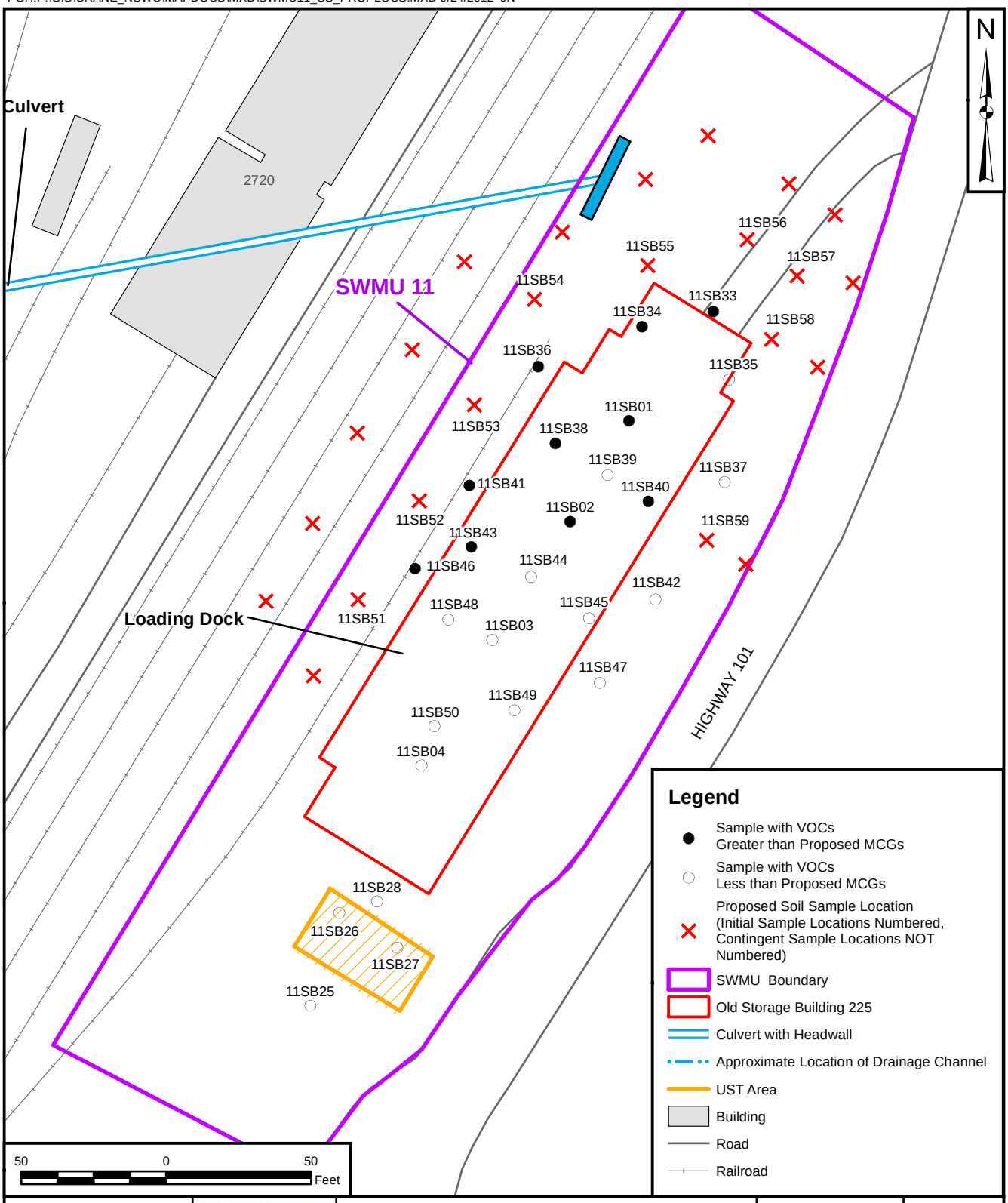
DRAWN BY	DATE
J. NOVAK	09/14/12
CHECKED BY	DATE
G. TEN EYCK	09/18/12
REVISED BY	DATE
J. NOVAK	09/18/12
SCALE	
AS NOTED	

NAVFAC

SOIL VOC CONCENTRATIONS
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

CONTRACT NUMBER	CTO NUMBER
2635	F27E
APPROVED BY	DATE
—	—
APPROVED BY	DATE
—	—
FIGURE NO.	REV
1	0

PGH:P:\GIS\CRANE_NSWC\MAPDOCS\MXD\SWMU11_SS_PROPLOCS.MXD 9/24/2012 JN



DRAWN BY	DATE			CONTRACT NUMBER	CTO NUMBER
S. STROZ	8/22/2011		PROPOSED AND EXISTING SURFACE AND SUBSURFACE SOIL SAMPLE LOCATIONS SWMU 11 - OLD STORAGE BUILDING 225 NAS CRANE CRANE, INDIANA	2635	F27E
CHECKED BY	DATE			APPROVED BY	DATE
G. TEN EYCK	9/24/2012			A. KLIMEK	9/24/2012
REVISED BY	DATE			APPROVED BY	DATE
J. NOVAK	9/24/2012			—	—
SCALE AS NOTED		NAVFAC		FIGURE NO. 2	REV 0

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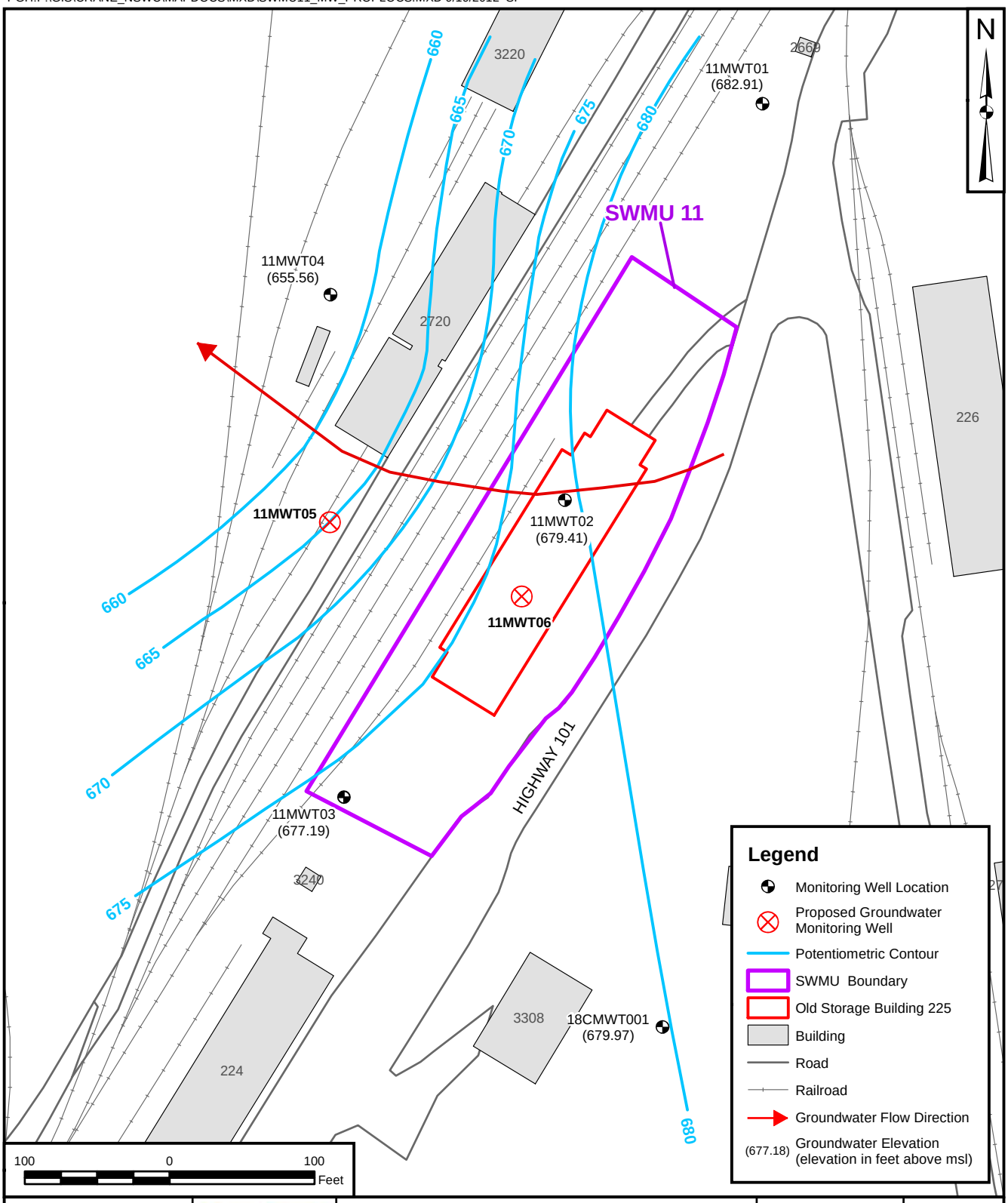

DRAWN BY	DATE	PROPOSED GROUNDWATER MONITORING WELL AND POTENTIOMETRIC SURFACE MAP JANUARY 16, 2012 SWMU 11 - OLD STORAGE BUILDING 225 NSA CRANE CRANE, INDIANA	CONTRACT NUMBER	CTO NUMBER
S. STROZ	12/01/10		2635	F27E
CHECKED BY	DATE		APPROVED BY	DATE
G. TEN EYCK	9/19/2012		A. KLIMEK	9/19/2012
REVISED BY	DATE		APPROVED BY	DATE
J. NOVAK	9/19/2012		—	—
SCALE AS NOTED			FIGURE NO. 3	REV 0

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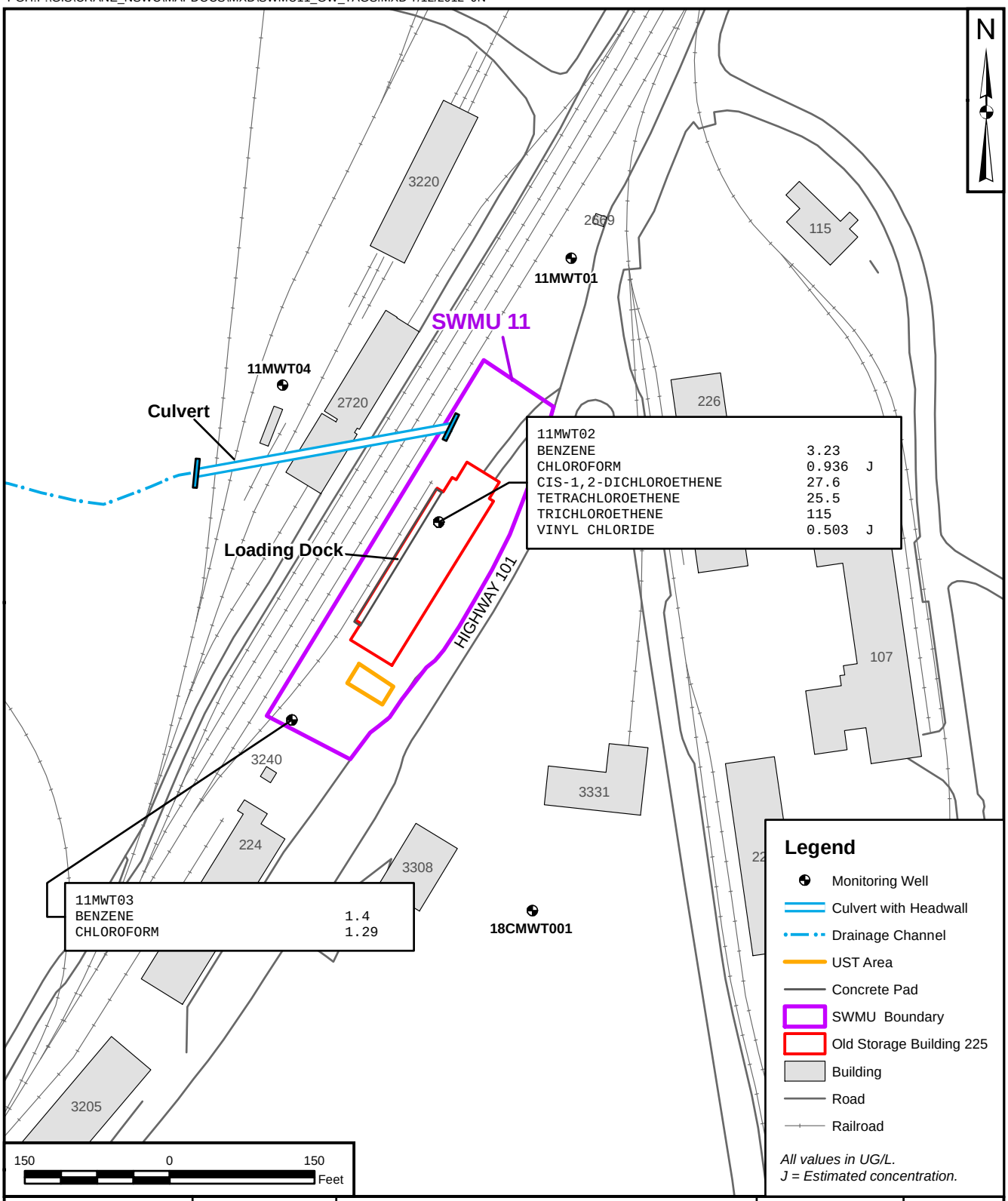


DRAWN BY	DATE			CONTRACT NUMBER	CTO NUMBER
C. TULLEY	3/20/2012		GROUNDWATER VOC CONCENTRATIONS ABOVE HUMAN HEALTH PSLs SWMU 11 - OLD STORAGE BUILDING 225 NSA CRANE CRANE, INDIANA	2635	F27E
CHECKED BY	DATE			APPROVED BY	DATE
G. TEN EYCK	7/12/2012			A. KLIMEK	7/12/2012
REVISED BY	DATE			APPROVED BY	DATE
J. NOVAK	7/12/2012			—	—
SCALE AS NOTED		NAVFAC		FIGURE NO. 5-8	REV 0

Table 1 - Proposed Supplemental Sampling at SWMU 11
FTMR - September 2012

Sampling Location	ID Number	Matrix	Depth[3] (feet bgs)	Analysis	Number of Samples[1]	Sample Justification	Sampling SOP Reference
Soil Samples							
11SB51[1]	11SB51-XXXX and 11SB-FDXXXXXX[4]	Soil	>2	VOCs	1 + 1 FD	Determine VOC extent	SOP-07, SOP-08, SOP-11
	11SB51-YYYY				1		
11SB52[1]	11SB52-XXXX	Soil	>2	VOCs	1	Determine VOC extent	SOP-07, SOP-08, SOP-11
	11SB52-YYYY				1		
11SB53[1]	11SB53-XXXX	Soil	>2	VOCs	1	Determine VOC extent	SOP-07, SOP-08, SOP-11
	11SB53-YYYY				1		
11SB54[1]	11SB54-XXXX	Soil	>2	VOCs	1	Determine VOC extent	SOP-07, SOP-08, SOP-11
	11SB54-YYYY				1		
11SB55[1]	11SB55-XXXX	Soil	>2	VOCs	1	Determine VOC extent	SOP-07, SOP-08, SOP-11
	11SB55-YYYY				1		
11SB56[1]	11SB56-XXXX	Soil	>2	VOCs	1	Determine VOC extent	SOP-07, SOP-08, SOP-11
	11SB56-YYYY				1		
11SB57[1]	11SB57-XXXX	Soil	>2	VOCs	1	Determine VOC extent	SOP-07, SOP-08, SOP-11
	11SB57-YYYY				1		
11SB58[1]	11SB58-XXXX	Soil	>2	VOCs	1	Determine VOC extent	SOP-07, SOP-08, SOP-11
	11SB58-YYYY				1		
11SB59[1]	11SB59-XXXX	Soil	>2	VOCs	1	Determine VOC extent	SOP-07, SOP-08, SOP-11
	11SB59-YYYY				1		
11SB60[2] (Contingent Sample)	11SB60-XXXX and 11SB-FDXXXXXX[4]	Soil	>2	VOCs	1 + 1 FD	Determine VOC extent	SOP-07, SOP-08, SOP-11
	11SB60-YYYY				1		
11SB61[2] (Contingent Sample)	11SB61-XXXX	Soil	>2	VOCs	1	Determine VOC extent, if necessary	SOP-07, SOP-08, SOP-11
	11SB61-YYYY				1		
11SB62[2] (Contingent Sample)	11SB62-XXXX	Soil	>2	VOCs	1	Determine VOC extent, if necessary	SOP-07, SOP-08, SOP-11
	11SB62-YYYY				1		
11SB63[2] (Contingent Sample)	11SB63-XXXX	Soil	>2	VOCs	1	Determine VOC extent, if necessary	SOP-07, SOP-08, SOP-11
	11SB63-YYYY				1		

Table 1 - Proposed Supplemental Sampling at SWMU 11
FTMR - September 2012

Sampling Location	ID Number	Matrix	Depth[3] (feet bgs)	Analysis	Number of Samples[1]	Sample Justification	Sampling SOP Reference
11SB64[2] (Contingent Sample)	11SB64-XXXX	Soil	>2	VOCs	1	Determine VOC extent, if necessary	SOP-07, SOP-08, SOP-11
	11SB64-YYYY				1		
11SB65[2] (Contingent Sample)	11SB65-XXXX	Soil	>2	VOCs	1	Determine VOC extent, if necessary	SOP-07, SOP-08, SOP-11
	11SB65-YYYY				1		
11SB66[2] (Contingent Sample)	11SB66-XXXX	Soil	>2	VOCs	1	Determine VOC extent, if necessary	SOP-07, SOP-08, SOP-11
	11SB66-YYYY				1		
11SB67[2] (Contingent Sample)	11SB67-XXXX	Soil	>2	VOCs	1	Determine VOC extent, if necessary	SOP-07, SOP-08, SOP-11
	11SB67-YYYY				1		
11SB68[2] (Contingent Sample)	11SB68-XXXX	Soil	>2	VOCs	1	Determine VOC extent, if necessary	SOP-07, SOP-08, SOP-11
	11SB68-YYYY				1		
11SB69[2] (Contingent Sample)	11SB69-XXXX	Soil	>2	VOCs	1	Determine VOC extent, if necessary	SOP-07, SOP-08, SOP-11
	11SB69-YYYY				1		
11SB70[2] (Contingent Sample)	11SB70-XXXX	Soil	>2	VOCs	1	Determine VOC extent, if necessary	SOP-07, SOP-08, SOP-11
	11SB70-YYYY				1		
11SB71[2] (Contingent Sample)	11SB71-XXXX	Soil	>2	VOCs	1	Determine VOC extent, if necessary	SOP-07, SOP-08, SOP-11
	11SB71-YYYY				1		
11SB72[2] (Contingent Sample)	11SB72-XXXX	Soil	>2	VOCs	1	Determine VOC extent, if necessary	SOP-07, SOP-08, SOP-11
	11SB72-YYYY						
11SB73[2] (Contingent Sample)	11SB73-XXXX	Soil	>2	VOCs	1	Determine VOC extent, if necessary	SOP-07, SOP-08, SOP-11
	11SB73-YYYY						
Groundwater Samples							
11MWT01 (existing well)	11MWT0102	Groundwater	Upper water Bearing Zone	VOCs	1	Determine VOC extent in Groundwater	SOP-14, SOP-15, SOP-16, SOP-17
11MWT02 (existing well)	11MWT0202	Groundwater	Upper water Bearing Zone	VOCs	1	Determine VOC extent in Groundwater	SOP-14, SOP-15, SOP-16, SOP-17

Table 1 - Proposed Supplemental Sampling at SWMU 11
FTMR - September 2012

Sampling Location	ID Number	Matrix	Depth[3] (feet bgs)	Analysis	Number of Samples[1]	Sample Justification	Sampling SOP Reference
11MWT03 (existing well)	11MWT0302	Groundwater	Upper water Bearing Zone	VOCs	1	Determine VOC extent in Groundwater	SOP-14, SOP-15, SOP-16, SOP-17
11MWT02 (existing well)	11MWT0402	Groundwater	Upper water Bearing Zone	VOCs	1	Determine VOC extent in Groundwater	SOP-14, SOP-15, SOP-16, SOP-17
18CMWT001 (existing well)	118CMWT00102	Groundwater	Upper water Bearing Zone	VOCs	1	Determine VOC extent in Groundwater	SOP-14, SOP-15, SOP-16, SOP-17
11MWT05 (new well)	11MWT0501	Groundwater	Upper water Bearing Zone	VOCs	1 + 1FD	Determine VOC extent in Groundwater	SOP-12, SOP-13, SOP-14, SOP-15, SOP-16, SOP-17, SOP-18
11MWT06 (new well)	11MWT0601	Groundwater	Middle water Bearing Zone	VOCs	1	Determine VOC extent in Groundwater	SOP-12, SOP-13, SOP-14, SOP-15, SOP-16, SOP-17, SOP-18

Notes:

1. Subsurface soil samples will be initially collected from sample locations 11SB51 to 11SB59.
2. Subsurface soil samples will be collected from contingent locations (11SB60 to 11SB73) based on initial sample analysis results. Contingent sample locations will be determined and numbered consecutively in the field.
3. Two subsurface soil samples will be collected from each soil sampling location. “XXXX” and “YYYY” represents depth of the sample, which will be determined in the field. For example, if sample is collected from 4 to 6 feet, the depth will be recorded as 0406.
4. Field duplicate (FD) locations may change in the field based on visual observations and field conditions. “XXXXXX” represents date collected.

STANDARD OPERATING PROCEDURE
SOP-12

MONITORING WELL INSTALLATION

1.0 PURPOSE

This procedure provides general guidance and information pertaining to proper design and installation of ground water monitoring wells for the collection of groundwater samples in the overburden or bedrock . The methods described herein are specific for monitoring well construction at the NSA Crane facility. Guidelines by South Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM, 1997) and the State of Indiana regulatory requirements in Article 16 Water Well Drillers of Chapter 310 of the Indiana Annotated Codes (310 IAC 16) should be consulted as necessary.

2.0 RESPONSIBILITIES

Driller - The driller provides adequate and operable equipment, sufficient quantities of materials, and an experienced and efficient labor force capable of performing all phases of proper monitoring well installation and construction. The drilling contractor personnel must have all the health and safety training required to perform the work, as specified in the health and safety plan. The driller is also responsible for obtaining, in advance, any required permits for drilling and monitoring well installation and construction.

Field Geologist - The field geologist supervises and documents well installation and construction performed by the driller and ensures that the screen interval for each monitoring well is properly placed to provide representative groundwater data from the monitored interval. Geotechnical engineers, field technicians, or other suitably trained personnel may also serve in this capacity.

3.0 REQUIRED EQUIPMENT/ITEMS

The following list includes equipment and items required for monitoring well installation:

Health and safety equipment as required by the HASP and the site safety officer.

Well drilling and installation equipment with associated materials (typically supplied by the driller).

Hydrogeologic equipment may include weighted engineer's tape, water-level indicator, retractable engineer's rule, electronic calculator, clipboard, mirror and flashlight (for observing downhole activities), paint and ink marker for marking monitoring wells, sample jars, well installation forms, boring logs, soil sample log forms and a field notebook.

4.0 WELL DESIGN AND CONSTRUCTION

Overburden well borings will be drilled using minimum 4-inch inside diameter hollow-stem augers to the desired depth of each well boring. Rotary drilling with a roller bit and water wash or air rotary drilling can be used to extend the shallow well borings to allow well installation in the bedrock. In no cases will the Mississippian Elwren Shale Formation be completely penetrated unless a steel casing is installed and grouted in place at the top of the Elwren Formation.

Bedrock monitoring well borings will be drilled using hollow-stem auger or rotary drilling techniques until the bedrock is reached. For shallow bedrock wells (i.e., those monitoring the upper water-bearing zone in bedrock) where no overburden soil contamination is present, a temporary 6-inch, steel casing will be installed to isolate the overburden while the upper bedrock is drilled. For wells to be installed in the intermediate water-bearing zone in areas where overburden soil and shallow groundwater contamination is suspected or known to be present, steel casing will be telescoped to the anticipated depth of monitoring to prevent cross-contamination from shallow to deeper zones. Initially, a 6-inch diameter steel casing will be installed 3 to 5 feet into to the top of competent bedrock and grouted with cement-bentonite slurry in a manner to ensure that the entire annulus between the casing and borehole is sealed. After the grout has cured for a minimum of 24 hours, a 6-inch borehole will then be advanced below the surface casing to approximately 5 to 10 feet below depth of the upper water-bearing zone. A 4-inch diameter steel casing will be installed to the drilled depth and grouted with a cement-bentonite slurry to ensure that the entire annulus between the casing and borehole is sealed. After the grout has cured for a minimum of 24 hours, a 4-inch borehole will be advanced to the targeted intermediate water-bearing zone. For wells to monitor deeper water-bearing zones [e.g., Pennsylvanian lower zone (Plz)] and that penetrate multiple hydrostratigraphic zones, steel casing should be telescoped for each distinct zone, with the diameter of the casing sized so that the well borehole will allow for adequate well construction (minimum diameter of 4 inches for a 2-inch diameter PVC well screen and riser). For example, for a well to be screened in the Plz water-bearing zone and to penetrate the overburden, the Pennsyvalinan upper water-bearing zone (Puz), and the Pennsylvanian middle water-bearing zone (Pmz) the overburden should be cased with steel casing with a minimum diameter of 8 inches; the shallow Puz should be cased with steel casing with a minimum diameter of 6 inches; and the intermediate Pmz should be cased with steel casing with a minimum diameter of 4 inches.

For wells using diamond coring, the coring will proceed from the bottom of the casing to the full depth of the boring. Once the coring has been completed and the core has been logged (see SOP-18), then the hole will be reamed out with an air rotary bit with a nominal size as that of the casing or designed well borehole diameter, either 4 or 6 inches.

For wells using air rotary drilling in those cases where coring is not anticipated, the drilling will be performed through the casing after the grout has sufficiently set. These borings will be logged using the rock chips and dust blown up the boring by the return air of the drill bit (see SOP-18). The borehole will then be cleaned out using compressed air from the drill bit. The air rotary equipment must have a filter on the compressed air line going to the borehole to prevent oil and other organics from being introduced.

The shallow and intermediate water-bearing zone monitoring wells will be constructed of Schedule 40, flush-joint-threaded, 2-inch inside diameter polyvinyl chloride (PVC) riser pipe and flush joint threaded, factory slotted well screen with a threaded end cap. The well screens will be factory slotted to 0.010-inch size. Each section of well casing and screen will be National Sanitation Foundation (NSF) approved. Well screens will be 10 feet long but may be longer or shorter based on the subsurface conditions that are encountered. A PVC cap will be placed on the bottom and will also be flush threaded. Other means of joining casings using glue, gaskets, pop rivets, or screws are not allowed. The screen will pass no more than 10 percent of the pack material or in-situ aquifer material.

Monitoring wells will be installed immediately upon completion of drilling or packer testing, if performed. A well screen section with bottom cap and the proper amount of riser pipe will be assembled and lowered down the borehole. Centralizers will be used as necessary to ensure that the casing and screen are centered and are aligned straight. The sand pack will be extended from 0.5 foot below the well screen to 2.0 feet above the top of the well screen. Clean silica sand of U.S. Standard Sieve Size No. 10 to 20 will be used.

A 2-foot-thick bentonite pellet seal will be installed above the filter pack and allowed to hydrate for a minimum of 3 hours before grout is added above the seal. Only 100 percent, certified pure sodium bentonite will be used for well construction. The depths of backfill materials will be constantly monitored during well installation using a weighted stainless-steel or fiberglass tape measure.

The remaining annulus above the hydrated bentonite seal will be backfilled to the surface using a tremie pipe, with a 20:1 cement/bentonite grout. A maximum of 10 gallons of water per 94-pound bag of Type 1 cement will be used. The grout mixture should be blended in an above-ground rigid container or mixer to

produce a thick lump-free mixture. This grout mixture will also be used for placement of steel casings in deep wells.

Bentonite expands by absorbing water and provides a seal between the screened interval and the overlying portion of the annular space and formation. Cement-bentonite grout is placed on top of the bentonite pellets extending to the surface. The grout effectively seals the well and eliminates the possibility for surface infiltration reaching the screened interval. Grouting also replaces material removed during drilling and prevents hole collapse and subsidence around the well. A tremie pipe should be used to introduce grout from the bottom of the hole upward to prevent bridging and to provide a better seal. However, in shallow boreholes that do not collapse, it may be more practical to pour the grout from the surface without a tremie pipe.

When the well is completed and grouted to the surface, a protective steel surface casing is placed over the top of the riser pipe. The finished well casing will extend at least 2 feet above the ground level. This casing will have a cap that can be locked to prevent vandalism. A vent hole will be provided in the cap to allow venting of gases and maintain atmospheric pressure as water levels rise or fall in the well. The protective casing has a larger diameter than the riser pipe and is set into the wet cement grout over the well upon completion or can be placed between the steel casing and the riser pipe in the case of deep monitoring well borings. In addition, one hole is drilled just above the cement collar through the protective casing, which acts as a weep hole for the flow of water that may enter the annulus during well development, purging, or sampling. In traffic areas or high visibility areas, a flush-to-grade protective vault may be installed over the top of the riser pipe.

5.0 DOCUMENTATION OF FIELD ACTIVITIES

A critical part of monitoring well installation is recording of significant details and events in the site logbook, on field forms, and in a field logbook. Details of field documentation are contained in SOP-04.

6.0 ATTACHMENTS

1. Bedrock Monitoring Well Sheet
2. Overburden Monitoring Well Sheet

ATTACHMENT 1

BEDROCK MONITORING WELL SHEET

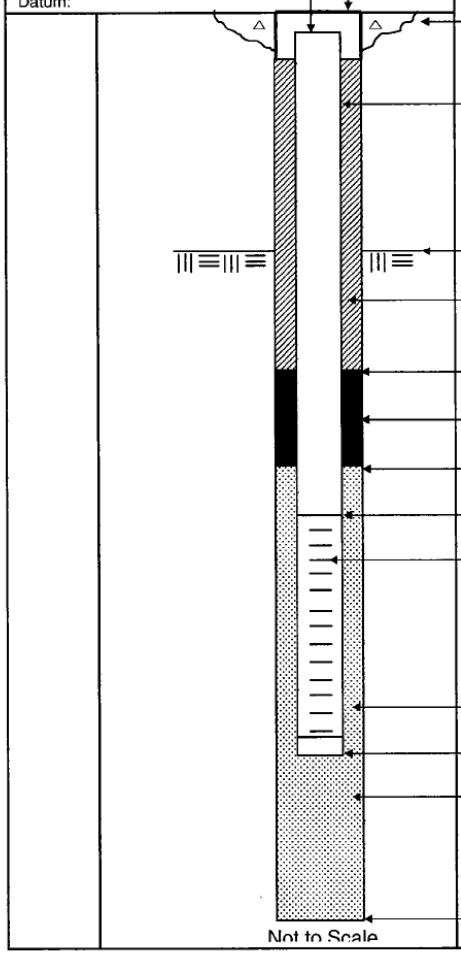
Tetra Tech NUS, Inc.

WELL No.: _____

MONITORING WELL SHEET

PROJECT:		DRILLING Co.:		BORING No.:	
PROJECT No.:		DRILLER:		DATE COMPLETED:	
SITE:		DRILLING METHOD:		NORTHING:	
GEOLOGIST:		DEV. METHOD:		EASTING:	

Ground Elevation =
Datum:



Elevation / Depth of Top of Riser: ____ / ____

Elevation / Height of Top of Surface Casing: ____ / ____

I.D. of Surface Casing: _____

Type of Surface Casing: _____

Type of Surface Seal: _____

I.D. of Riser: _____

Type of Riser: _____

Borehole Diameter: _____

Elevation / Depth Top of Rock: ____ / ____

Type of Backfill: _____

Elevation / Depth of Seal: ____ / ____

Type of Seal: _____

Elevation / Depth of Top of Filter Pack: ____ / ____

Elevation / Depth of Top of Screen: ____ / ____

Type of Screen: _____

Slot Size x Length: _____

I.D. of Screen: _____

Type of Filter Pack: _____

Elevation / Depth of Bottom of Screen: ____ / ____

Elevation / Depth of Bottom of Filter Pack: ____ / ____

Type of Backfill Below Well: _____

Elevation / Total Depth of Borehole: ____ / ____

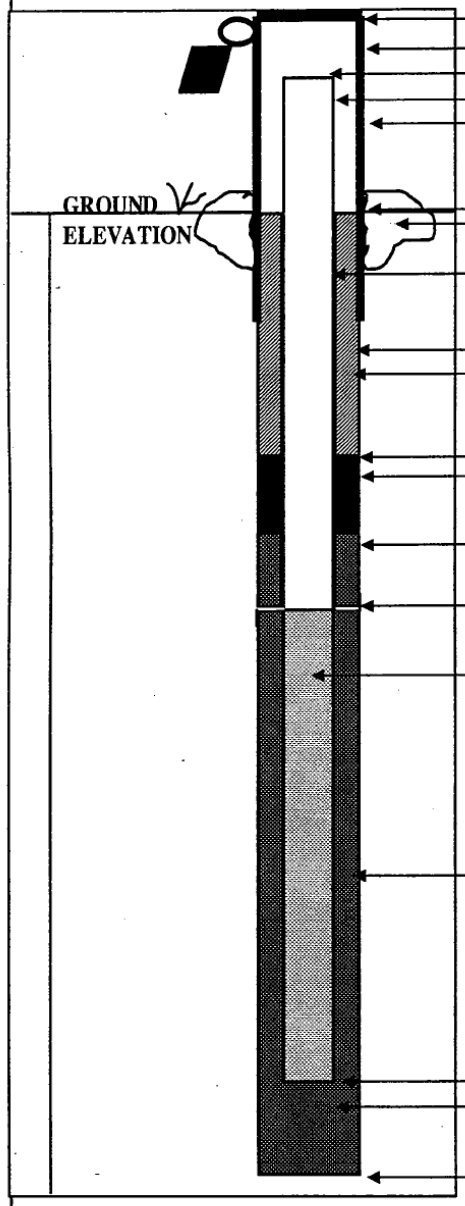
ATTACHMENT 2

OVERBURDEN MONITORING WELL SHEET

BORING NO.: _____

Tetra Tech NUS, Inc. **OVERBURDEN MONITORING WELL SHEET**

PROJECT:	NIROP FRIDLEY	DRILLING Co.:		BORING No.:	
PROJECT No.:	7842 CTO 0057	DRILLER:		DATE COMPLETED:	
SITE:	ANOKA PARK	DRILLING METHOD:		NORTHING:	
GEOLOGIST:		DEV. METHOD:		EASTING:	



ELEVATION OF TOP OF SURFACE CASING: _____
STICK -UP TOP OF SURFACE CASING: _____
ELEVATION OF TOP OF RISER PIPE: _____
RISER STICK-UP ABOVE GROUND SURFACE: _____
I.D. OF SURFACE CASING: _____
TYPE OF SURFACE CASING: _____

GROUND ELEVATION: _____
TYPE OF SURFACE SEAL: _____

RISER PIPE I.D.: 2"
TYPE OF RISER PIPE: CARBON STEEL

BOREHOLE DIAMETER: _____
TYPE OF SEAL: _____

ELEVATION / DEPTH OF SEAL: /
TYPE OF SEAL: BENTONITE CHIPS

ELEVATION / DEPTH TOP OF FILTER PACK: /

ELEVATION / DEPTH TOP OF SCREEN: /

TYPE OF SCREEN: CARBON STEEL

SLOT SIZE X LENGTH: 10 SLOT x

I.D. OF SCREEN: 2"

TYPE OF FILTER PACK: SILICA SAND
(No. 10-20 U.S. STANDARD SEIVE SIZE)

ELEVATION / DEPTH BOTTOM OF SCREEN: /
ELEVATION / DEPTH BOTTOM OF FILTER PACK: /
TYPE OF BACKFILL BELOW WELL: _____
ELEVATION / DEPTH OF BOREHOLE: /

APPENDIX B

BORING LOGS

Tetra Tech NUS, Inc.

BORING LOG

Project Name: CRANE NSWC - SWMU 11 - RFI - Round 1 - SWMU 11
Project Number: 112G02635
Drilling Company: Micah Group LLC
Drilling Rig: Geoprobe

Boring ID: 11SB01
Geologist: Kevin Losekamp
Lead Driller: Ben Borth
Drilling Method: Direct-Push Technology

Start Date: 04/26/2011
End of Boring Date: 04/26/2011
Background PID Screening: 0.0 ppm
Convert To Well? (Well ID): No (N/A)

SWMU 11 - RFI - Boring ID: 11SB01

Depth (ft bgs)	Run No.	% Recov.	USCS	Primary Color	Secondary Color	Moisture	Primary Description	Secondary Descriptors
0	1	80	CL	light brown	-Select-	DMP	SILTY CLAY	
1								
2			CL	light brown	-Select-	DMP	SILTY CLAY	
3								
4								
5	2	71						
6								
7								
8			SW	light brown	light orange	DRY	SAND fine grained	

End of Boring: 8.5 feet bgs
Notes: Sampled at 0-2. FD042611-01 (0-2) Sampled at 4-6. FD042611-02 (4-6) Very hard and dry sandstone bedrock at 8.5'

Tetra Tech NUS, Inc.

BORING LOG

Project Name: CRANE NSWC - SWMU 11 - RFI - Round 1 - SWMU 11
Project Number: 112G02635
Drilling Company: Micah Group LLC
Drilling Rig: Geoprobe

Boring ID: 11SB02
Geologist: Kevin Losekamp
Lead Driller: Ben Borth
Drilling Method: Direct-Push Technology

Start Date: 04/26/2011
End of Boring Date: 04/26/2011
Background PID Screening: 5.0 ppm
Convert To Well? (Well ID): No (N/A)

SWMU 11 - RFI - Boring ID: 11SB02

Depth (ft) bgs	Run No.	Run % Recov	Lithology USCS	Primary Color	Secondary Color	Moisture	Primary Description	Secondary Descriptors
0	1	100	CL	light brown	grey	MST	SILTY CLAY	
1								
2			CL	light brown	orange	DRY	CLAY with sand	Thin sandstone layer at 6'
3								
4								
5	2	100						
6								
7								
8			SW	orange	-Select-	DRY	SAND fine grained	
9								

End of Boring: 10 feet bgs
Notes: Sampled 0002 Sampled 0406 Hard and dry sandstone at refusal.

Tetra Tech NUS, Inc.

BORING LOG

Project Name: CRANE NSWC - SWMU 11 - RFI - Round 1 - SWMU 11
Project Number: 112G02635
Drilling Company: Micah Group LLC
Drilling Rig: Geoprobe

Boring ID: 11SB03
Geologist: Kevin Losekamp
Lead Driller: Ben Borth
Drilling Method: Direct-Push Technology

Start Date: 04/26/2011
End of Boring Date: 04/26/2011
Background PID Screening: 0.0 ppm
Convert To Well? (Well ID): No (N/A)

SWMU 11 - RFI - Boring ID: 11SB03

Depth (ft bgs)	Run No.	Run % Recov	USCS	Primary Color	Secondary Color	Moisture	Primary Description	Secondary Descriptors
0	1	100	CL	light brown	grey	DMP	SILTY CLAY	
1								
2								
3								
4								
5	2	75						
6								
7			SW	orange	-Select-	DRY	SAND fine grained	
8			SW	orange	grey	DRY	CLAYEY SAND fine grained	

End of Boring: 8.9 feet bgs
Notes: Sampled 0002 Sampled 0406 Hard and dry sandstone at refusal

Tetra Tech NUS, Inc.

BORING LOG

Project Name: CRANE NSWC - SWMU 11 - RFI - Round 1 - SWMU 11
Project Number: 112G02635
Drilling Company: Micah Group LLC
Drilling Rig: Geo Probe

Boring ID: 11SB04
Geologist: Kevin Losekamp
Lead Driller: Ben Borth
Drilling Method: Direct-Push Technology

Start Date: 04/26/2011
End of Boring Date: 04/26/2011
Background PID Screening: 0.0 ppm
Convert To Well? (Well ID): No (N/A)

SWMU 11 - RFI - Boring ID: 11SB04

Depth (ft bgs)	Run No.	Run % Recv.	Lithology USCS	Primary Color	Secondary Color	Moisture	Primary Description	Secondary Descriptors
0	1	100	CL	light brown	grey	DMP	SILTY CLAY	
1								
2								
3								
4								
5	2	90						
6								
7								
			SW	orange	-Select-	DRY	SAND fine grained	Refusal at 8.3
8								

End of Boring: 8.3 feet bgs
Notes: Sampled at 0002 Sampled at 0406 Hard and dry sandstone at refusal

Tetra Tech NUS, Inc.

BORING LOG

Project Name: CRANE NSWC - SWMU 11 - RFI - Round 1 - SWMU 11
Project Number: 112G02835
Drilling Company: Micah Group LLC
Drilling Rig:

Boring ID: 11SB05
Geologist: Kevin Losekamp
Lead Driller: Ben Broth
Drilling Method: Hand Auger

Start Date: 04/26/2011
End of Boring Date: 04/26/2011
Background PID Screening: 0.0 ppm
Convert To Well? (Well ID): No (N/A)

SWMU 11 - RFI - Boring ID: 11SB05

Depth (ft bgs)	Run No.	Run % Recov	Lithology USCS	Primary Color	Secondary Color	Moisture	Primary Description	Secondary Descriptors
0	1	100	CL	light brown	grey	MST	SILTY CLAY	
1								
			CL	light brown	grey	MST	SILTY CLAY	

End of Boring: 2 feet bgs
Notes: Sampled 0002

Tetra Tech NUS, Inc.

BORING LOG

Project Name: CRANE NSWC - SWMU 11 - RFI - Round 1 - SWMU 11
Project Number: 112G02835
Drilling Company: Micah Group LLC
Drilling Rig:

Boring ID: 11SB06
Geologist: Kevin Losekamp
Lead Driller: Ben Broth
Drilling Method: Hand Auger

Start Date: 04/26/2011
End of Boring Date: 04/26/2011
Background PID Screening: 0.0 ppm
Convert To Well? (Well ID): No (N/A)

SWMU 11 - RFI - Boring ID: 11SB06

Depth (ft bgs)	Run No.	% Recov.	USCS	Primary Color	Secondary Color	Moisture	Primary Description	Secondary Descriptors
0	1	100	CL	light brown	grey	MST	SILTY CLAY	
1								

End of Boring: 2 feet bgs
Notes: Sampled at 0002

Tetra Tech NUS, Inc.

BORING LOG

Project Name: CRANE NSWC - SWMU 11 - RFI - Round 1 - SWMU 11
Project Number: 112G02635
Drilling Company: Micah Group LLC
Drilling Rig:

Boring ID: 11SB07
Geologist: Kevin Losekamp
Lead Driller: Ben Broth
Drilling Method: Hand Auger

Start Date: 04/26/2011
End of Boring Date: 04/26/2011
Background PID Screening: 0 ppm
Convert To Well? (Well ID): No (N/A)

SWMU 11 - RFI - Boring ID: 11SB07

Depth (ft bgs)	Run No.	Run % Recov	Lithology USCS	Primary Color	Secondary Color	Moisture	Primary Description	Secondary Descriptors
0	1	100	CL	light brown	gray	WET	SILTY CLAY	
1								

End of Boring: 2 feet bgs
Notes: Sampled at 0002

Tetra Tech NUS, Inc.

BORING LOG

Project Name: CRANE NSWC - SWMU 11 - RFI - Round 1 - SWMU 11
Project Number: 112G02635
Drilling Company: Micah Group LLC
Drilling Rig:

Boring ID: 11SB08
Geologist: Kevin Losekamp
Lead Driller: Ben Broth
Drilling Method: Hand Auger

Start Date: 04/26/2011
End of Boring Date: 04/26/2011
Background PID Screening: 0 ppm
Convert To Well? (Well ID): No (N/A)

SWMU 11 - RFI - Boring ID: 11SB08

Depth (ft bgs)	Run No.	Run % Recvy	Lithology USCS	Primary Color	Secondary Color	Moisture	Primary Description	Secondary Descriptors
0	1	100	CL	light brown	grey	WET	SILTY CLAY	
1								

End of Boring: 2 feet bgs
Notes: Sampled at 0002

Tetra Tech NUS, Inc.

BORING LOG

Project Name: CRANE NSWC - SWMU 11 - RFI - Round 1 - SWMU 11
Project Number: 112G02635
Drilling Company: Micah Group LLC
Drilling Rig:

Boring ID: 11SB09
Geologist: Kevin Losekamp
Lead Driller: Ben Broth
Drilling Method: Hand Auger

Start Date: 04/26/2011
End of Boring Date: 04/26/2011
Background PID Screening: 0 ppm
Convert To Well? (Well ID): No (N/A)

SWMU 11 - RFI - Boring ID: 11SB09

Depth (ft bgs)	Run No.	Run % Recov	Lithology USCS	Primary Color	Secondary Color	Moisture	Primary Description	Secondary Descriptors
0	1	100	CL	light brown	grey	MST	SILTY CLAY	
1								

End of Boring: 2 feet bgs
Notes: Sampled at 0002

Tetra Tech NUS, Inc.

BORING LOG

Project Name: CRANE NSWC - SWMU 11 - RFI - Round 1 - SWMU 11
Project Number: 112G02635
Drilling Company: Micah Group LLC
Drilling Rig:

Boring ID: 11SB10
Geologist: Kevin Losekamp
Lead Driller: Ben Broth
Drilling Method: Hand Auger

Start Date: 04/26/2011
End of Boring Date: 04/26/2011
Background PID Screening: 0 ppm
Convert To Well? (Well ID): No (N/A)

SWMU 11 - RFI - Boring ID: 11SB10

Depth (ft bgs)	Run No.	% Recov	Lithology USCS	Primary Color	Secondary Color	Moisture	Primary Description	Secondary Descriptors
0	1	100	OH	dark brown	-Select-	WET	TOPSOIL	
1			CL	light brown	grey	MST	SILTY CLAY	

End of Boring: 2 feet bgs
Notes: Sampled at 0002

Tetra Tech NUS, Inc.

BORING LOG

Project Name: CRANE NSWC - SWMU 11 - RFI - Round 1 - SWMU 11
Project Number: 112G02635
Drilling Company: Micah Group LLC
Drilling Rig:

Boring ID: 11SB11
Geologist: Kevin Losekamp
Lead Driller: Ben Broth
Drilling Method: Hand Auger

Start Date: 04/26/2011
End of Boring Date: 04/26/2011
Background PID Screening: 0.0 ppm
Convert To Well? (Well ID): No (N/A)

SWMU 11 - RFI - Boring ID: 11SB11

Depth (ft bgs)	Run No.	Run % Recov	Lithology USCS	Primary Color	Secondary Color	Moisture	Primary Description	Secondary Descriptors
0	1	100	CL	light brown	grey	DMP	SILTY CLAY	
1								

End of Boring: 2 feet bgs
Notes: Sampled at 0002 FD042611-03

Tetra Tech NUS, Inc.

BORING LOG

Project Name: CRANE NSWC - SWMU 11 - RFI - Round 1 - SWMU 11
Project Number: 112G02635
Drilling Company: Micah Group LLC
Drilling Rig: Geoprobe

Boring ID: 11SB12
Geologist: Kevin Losekamp
Lead Driller: Ben Broth
Drilling Method: Direct-Push Technology

Start Date: 04/26/2011
End of Boring Date: 04/26/2011
Background PID Screening: 0.0 ppm
Convert To Well? (Well ID): No (N/A)

SWMU 11 - RFI - Boring ID: 11SB12

Depth (ft bgs)	Run No.	Run % Recov.	Lithology USCS	Primary Color	Secondary Color	Moisture	Primary Description	Secondary Descriptors
0	1	80	OH	brown	other - describe	DMP	TOPSOIL	with gravel
			CL	light brown	light orange	MST	CLAY with silt and very fine sand	
1								
2								
3								
4								

End of Boring: 5 feet bgs
Notes: Sampled at 0002

Tetra Tech NUS, Inc.

BORING LOG

Project Name: CRANE NSWC - SWMU 11 - RFI - Round 1 - SWMU 11
Project Number: 112G02635
Drilling Company: Micah Group LLC
Drilling Rig:

Boring ID: 11SB13
Geologist: Kevin Losekamp
Lead Driller: Ben Broth
Drilling Method: Hand Auger

Start Date: 04/26/2011
End of Boring Date: 04/26/2011
Background PID Screening: 0.0 ppm
Convert To Well? (Well ID): No (N/A)

SWMU 11 - RFI - Boring ID: 11SB13

Depth (ft bgs)	Run No.	Run % Recov.	Lithology USCS	Primary Color	Secondary Color	Moisture	Primary Description	Secondary Descriptors
0	1	100	OH	dark brown	-Select-	MST	TOPSOIL	
			CL	brown	grey	MST	SILTY CLAY	
1								

End of Boring: 2 feet bgs
Notes: Sampled at 0002

Tetra Tech NUS, Inc.

BORING LOG

Project Name: CRANE NSWC - SWMU 11 - RFI - Round 1 - SWMU 11
Project Number: 112G02635
Drilling Company: Micah Group LLC
Drilling Rig:

Boring ID: 11SB14
Geologist: Kevin Losekamp
Lead Driller: Ben Broth
Drilling Method: Hand Auger

Start Date: 04/26/2011
End of Boring Date: 04/26/2011
Background PID Screening: 0.0 ppm
Convert To Well? (Well ID): No (N/A)

SWMU 11 - RFI - Boring ID: 11SB14

Depth (ft) bgs	Run No.	% Recvy	USCS	Primary Color	Secondary Color	Moisture	Primary Description	Secondary Descriptors
			OH	dark brown	-Seec-	MST	TOPSOIL	
0	1	100	CL	light brown	grey	MST	SILTY CLAY	
1								

End of Boring: 2 feet bgs
Notes: Sampled at 0002

Tetra Tech NUS, Inc.

BORING LOG

Project Name: CRANE NSWC - SWMU 11 - RFI - Round 1 - SWMU 11
Project Number: 112G02835
Drilling Company: Micah Group LLC
Drilling Rig:

Boring ID: 11SB15
Geologist: Kevin Losekamp
Lead Driller: Ben Broth
Drilling Method: Hand Auger

Start Date: 04/26/2011
End of Boring Date: 04/26/2011
Background PID Screening: 0.0 ppm
Convert To Well? (Well ID): No (N/A)

SWMU 11 - RFI - Boring ID: 11SB15

Depth (ft bgs)	Run No.	Run % Recov	USCS	Primary Color	Secondary Color	Moisture	Lithology Primary Description	Lithology Secondary Descriptors
0	1	100	OH	dark brown	-Select-	MST	TOPSOIL	
			CL	light brown	grey	MST	SILTY CLAY	
1								
2								
3								
4								

End of Boring: 5 feet bgs
Notes: Sampled at 0002

Tetra Tech NUS, Inc.

BORING LOG

Project Name: CRANE NSWC - SWMU 11 - RFI - Round 1 - SWMU 11
Project Number: 112G02635
Drilling Company: Micah Group LLC
Drilling Rig:

Boring ID: 115B16
Geologist: Kevin Losekamp
Lead Driller: Ben Broth
Drilling Method: Hand Auger

Start Date: 04/26/2011
End of Boring Date: 04/26/2011
Background PID Screening: 0.0 ppm
Convert To Well? (Well ID): No (N/A)

SWMU 11 - RFI - Boring ID: 115B16

Depth (ft bgs)	Run No.	Run % Recov.	Lithology USCS	Primary Color	Secondary Color	Moisture	Primary Description	Secondary Descriptors
0	1	100	OH	dark brown	-Select-	WET	TOPSOIL	
			CL	brown	grey	DMP	SILTY CLAY	
1								

End of Boring: 2 feet bgs
Notes: Sampled at 0002

Tetra Tech NUS, Inc.

BORING LOG

Project Name: CRANE NSWC - SWMU 11 - RFI - Round 1 - SWMU 11
Project Number: 112G02635
Drilling Company: Micah Group LLC
Drilling Rig: Geoprobe

Boring ID: 11SB17
Geologist: Kevin Losekamp
Lead Driller: Ben Broth
Drilling Method: Direct-Push Technology

Start Date: 04/26/2011
End of Boring Date: 04/26/2011
Background PID Screening: 0.0 ppm
Convert To Well? (Well ID): No (N/A)

SWMU 11 - RFI - Boring ID: 11SB17

Depth (ft bgs)	Run No.	% Recov.	USCS	Primary Color	Secondary Color	Moisture	Primary Description	Secondary Descriptors
0	1	100	GP-GM	black	-Select-	DRY	GRAVEL with minor fine sand and silt	
1			CL	grey	brown	DMP	SILTY CLAY	
2								
3								
4								

End of Boring: 5 feet bgs
Notes: Sampled 0002 Moved location due to utility

Tetra Tech NUS, Inc.

BORING LOG

Project Name: CRANE NSWC - SWMU 11 - RFI - Round 1 - SWMU 11
Project Number: 112G02635
Drilling Company: Micah Group LLC
Drilling Rig: Geoprobe

Boring ID: 11SB18
Geologist: Kevin Losekamp
Lead Driller: Ben Broth
Drilling Method: Direct-Push Technology

Start Date: 04/26/2011
End of Boring Date: 04/26/2011
Background PID Screening: 0.0 ppm
Convert To Well? (Well ID): No (N/A)

SWMU 11 - RFI - Boring ID: 11SB18

Depth (ft bgs)	Run No.	Run % Recov	Lithology USCS	Primary Color	Secondary Color	Moisture	Primary Description	Secondary Descriptors
0	1	70	GW-GM	black	brown	DMP	GRAVEL with sand-clay mix	
			CL	light brown	grey	MST	SILTY CLAY	
1								
2								
3								
4								

End of Boring: 5 feet bgs
Notes: Sampled at 0002

Tetra Tech NUS, Inc.

BORING LOG

Project Name: CRANE NSWC - SWMU 11 - RFI - Round 1 - SWMU 11
Project Number: 112G02835
Drilling Company: Micah Group LLC
Drilling Rig:

Boring ID: 11SB19
Geologist: Kevin Losekamp
Lead Driller: Ben Broth
Drilling Method: Hand Auger

Start Date: 04/26/2011
End of Boring Date: 04/26/2011
Background PID Screening: 0.0 ppm
Convert To Well? (Well ID): No (N/A)

SWMU 11 - RFI - Boring ID: 11SB19

Depth (bgs)	Run No.	% Recov.	USCS	Primary Color	Secondary Color	Moisture	Primary Description	Secondary Descriptors
0	1	100	OH	brown	-Select-	WET	TOPSOIL	with gravel
1			CL	brown	-Select-	MST	CLAY	

End of Boring: 2 feet bgs
Notes: Sampled at 0002

Tetra Tech NUS, Inc.

BORING LOG

Project Name: CRANE NSWC - SWMU 11 - RFI - Round 1 - SWMU 11
Project Number: 112G02635
Drilling Company: Micah Group LLC
Drilling Rig:

Boring ID: 11SB20
Geologist: Kevin Losekamp
Lead Driller: Ben Broth
Drilling Method: Hand Auger

Start Date: 04/26/2011
End of Boring Date: 04/26/2011
Background PID Screening: 0.0 ppm
Convert To Well? (Well ID): No (N/A)

SWMU 11 - RFI - Boring ID: 11SB20

Depth (ft bgs)	Run No.	% Recov.	USCS	Primary Color	Secondary Color	Moisture	Primary Description	Secondary Descriptors
0	1	100	OH	brown	-Select-	WET	TOPSOIL	With white gravel
1			CL	brown	-Select-	MST	CLAYEY GRAVEL	

End of Boring: 2 feet bgs
Notes: Sampled at 0002

Tetra Tech NUS, Inc.

BORING LOG

Project Name: CRANE NSWC - SWMU 11 - RFI - Round 1 - SWMU 11
Project Number: 112G02635
Drilling Company: Micah Group LLC
Drilling Rig:

Boring ID: 11SB21
Geologist: Kevin Losekamp
Lead Driller: Ben Broth
Drilling Method: Hand Auger

Start Date: 04/26/2011
End of Boring Date: 04/26/2011
Background PID Screening: 0.0 ppm
Convert To Well? (Well ID): No (N/A)

SWMU 11 - RFI - Boring ID: 11SB21

Depth (in bgs)	Run No.	Run % Recy.	Lithology USCS	Primary Color	Secondary Color	Moisture	Primary Description	Secondary Descriptors
0	1	100	OH	dark brown	black	MST	TOPSOIL	
1			CL	light brown	grey	MST	SILTY CLAY	

End of Boring: 2 feet bgs
Notes: Sampled at 0002 FD042611-04

Tetra Tech NUS, Inc.

BORING LOG

Project Name: CRANE NSWC - SWMU 11 - RFI - Round 1 - SWMU 11
Project Number: 112G02635
Drilling Company: Micah Group LLC
Drilling Rig:

Boring ID: 11SB22
Geologist: Kevin Losekamp
Lead Driller: Ben Broth
Drilling Method: Hand Auger

Start Date: 04/26/2011
End of Boring Date: 04/26/2011
Background PID Screening: 0.0 ppm
Convert To Well? (Well ID): No (N/A)

SWMU 11 - RFI - Boring ID: 11SB22

Depth (ft bgs)	Run No.	Run % Recov.	Lithology USCS	Primary Color	Secondary Color	Moisture	Primary Description	Secondary Descriptors
0	1	100	OH	brown	-Select-	WET	TOPSOIL	
			CL	light brown	-Select-	WET	SILTY CLAY	
1								

End of Boring: 2 feet bgs
Notes: Sampled at 0002

Tetra Tech NUS, Inc.

BORING LOG

Project Name: CRANE NSWC - SWMU 11 - RFI - Round 1 - SWMU 11
Project Number: 112G02635
Drilling Company: Micah Group LLC
Drilling Rig:

Boring ID: 11SB23
Geologist: Kevin Losekamp
Lead Driller: Ben Borth
Drilling Method: Hand Auger

Start Date: 04/26/2011
End of Boring Date: 04/26/2011
Background PID Screening: 0.0 ppm
Convert To Well? (Well ID): No (N/A)

SWMU 11 - RFI - Boring ID: 11SB23

Depth (ft bgs)	Run No.	% Recov.	Lithology USCS	Primary Color	Secondary Color	Moisture	Primary Description	Secondary Descriptors
0	1	100	OH	black	light brown	WET	TOPSOIL	
1			CL	grey	brown	DMP	SILTY CLAY	

End of Boring: 2 feet bgs
Notes: Sampled 0002

Tetra Tech NUS, Inc.

BORING LOG

Project Name: CRANE NSWC - SWMU 11 - RFI - Round 1 - SWMU 11
Project Number: 112G02635
Drilling Company: Micah Group LLC
Drilling Rig:

Boring ID: 11SB24
Geologist: Kevin Losekamp
Lead Driller: Ben Borth
Drilling Method: Hand Auger

Start Date: 04/26/2011
End of Boring Date: 04/26/2011
Background PID Screening: 0.0 ppm
Convert To Well? (Well ID): No (N/A)

SWMU 11 - RFI - Boring ID: 11SB24

Depth (in bgs)	Run No.	Run % Recov.	Lithology USCS	Primary Color	Secondary Color	Moisture	Primary Description	Secondary Descriptors
0	1	100	OH	brown	black	MST	TOPSOIL	
1			CL	grey	brown	MST	SILTY CLAY	

End of Boring: 2 feet bgs
Notes: Sampled at 0002

Tetra Tech NUS, Inc.

BORING LOG

Project Name: CRANE NSWC - SWMU 11 - RFI - Round 1 - SWMU 11
Project Number: 112G02635
Drilling Company: Micah Group LLC
Drilling Rig: Geoprobe

Boring ID: 11SB25
Geologist: Kevin Losekamp
Lead Driller: Ben Broth
Drilling Method: Direct-Push Technology

Start Date: 04/26/2011
End of Boring Date: 04/26/2011
Background PID Screening: 0.0 ppm
Convert To Well? (Well ID): No (N/A)

SWMU 11 - RFI - Boring ID: 11SB25

Depth (ft bgs)	Run No.	% Recov.	USCS	Primary Color	Secondary Color	Moisture	Primary Description	Secondary Descriptors
0	1	80	GW	other - describe	-Select-	DRY	GRAVEL	White Gravel
			CL	brown	grey	MST	SILTY CLAY	
1								
2								
3								
4								
5	2	100						
6								
7			CL	brown	light orange	DMP	SANDY CLAY	
			SW	orange	-Select-	DRY	SAND very fine grained	
8			SW	orange	light tan	DRY	SANDSTONE	

End of Boring: 8.5 feet bgs
Notes: Sampled at 0507 Very hard and dry sandstone at refusal (8 to 8.5 feet).

Tetra Tech NUS, Inc.

BORING LOG

Project Name: CRANE NSWC - SWMU 11 - RFI - Round 1 - SWMU 11
Project Number: 112G02635
Drilling Company: Micah Group LLC
Drilling Rig: Geoprobe

Boring ID: 11SB26
Geologist: Kevin Losekamp
Lead Driller: Ben Broth
Drilling Method: Direct-Push Technology

Start Date: 04/26/2011
End of Boring Date: 04/26/2011
Background PID Screening: 0.0 ppm
Convert To Well? (Well ID): No (N/A)

SWMU 11 - RFI - Boring ID: 11SB26

Depth (ft bgs)	Run No.	Run % Recov	USCS	Primary Color	Secondary Color	Moisture	Primary Description	Secondary Descriptors
0	1	80	CL	brown	grey	MST	SILTY CLAY	
1								
2								
3								
4								
5	2	83						
6								
7			SW	light orange	-Select-	DRY	SAND very fine grained	
			SW	orange	orange	DRY	SANDSTONE	

End of Boring: 8 feet bgs
Notes: Sampled at 0507 Very hard and dry sandstone at refusal (8 feet). MS/MSD

Tetra Tech NUS, Inc.

BORING LOG

Project Name: CRANE NSWC - SWMU 11 - RFI - Round 1 - SWMU 11
Project Number: 112G02835
Drilling Company: Micah Group LLC
Drilling Rig: Geoprobe

Boring ID: 11SB27
Geologist: Kevin Losekamp
Lead Driller: Ben Broth
Drilling Method: Direct-Push Technology

Start Date: 04/26/2011
End of Boring Date: 04/26/2011
Background PID Screening: 0.0 ppm
Convert To Well? (Well ID): No (N/A)

SWMU 11 - RFI - Boring ID: 11SB27

Depth (ft bgs)	Run No.	% Recov.	USCS	Primary Color	Secondary Color	Moisture	Primary Description	Secondary Descriptors
0	1	80	CL	brown	grey	MST	SILTY CLAY	
1								
2								
3								
4								
5	2	83						
6			CL	grey	-Select-	MST	CLAY	
			SW	light brown	-Select-	DRY	CLAYEY SAND	
7			SW	orange	-Select-	DRY	SANDSTONE	

End of Boring: 7.4 feet bgs
Notes: Sample at 0507 Very hard and dry sandstone at refusal.

Tetra Tech NUS, Inc.

BORING LOG

Project Name: CRANE NSWC - SWMU 11 - RFI - Round 1 - SWMU 11
Project Number: 112G02635
Drilling Company: Micah Group LLC
Drilling Rig: Geoprobe

Boring ID: 11SB28
Geologist: Kevin Losekamp
Lead Driller: Ben Broth
Drilling Method: Direct-Push Technology

Start Date: 04/26/2011
End of Boring Date: 04/26/2011
Background PID Screening: 0.0 ppm
Convert To Well? (Well ID): No (N/A)

SWMU 11 - RFI - Boring ID: 11SB28

Depth (ft bgs)	Run No.	Run % Recov.	Lithology USCS	Primary Color	Secondary Color	Moisture	Primary Description	Secondary Descriptors
0	1	80	GW	black	-Select-	DRY	ASPHALT/PAVEMENT	
			CL	brown	grey	MST	SILTY CLAY	
1								
2								
3								
4								
5	2	75	CL	grey	-Select-	MST	SILTY CLAY	
			SW	orange	-Select-	DRY	SAND very fine grained	
6								
			SW	orange	light grey	DRY	SANDSTONE	

End of Boring: 7 feet bgs
Notes: Sampled at 0507 Very hard and dry sandstone at refusal (7 ft.) MS/MSD

Tetra Tech NUS, Inc.

BORING LOG

Project Name: CRANE NSWC - SWMU 11 - RFI - Round 1 - SWMU 11
Project Number: 112G02835
Drilling Company: Micah Group LLC
Drilling Rig:

Boring ID: 11SB29
Geologist: Kevin Losekamp
Lead Driller: Ben Borth
Drilling Method: Hand Auger

Start Date: 04/27/2011
End of Boring Date: 04/27/2011
Background PID Screening: 0.0 ppm
Convert To Well? (Well ID): No (N/A)

SWMU 11 - RFI - Boring ID: 11SB29

Depth (ft bgs)	Run No.	% Recov.	Lithology USCS	Primary Color	Secondary Color	Moisture	Primary Description	Secondary Descriptors
0	1	100	CL	grey	-Select-	WET	CLAY with minor gravel	
			SW	orange	grey	MST	CLAYEY SAND	
1								

End of Boring: 2 feet bgs
Notes: Sampled at 0002 Concrete tank area

Tetra Tech NUS, Inc.

BORING LOG

Project Name: CRANE NSWC - SWMU 11 - RFI - Round 1 - SWMU 11
Project Number: 112G02835
Drilling Company: Micah Group LLC
Drilling Rig:

Boring ID: 11SB30
Geologist: Kevin Losekamp
Lead Driller: Ben Borth
Drilling Method: Hand Auger

Start Date: 04/27/2011
End of Boring Date: 04/27/2011
Background PID Screening: 0 ppm
Convert To Well? (Well ID): No (N/A)

SWMU 11 - RFI - Boring ID: 11SB30

Depth (ft bgs)	Run No.	% Recov.	USCS	Primary Color	Secondary Color	Moisture	Primary Description	Secondary Descriptors
0	1	100	CL	brown	-Select-	MST	SILTY CLAY	
1								

End of Boring: 2 feet bgs
Notes: Sampled at 0002 Concrete tank area

Tetra Tech NUS, Inc.

BORING LOG

Project Name: CRANE NSWC - SWMU 11 - RFI - Round 1 - SWMU 11
Project Number: 112G02635
Drilling Company: Micah Group LLC
Drilling Rig:

Boring ID: 11SB31
Geologist: Kevin Losekamp
Lead Driller: Ben Borth
Drilling Method: Hand Auger

Start Date: 04/27/2011
End of Boring Date: 04/27/2011
Background PID Screening:
Convert To Well? (Well ID): No (N/A)

SWMU 11 - RFI - Boring ID: 11SB31

Depth (ft bgs)	Run No.	% Recov.	USCS	Primary Color	Secondary Color	Moisture	Primary Description	Secondary Descriptors
			Lithology					
0	1	100	OH	brown	-Select-	DMP	TOPSOIL	
			CL	brown	-Select-	DMP	SILTY CLAY	
1								

End of Boring: 2 feet bgs
Notes: Sampled at 0002 FD042711-01 Concrete tank area

Tetra Tech NUS, Inc.

BORING LOG

Project Name: CRANE NSWC - SWMU 11 - RFI - Round 1 - SWMU 11
Project Number: 112G02835
Drilling Company: Micah Group LLC
Drilling Rig:

Boring ID: 11SB32
Geologist: Kevin Losekamp
Lead Driller: Ben Borth
Drilling Method: Hand Auger

Start Date: 04/27/2011
End of Boring Date: 04/27/2011
Background PID Screening: 0.0 ppm
Convert To Well? (Well ID): No (N/A)

SWMU 11 - RFI - Boring ID: 11SB32

Depth (ft bgs)	Run No.	Run % Recov.	Lithology USCS	Primary Color	Secondary Color	Moisture	Primary Description	Secondary Descriptors
0	1	100	OH	brown	-Select-	WET	TOPSOIL	Gravel throughout
1			CL	brown	grey	DMP	CLAY with silt and very fine sand	

End of Boring: 2 feet bgs
Notes: Sampled at 0002 Concrete tank area

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: NSA-Crane-SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: TTL
DRILLING RIG: Geoprobe

BORING No.: 11SB33
DATE: 11/16/2011
GEOLOGIST: Kendra Smith
DRILLER: Chris White

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	1					2" asphalt							
	2					3" concrete and 8" crushed stone							
	3			1 - 3	light brown-sandy clay(with rocks)-hard-dry								
	4			3 - 4	dark brown-silty caly-moist-hard								
	5			4 - 5	greyish brown-sandy clay-wet-soft								
	6			5 - 7.5	brown sandy clay-dense-hard								
	7												
			refusal at 7.5'										
			samples collected between 4' to 6' and 6' to 7'.										

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks: _____

Converted to Well: Yes _____ No x Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NSA-Crane SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: TTL
DRILLING RIG: Geoprobe

BORING No.: 11SB34
DATE: 11/16/2011
GEOLOGIST: Kendra Smith
DRILLER: Chris White

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	1					3" concrete							
	2					2' crushed stone							
	3			2 - 4	brown-sandy clay-moist-soft								
	4												
	5			4 - 6	brown silty clay-dense-soft								
	6												
	7			6 - 8	brown clay-dense-hard								
	8												
			refusal at 8'										
			samples collected between 4' to 6' and 7' to 8'.										

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): ____

Remarks: ____

Converted to Well: Yes ____ No x Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: NSA-Crane SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: TTL
DRILLING RIG: Geoprobe

BORING No.: 11SB35
DATE: 11/16/2011
GEOLOGIST: Kendra Smith
DRILLER: Chris White

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	1					3" concrete							
	2					2' crushed stone							
	3			2 - 4	brown-sandy clay (with rocks)-moist-soft								
	4												
	5			4 - 6	reddish brown-sandy clay(very fine)-dry-soft								
	6												
			refusal at 6'10"										
			samples collected between 3' to 5' and 5' to 6'.										

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: _____

Drilling Area Background (ppm): _____

Converted to Well: Yes _____ No _____ Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: NSA-Crane SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: TTL
DRILLING RIG: Geoprobe

BORING No.: 11SB36
DATE: 11/17/2011
GEOLOGIST: Kendra Smith
DRILLER: Chris White

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	1					6" of gravel							
	2			6"-1'	dark brown-sandy clay-dense-hard								
	3			1' - 4'	brown-sandy clay-moist-soft								
	4			4 - 5	brown-sandy clay (with rocks)- moist-soft								
	5			5 - 5'6"	greyish brown-sandy clay-moist-soft								
			refusal at 5'6"										
			samples collected between 2' to 4' and 4' to 5'.										

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): ____

Remarks: PID reading of 17ppm at 2.5 feet

Converted to Well: Yes ____ No x Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: NSA-Crane SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: TTL
DRILLING RIG: Geoprobe

BORING No.: 11SB37
DATE: 11/16/2011
GEOLOGIST: Kendra Smith
DRILLER: Chris White

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	1			0 - 1	dark brown-sandy clay-dry-hard								
	2			1 - 3	brown-sandy clay-dry-hard								
	3			3 - 4	light brown(orange)-sandy clay-dry-soft								
	4												
			refusal at 4'										
			samples collected between 1' to 3' and 3' to 4'.										

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): ____

Remarks: _____

Converted to Well: Yes ____ No x Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: NSA-Crane SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: TTL
DRILLING RIG: Geoprobe

BORING No.: 11SB38
DATE: 11/15/2011
GEOLOGIST: Kendra Smith
DRILLER: Chris White

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	MATERIAL DESCRIPTION: Color	MATERIAL DESCRIPTION: Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	PID/FID Reading (ppm): Sampler BZ	PID/FID Reading (ppm): Borehole**	PID/FID Reading (ppm): Driller BZ**
	1					4" of concrete							
	2			4"-1	brown-clay-moist-soft								
	3			1 - 3	dark brown-silty clay-moist-soft								
	4			3 - 4	reddish brown-sandy clay-dry-hard								
	5			4 - 6	light brown-silty clay-moist-soft								
	6			6 - 7	reddish brown-sandy clay-dry-hard								
	7		refusal at 7'										
			samples collected between 4' to 6' and 6' to 7'.										

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): ____

Remarks: ____

Converted to Well: Yes ____ No x Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NSA-Crane SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: TTL
DRILLING RIG: Geoprobe

BORING No.: 11SB39
DATE: 11/15/2011
GEOLOGIST: Kendra Smith
DRILLER: Chris White

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	1			5" - 1	brown-sandy-wet-soft								
	2			1 - 2	brown-sandy clay-moist-hard								
	3			2 - 5	dark brown-sandy clay-moist-hard								
	4												
	5			5 - 6	reddish brown-sandy clay-dry-hard								
	6			6 - 8	light brown(very fine sand)-dry-soft								
	7												
	8			8-8'10"	light brown-sandy clay-dry-hard								
			refusal at 8'10"										
			samples collected 4' to 6' and 7' to 8'.										

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: _____

Drilling Area Background (ppm): [ ]

Converted to Well: Yes _____ No x Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: NSA-Crane SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: TTL
DRILLING RIG: Geoprobe

BORING No.: 11SB40
DATE: 11/15/2011
GEOLOGIST: Kendra Smith
DRILLER: Chris White

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	1					4" of concrete							
	2			4" - 1	brown-clay-moist-soft								
	3			1 - 3	dark brown-sandy clay-dry-hard								
	4			3 - 4	reddish brown-sandy clay-dry-hard								
	5			4 - 6	light brown-silty clay-moist-soft								
	6			6 - 7	reddish brown-sandy clay-hard-dry								
	7		refusal at 7'										
			samples collected between 4' to 6' and 6' to 7'.										

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): ____

Remarks: ____

Converted to Well: Yes ____ No x Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: NSA-Crane SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: TTL
DRILLING RIG: Geoprobe

BORING No.: 11SB41
DATE: 11/17/2011
GEOLOGIST: Kendra Smith
DRILLER: Chris White

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	1					6" of gravel							
	2			6" - 2	dark brown-sandy clay-moist-hard								
	3			2 - 4	brown-sandy clay-dense-hard								
	4			4 - 5'5"	dark brown-sandy clay-dense-hard								
	5			refusal at 5'5"									
				samples collected between 2' to 4' and 4' to 5'.									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): ____

Remarks: ____

Converted to Well: Yes ____ No x Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: NSA-Crane SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: TTL
DRILLING RIG: Geoprobe

BORING No.: 11SB42
DATE: 11/16/2011
GEOLOGIST: Kendra Smith
DRILLER: Chris White

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	1			0 - 1	dark brown sandy clay-dry-hard								
	2												
	3			1 - 4'2"	brown-sandy clay-dense-hard								
	4			refusal at 4'2"									
				samples collected between 2' to 3' and 1' to 2'.									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): ____

Remarks: ____

Converted to Well: Yes ____ No x Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NSA-Crane SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: TTL
DRILLING RIG: Geoprobe

BORING No.: 11SB43
DATE: 11/16/2011
GEOLOGIST: Kendra Smith
DRILLER: Chris White

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	1					6" concrete(3/4 of re-bar)							
	2					4" void							
	3					4" sand							
	4			1'2"- 4	brown sandy clay-moist-soft								
	5			4 - 6	brown-silty clay-moist-soft								
	6			6 - 8	dark brown-silty clay-moist-soft								
	7												
	8			8 - 9'2"	reddish brown-sandy clay-dense-hard								
	9			refusal at 9'2"									
				samples collected between 4' to 6' and 8' and 9'.									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm):

Converted to Well: Yes ____ No x Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: NSA-Crane SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: TTL
DRILLING RIG: Geoprobe

BORING No.: 11SB44
DATE: 11/16/2011
GEOLOGIST: Kendra Smith
DRILLER: Chris White

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	1					4" concrete							
	2												
	3			4" - 4	brown-sandy clay-moist-soft								
	4			4 - 5	greyish brown - sandy clay- dense-soft								
	5												
	6			5 - 7	reddish brown - sand (fine) - dry								
	7												
			refusal at 7'										
			samples collected between 4' to 6' and 6' to 7'.										

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): ____

Remarks: ____

Converted to Well: Yes ____ No x Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: NSA-Crane SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: TTL
DRILLING RIG: Geoprobe

BORING No.: 11SB45
DATE: 11/16/2011
GEOLOGIST: Kendra Smith
DRILLER: Chris White

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	1					4" concrete							
	2					4" crushed stone							
	3			1 - 3	dark brown- clay- soft								
	4			3 - 5	greyish brown - sandy clay- dense-soft								
	5												
	6			5 - 6'6"	reddish brown - sand (fine) - dry								
	6												
			refusal at 6'6"										
			samples collected between 2' to 4' and 5' to 6'.										

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): ____

Remarks: ____

Converted to Well: Yes ____ No x Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: NSA-Crane SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: TTL
DRILLING RIG: Geoprobe

BORING No.: 11SB46
DATE: 11/17/2011
GEOLOGIST: Kendra Smith
DRILLER: Chris White

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	1					6" gravel							
	2			6" - 3	brown-sandy clay-hard								
	3												
	4			3 - 6	reddish brown - sand(fine) clay-dry								
	5												
	6												
			refusal at 6'										
			samples collected between 3' to 5' and 5' to 6'.										

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): ____

Remarks: ____

Converted to Well: Yes ____ No x Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: NSA-Crane SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: TTL
DRILLING RIG: Geoprobe

BORING No.: 11SB47
DATE: 11/16/2011
GEOLOGIST: Kendra Smith
DRILLER: Chris White

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	1			0 - 1	dark brown sandy clay - hard								
	2												
	3			1 - 4'2"	brown-sandy clay-hard								
	4												
				refusal at 4'2"									
				sample collected between 1' to 3' and 3' to 4'.									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): ____

Remarks: _____

Converted to Well: Yes ____ No x Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NSA-Crane SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: TTL
DRILLING RIG: Geoprobe

BORING No.: 11SB48
DATE: 11/16/2011
GEOLOGIST: Kendra Smith
DRILLER: Chris White

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	1					4" concrete							
	2					4" crushed stone							
	3			8" - 2	brown-silty clay-soft								
	4			2 - 5	dark brown - silty clay - soft								
	5												
	6			5 - 6	red brown - sandy clay dry								
				refusal at 6'									
				samples collected between 3' to 5' and 5' to 6'.									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): ____

Remarks: _____

Converted to Well: Yes ____ No x Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: NSA-Crane SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: TTL
DRILLING RIG: Geoprobe

BORING No.: 11SB49
DATE: 11/16/2011
GEOLOGIST: Kendra Smith
DRILLER: Chris White

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	1					4" concrete							
	2					4" crushed stone							
	3			8" - 2	brown-sandy clay-hard								
	4			2 - 5	greyish brown-sandy clay-hard								
	5			5 - 5'2"	reddish brown-sandy clay-hard								
				refusal at 5'2"									
				samples collected between 2' to 4' and 4' to 5'.									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): ____

Remarks: _____

Converted to Well: Yes ____ No x Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NSA-Crane SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: TTL
DRILLING RIG: Geoprobe

BORING No.: 11SB50
DATE: 11/16/2011
GEOLOGIST: Kendra Smith
DRILLER: Chris White

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	1					4" concrete							
	2					4" crushed stone							
	3			8" - 2	brown-silty clay-soft								
	4			2 - 3	dark brown-clay-hard								
	5			3 - 4	greyish brown - sandy clay - hard								
	6			4 - 5	brown - sandy clay - soft								
				5 - 6'6"	reddish brown - sandy clay (very fine)-dry								
				refusal at 6'6"									
				samples collected between 3' to 5' and 5' to 6'.									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): ____

Remarks: _____

Converted to Well: Yes ____ No x Well I.D. #: _____

Tetra Tech

BORING LOG

Page ___ of ___

PROJECT NAME: SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: Chase
DRILLING RIG: track DPT

BORING No.: 115B51
DATE: 10/30
GEOLOGIST: Kevin Losekamp
DRILLER: Nathan Free

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
				2"	Loose	gray	gravel	gw					
					Stiff	LT Brn	Silty Clay	cl			0.5		
			3.5										
	2												
											0		
			4.0										
	4												
					M. Stiff	LT Brn	Sandy Clay	cl			0		
			2.0										
	6		2.2										
				6.2'	Hard	LT Brn	weathered Sandstone						
	8												
	10												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: Refusal at 6'.2. 115B-FD103012-01 on @ 0204 sample

Drilling Area Background (ppm): NA

Converted to Well: Yes _____ No _____ Well I.D. #: _____

Tetra Tech

BORING LOG

Page ___ of ___

PROJECT NAME: SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: Chase
DRILLING RIG: truck DPT

BORING No.: 11SB52
DATE: 10/30/12
GEOLOGIST: Kevin Losekamp
DRILLER: Nathan

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
				2"	Loose	white	gravel	gw		0			
					Stiff	BRN	Silty Clay	CL					
			3.3										
	2									0			
			4.0							0			
	4												
			1.7							0			
							More Sand +						
			2.3				Sandstone frags						
	6									0			
				6'.3			weathered Sandstone						
										0			

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: Refusal at 6.3'

Drilling Area Background (ppm): NA

Converted to Well: Yes _____ No _____ Well I.D. #: _____

Tetra Tech

BORING LOG

Page ___ of ___

PROJECT NAME: SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: Chase
DRILLING RIG: truck DPT

BORING No.: 115B53
DATE: 10/30/12
GEOLOGIST: Kevin Losekamp
DRILLER: Nathan

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
				2"	loose	white	gravel	SW		0			
			3.1		Soft	gray	Silty clay	CL	wet				
										0			
	2												
										0			
			4.0										
										0			
	4												
										0			
			2.0										
									5'-6' PID of				
			2.4						6.7				
	6			6.0									
				6.4	Hard	Brown	weathered Sandstone						
	8												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: Refusal at

Drilling Area Background (ppm): NA

Converted to Well: Yes _____ No _____ Well I.D. #: _____

Tetra Tech

BORING LOG

Page ___ of ___

PROJECT NAME: SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: Chase
DRILLING RIG: track

BORING No.: 11SB54
DATE: 10/30/12
GEOLOGIST: Kevin Losekamp
DRILLER: Nathan Fice

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
				6"	soft	gray/brown	Topsoil	OH	wet	0			
			3.1		stiff	gray	silty clay	CL	moist				
	2												
										0			
			4.0										
	4												
			1.0							0			
				4.8 5'									
			1.0	COTS	Hard	dark brown	weathered Sandstone						
	6												
										0			

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: Refusal at 5.0'.

Drilling Area Background (ppm): NA

Converted to Well: Yes _____ No _____ Well I.D. #: _____

Tetra Tech

BORING LOG

Page ___ of ___

PROJECT NAME: SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: Chase
DRILLING RIG: track DPT

BORING No.: 115355
DATE: 10/30/12
GEOLOGIST: Kevin Losekamp
DRILLER: Nathan

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
					Soft	DK BRN	topsoil	OH					
			3.5										
					Stiff	BRN	Silty Clay	CL					
	2					gray							
			4.0										
	4												
			2.1										
	6		3.0										
				6.9 7'									
					Hard	BRN	Weathered Sandstone						
	8												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: Refusal at 7.0'

Drilling Area Background (ppm): NA

Converted to Well: Yes _____ No _____ Well I.D. #: _____

Tetra Tech

BORING LOG

Page ___ of ___

PROJECT NAME: SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: Chase
DRILLING RIG: Track DPT

BORING No.: 115B56
DATE: 10/30/12
GEOLOGIST: Kevin Losekamp
DRILLER: Nathan

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
			3.5		soft	BRN	Topsoil	OH		0			
					stiff	BRN	silty clay	CL					
	2						with gravel			0			
							to 3'						
			4.0										
					Soft	Gray	Silty Clay	CL	wet				
	4									0			
			3.1										
	6									0			
			4.0										
	8									0			
				8.2	Hard	BRN	weathered Sandstone						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: Refusal at 8.2

Drilling Area Background (ppm): NA

Converted to Well: Yes _____ No _____ Well I.D. #: _____

Tetra Tech

BORING LOG

Page ___ of ___

PROJECT NAME: SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: Chase
DRILLING RIG: Track Geoprobe

BORING No.: 11SB57
DATE: 10/30/12
GEOLOGIST: Kevin Losekamp
DRILLER: Nathan

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
					Loose	gray	gravel	gw		0			
			3.1										
	2			2'						0			
					Soft	gray	Silty clay	cl	wet				
			4.0										
										0			
	4												
			3.0							0			
	6		3.2							0			
							More Sand						
				7.0	Hard	BRN	Weathered Sandstone			0			
				7.2									
	8												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: Refusal at 7.2

Drilling Area Background (ppm): NA

Converted to Well: Yes _____ No _____ Well I.D. #: _____

Tetra Tech

BORING LOG

Page ___ of ___

PROJECT NAME: SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: Chase
DRILLING RIG: Truck Geoprobe

BORING No.: 11SB58
DATE: 10/30/12
GEOLOGIST: Kevin Losekamp
DRILLER: Nathan

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
				.5	soft	DK BRN	Topsoil	OH	Moist	0			
					Stiff	BRN	silty clay	CL	Moist	0			
			3.3										
	2									0			
										0			
			4.0		soft	gray	silty clay		wet				
										0			
	4												
										0			
			1.7										
										0			
	6		2.5										
				6.1	Hard	BRN	weathered Sandstone						
				6.5									
				EOB									
	8												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: refusal at 6.5

Drilling Area Background (ppm): NA

Converted to Well: Yes _____ No _____ Well I.D. #: _____

Tetra Tech

BORING LOG

Page ___ of ___

PROJECT NAME: SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: Chase
DRILLING RIG: track Geoprobe

BORING No.: 11SB59
DATE: 10/30/12
GEOLOGIST: Kevin Losekamp
DRILLER: Nathan

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
					soft	DK BRN	Topsoil	OH					
				.5'									
			3.0										
					Stiff	BRN	Silty clay	CL					
	2												
							Some S.S. frags						
			4.0										
	4			4'									
				EOB									
	6												
	8												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): NA

Remarks: Refusal at 4.0'. Two attempts
Recovered S.S. in Shoe. Only
2-4' Sample

Converted to Well: Yes _____ No _____ Well I.D. #: _____

Tetra Tech

BORING LOG

PROJECT NAME: NSA Crane SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: Geo Logic
DRILLING RIG: Track Geoprobe

BORING No.: 115B60
DATE: 11/29/17
GEOLOGIST: K. Losekamp
DRILLER: Braidy Cockran

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
					Loose	gray	gravel	gw					
			3.3	1'									
					M. stiff	Brn	Silty Clay	CC					
	2												
			4.0										
	4												
			1.0				Some Sand						
			1.2	5' 5.2'	Hard	orange	weathered S.S.						
	6												
	8												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: Refusal at 5.2'

Drilling Area Background (ppm):

Converted to Well: Yes _____ No _____ Well I.D. #: _____

Tetra Tech

BORING LOG

PROJECT NAME: NSA Crane SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: Geo Logic
DRILLING RIG: Track Geoprobe

BORING No.: 115361
DATE: 11/29/12
GEOLOGIST: K. Losekamp
DRILLER: Braidy Cockran

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
					Loose	gray	gravel	gw					
			4.7										
				2'									
					vr. stiff	LT gray	gray clay w gravel	CL					
	3												
			5.0										
	6												
					Stiff	BRN	silty clay	CL					
			4.3										
	9		5.0										
			2.2										
	12		3.0										
						Orng	weathered Sandstone						
				13' EOB									
	15												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: Refusal at 13.1'. No odor

Drilling Area Background (ppm):

Converted to Well: Yes _____ No _____ Well I.D. #: _____

Tetra Tech

BORING LOG

Page ___ of ___

PROJECT NAME: NSA Crane SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: Geo Logic
DRILLING RIG: Track Geoprobe

BORING No.: 115B62
DATE: 11/29/12
GEOLOGIST: K. Losekamp
DRILLER: Braidy Cockran

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
					Loose	gray	Gravel	gw		0			
			4.7										
				2.5'	m. stiff	gray	gray Clay w/ gravel	CL					
	3												
			5.0							0			
			4.3										
	6			6'						0			
					M. Stiff	BRN	silty Clay	CL					
			5.0							0			
	9												
									Some moisture	0			
			2.7										
	12		3.0							0			
					Brittle	Orng	weathered S.S.						
				13'									
	15												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: Refusal at 13.2'

Drilling Area Background (ppm): ____

Converted to Well: Yes _____ No _____ Well I.D. #: _____

Tetra Tech

BORING LOG

Page ___ of ___

PROJECT NAME: NSA Crane SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: Geo Logic
DRILLING RIG: Track Geoprobe

BORING No.: 115B63
DATE: 11/29/12
GEOLOGIST: K. Losekamp
DRILLER: Braidy Cockran

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
					Loose	gray	gravel	gw					
			4.3										
				2'									
					soft	gray	g Clay w/gravel	cc	wet				
	3												
			5.0										
	6		4.8										
					m. stiff	Brn	silty clay	cc					
	6												
			5.0										
	9												
			2.7										
	12		3.0										
					m. Hard	Gray	Weathered Sandstone						
				13'									
	15												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: Refusal at 13.0'

Drilling Area Background (ppm): ____

Converted to Well: Yes _____ No _____ Well I.D. #: _____

Tetra Tech

BORING LOG

Page ___ of ___

PROJECT NAME: NSA Crane SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: Geo Logic
DRILLING RIG: Track Geoprobe

BORING No.: 11SB6A
DATE: 11/29/12
GEOLOGIST: K. Losekamp
DRILLER: Braidy Cockran

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
					Loose	gray	gravel	GW					
			4.1										
	3												
					M Stiff	gray	Silty Clay	CL					
			5.0				Some gravel						
	6												
			4.3		Stiff	BRN	Silty Clay	CL					
	9		5.0										
			2.0										
	12		2.5	12									
				12.5		ORNG	weathered S.S						
				EOB									
	15												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: Refusal at 12.5'

Drilling Area Background (ppm): ____

Converted to Well: Yes _____ No _____ Well I.D. #: _____

Tetra Tech

BORING LOG

PROJECT NAME: NSA Crane SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: Geo Logic
DRILLING RIG: Track Geoprobe

BORING No.: 115B65
DATE: 11/29/12
GEOLOGIST: K. Losekamp
DRILLER: Braidy Cockran

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
					loose	gray	gravel	gw		0			
			4.1										
				2'									
					soft	gray	clay w/ gravel	cc					
	3									0			
			5.0										
										0			
	6												
			4.3		vr. stiff	BRN	silty clay	cc		0			
			5.0										
	9									0			
							some sand						
			2.1										
										0			
	12		3.0										
					vr. Hard	ORN/G	weathered S.S			0			
				13.0									
	15												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: Refusal at 13.0'

Drilling Area Background (ppm): 0

Converted to Well: Yes _____ No X Well I.D. #: _____

Tetra Tech

BORING LOG

PROJECT NAME: NSA Crane
PROJECT NUMBER: 112G02635
DRILLING COMPANY: Chase Environmental
DRILLING RIG: 66DT track probe

BORING No.: 115B66
DATE: 1/23/2013
GEOLOGIST: K. Losekamp
DRILLER: Nathon Free

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
S-1					Loose	gray	Gravel	gw	Poor recovery				
			1.1										
			5										
	4												
S-2				5'	Stiff	Brn	Silty Clay	CL					
			4.1										
			5.0										
	8												
S-3					Soft	gray	Silty Clay		wet				
			4.3										
	12												
			5.0		Stiff	Brn	Brn Silty Clay		Dry				
S-4			1	15.4									
	16		1		Hard	gray	weathered Sandstone						
				EOB									
	20												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): NA

Remarks: Refusal at 16.0', MS/MSD on 13-15. 11 FD@B2313-0 on 15-16

Converted to Well: Yes _____ No x _____ Well I.D. #: _____

Tetra Tech

BORING LOG

PROJECT NAME: NSA Crane
PROJECT NUMBER: 112G02635
DRILLING COMPANY: Chase Environmental
DRILLING RIG: 66DT track probe

BORING No.: 115B67
DATE: 1/23/2013
GEOLOGIST: K. Losekamp
DRILLER: Nathon Free

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
S-1					Loose	gray	gravel	gw					
			2.2										
			5.0										
	4												
S-2													
				5'	Stiff	Brw	Silty Clay	CL					
			4.3										
	8												
			5.0										
S-3				9'	Soft	gray	Silty Clay	CL	wet				
	12		3.8										
				12'	Stiff	Brw	Silty Clay	CL					
			5.0										
S-4							Coarse Sand						
	16		1.3										
				16.4	Hard	Orng	weathered Sandstone						
			2.0										
				17.0									
	20												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: Refusal at 17.0'

Drilling Area Background (ppm): NA

Converted to Well: Yes _____ No x _____ Well I.D. #: _____

Tetra Tech

BORING LOG

PROJECT NAME: NSA Crane
PROJECT NUMBER: 112G02635
DRILLING COMPANY: Chase Environmental
DRILLING RIG: 66DT track probe

BORING No.: 115B68
DATE: 1/23/2013
GEOLOGIST: K. Losekamp
DRILLER: Nathon Free

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
S-1					Loose	gray	gravel	GW					
			2.7										
			5.0										
	4												
					Stiff	Brn	Silty ~~Sandstone~~ Clay						
							Sandstone gravel at	4.5					
S-2			4.7										
	8		5.0										
					wet	gray	silty clay		soft wet				
S-3													
	12		4.4										
					Stiff	Brn	Silty Clay		stiff				
			5.0										
S-4													
	16		1.7										
			2.2	17.0 / 17.2									
					Hard	Brown	weathered Sandstone						
	20												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: Refusal at 17.2'.

Drilling Area Background (ppm): NA

Converted to Well: Yes _____ No x _____ Well I.D. #: _____

Tetra Tech

BORING LOG

PROJECT NAME: NSA Crane
PROJECT NUMBER: 112G02635
DRILLING COMPANY: Chase Environmental
DRILLING RIG: 66DT track probe

BORING No.: 115I369
DATE: 1/23/2013
GEOLOGIST: K. Losekamp
DRILLER: Nathon Free

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
S-1					loose	gray	Gravel	gw					
			3.1										
			5.0										
	4												
					Stiff	Brn	Silty Clay	CL					
S-2			4.7										
	8		5.0										
				8.5									
					soft	Gray	Silty Clay	CL	wet				
S-3													
			3.8										
	12												
			5.0		Stiff	Brn	Silty Sandy Clay	CL					
S-4													
	16		1.7										
				16.8									
			2.2		Hard	Gray	weathered sandstone						
				17.2									
	20												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: Refusal at 17.2'

Drilling Area Background (ppm): NA

Converted to Well: Yes _____ No x _____ Well I.D. #: _____

Tetra Tech

BORING LOG

PROJECT NAME: NSA Crane
PROJECT NUMBER: 112G02635
DRILLING COMPANY: Chase Environmental
DRILLING RIG: 66DT track probe

BORING No.: 115B70
DATE: 1/23/2013
GEOLOGIST: K. Losekamp
DRILLER: Nathon Free

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
S-1					Loose	gray	Gravel	gw					
			3.0										
	4			3.7	Stiff	Brn	Silty Clay	CL					
			5.0										
S-2													
			4.7										
	8												
			5.0	8.5									
					Soft	gray	Silty Clay		wet				
S-3													
			3.7										
	12												
			5.0		Stiff	Brn	Silty Sandy Clay	CL					
			.7										
S-4													
	16		1.0	15.7	Hard	Brn	weathered Sandstone						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: Refusal at 16.0'. weathered Sandstone

Drilling Area Background (ppm): NA

Converted to Well: Yes _____ No x _____ Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NSA Crane SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: Micah / Richard Simmons
DRILLING RIG: GUS Pech 100

BORING No.: 11MWT001
DATE: 11-3
GEOLOGIST: Kevin Cockerham
DRILLER: Ben Berry

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
	0								Time				
S-1		1/2	1.5/		Soft	BRN	Topsoil (0-.5) moist		1345	0	0	0	0
		3/3	/2		Soft	BRN	Silt some Clay	ML					
S-2		2/3	2/						1347				
		3/1	/2										
S-3	5	2/1	1.6/		Soft	BRN	Silty Clay	CL	1350	0	0	0	0
		1/1	/2										
S-4		3/50/.3	1/1						1354				
					Hard	rusty orange	weathered Sandstone						
									Chatter at 9'				
	10					gray	Silty Sandstone		Dry				
									V. Dusty				
	15												
									Chatter at 16.5'				
				18									
				19	Hard	Blk	Coal Seam Dry		1415				
	20				Hard	Blk/gray	Shale Dry						
					Hard	gray	Siltstone Dry						
									Chatter at 22'				
	25					BRN	Sandstone Dry						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): [ ]

Remarks: 4 1/4" HSA + 2" SPT to 7'
AR to 29'
5.5 9" bit

Converted to Well: Yes X No ____ Well I.D. #: 11MWT001

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME:
PROJECT NUMBER:
DRILLING COMPANY:
DRILLING RIG:

BORING No.: 11MWT001
DATE:
GEOLOGIST:
DRILLER:

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	25								Time				
					v Hard	BRN	Sandstone		1435				
									Chutter at 26.5'				
			18										
					Hard	gray Blk	Shale		1500				
	30												
									Set Temp 6"				
									Casing to 7'				
									Set 2" Ø PVC				
									Screen at 18'-28'				
									Sand 16-29				
									Pellets 13-16				

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm):

Converted to Well: Yes No Well I.D. #:

TETRA TECH

BORING LOG

PROJECT NAME: NSA Crane - SWMU ~~18~~ 11
PROJECT NUMBER: 112G~~01851~~ 02635
DRILLING COMPANY: Micah Group
DRILLING RIG: Geo Probe 100

BORING No.: 11MWT002
DATE: 11-4 to 11-6
GEOLOGIST: Kevin Lockkamp
DRILLER: Ben Borth / IN # 2359 WD

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS*	Remarks	PID/FID Reading (ppm): Sample	Headspace	Borehole**	BZ**
	0								Time				
							2" Concrete			0		1.1	
S-1		1 1	1.2/2		soft	BRN	Clayey Silt	ML	1630 11-4	0			
		1 1					moist			.1			
S-2		1 3	1.5/2						1635	.4			
	5	3 4			soft		Grey mottle at 4.5						
S-3		4 4	1.7/2						1637	1.3			
		7 11			medium stiff		Grey mottle at 6.8			29			
S-4		4 8	1.2/2				Some Sand starting at 7.9		1640	3.3			
		18 50/.5			Hard	gray	Siltstone some Sand			1.7			
	10												
					Hard	BRN	Sandstone		0845 11-5				
						Gray							
					Hard	red	Silty Sandstone		0900				
	15					BRN			1030 11-6				
									Slight Chatter at 16.5'				
	20												
						gray	Siltstone		Some Chatter at 20.5'				
						BLK	Coal						
					Hard	gray	Shale						
						gray	Siltstone						
	25								1045				

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): Ø

Remarks: 4 1/4 HSA + 2" SPT to 9' ~~AR~~ to 28' 4 1/2" bit 5.5"

Converted to Well: Yes ✓ No _____ Well I.D. #: 11MWT002

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: Micah / Richard Simmons
DRILLING RIG: Gus Pech 100

BORING No.: 11MWT002
DATE: 11-3 to 11-
GEOLOGIST: Kevin Losekamp
DRILLER: Ben Borm

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	25												
							Siltstone		1135				
							Shale						
							Sandstone		No dust				
	30												
									Set Perm 6"				
									Steel Casing 1' to 14'				
									Set 2" Ø PVC Screen				
									17-27				
									Sand 15-28				
									Pellets 13-15				

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): Ø

Remarks:

Converted to Well: Yes X No _____ Well I.D. #: 11MWT002

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NSA CRANE SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: Micah / Richard Simmons
DRILLING RIG: Gus Pech

BORING No.: 11MWT003
DATE: 11-5
GEOLOGIST: Kevin Loschkamp
DRILLER: Ben Barth

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks Time	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
	0												
S-1		4/3	1/				Topsoil 0-.5		Some gravel	0	0	0	0
		1/4	/2		Soft	BRN	Silty Clay	CL	1027				
S-2		3/4	1.5/						1029				
		4/7	/2				gray mottle at 3.5'						
S-3	5	11/12	1.8/				wet at 4.2'		1036	0	0	0	0
		13/A	/2		Hard	gray orange	weathered Sandstone						
S-4		5/6	2/				Brittle Clay		1044				
		11/27	/2		stiff	BRN	Silty Clay	CH					
S-5		1/3			Hard	orange rust	weathered Sandstone		1055				
	10	3/2			Soft	BRN	Silty Clay	CH		0	0	0	0
S-6		50/.4		11'-11'		orange	weathered Sandstone		1105				
				12'		BRN	Silty Sandstone		Start AR at 1140 Chatter at 11'				
	15												
	20						Shale		Set Temp 6" Casing to 10'				
							Siltstone		Set 2" ø PVC Screen 14.5-24.5				
									Sand 12.5-25				
									Pellets 9.5-12.5				
						BK/BRN	Silty Sandstone		Some Chatter at 23.5				
	25												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): Q

Remarks: 4 1/4" HSA SPT 0-10'
AR 10'-25 5.5" ø Bit

Converted to Well: Yes X No _____ Well I.D. #: 11MWT003

20 slot

CWM 3.5

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NSA Crane Summer 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: Micah/Richard Simmons
DRILLING RIG: Gus Pech 100

BORING No.: 11MWT004
DATE: 11-5 - 11-6
GEOLOGIST: Kevin Loselkamp
DRILLER: Ben Borth

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks Time	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
	0												
S-1		25/8	1.2/		Stiff	BRN	silt some clay and gravel	ML	1405	0	0	0	0
		4/9	/2										
S-2		4/15	1.6/		Stiff	BRN orange	Sandy clay	CL	1410	0	0	0	0
		14/14	/2				grey mottle						
S-3	5	5/7	1.3/		Soft	BRN	Clay ~~silt~~ at	CH	1445	0	0	0	0
		8/10	/2				silty clay trace sand	CL	gray mottle				
S-4		5/8	.8/		soft	gray			1447	0	0	0	0
		8/9	/2										
S-5		8/9	.7/		Soft	BRN	Sandy clay moist	CL	1455	0	0	0	0
	10	11/13	/2				trace weathered Sandstone at 10'						
S-6		7/7	1.7/		soft	gray	silt some clay	ML	1504	0	0	0	0
		10/9	/2										
S-7		9/12	2/		Stiff	BRN	silty clay moist	CL	1507	0	0	0	0
		14/16	/2										
S-8	15	9/10	1.8/						1515	0	0	0	0
		14/16	/2										
S-9		10/13	1.8/				some sand		1520	0	0	0	0
		17/24	/2				weathered Sandstone at 17.5						
S-10		25/50/.3	.5/1						1602	0	0	0	0
	20				Hard	BRN	silty Sandstone						
									1639				
									Slight chatter at 22'				
	25												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0

Remarks: 4 1/4" HSA SPT to 19'
AR to 19 - 5.5" Ø bit

Converted to Well: Yes ✓ No _____ Well I.D. #: 11MWT004

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: Swmu 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: Richard Simmons
DRILLING RIG: Gus Pech 100

BORING No.: 11MWT004
DATE: 11-5 - 11-6
GEOLOGIST: Kevin Loskamp
DRILLER: Ben Borm

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	25												
					Hard	gray	Siltstone						
	30												
						gray	Shale						
					very Hard	Brn	Sandstone		Hard at 31'				
						gray	Shale						
	35						sandstone		Hard chunks at 34.5				
									1655				
							Set 2" @ 23-33						
							Sand 20.5-34						
							Bentonite 17.5-20.5						
									Let hole sit				
									overnight no water but mud				
									11-6				
									Gus set well				

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: _____

Drilling Area Background (ppm): 0

Converted to Well: Yes X No _____ Well I.D. #: 11MWT004

Tetra Tech

BORING LOG

PROJECT NAME: SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: American Drilling
DRILLING RIG: CME 300

BORING No.: 11MW05
DATE: 11/17/12
GEOLOGIST: Kevin Losekamp
DRILLER: Bernie Byers

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	0												
S-1		- -			Loose	gray	gravel	gw	Dry				
		3 4	3.3		m. stiff	BRN	Sandy Clay	CL	moist				
		5 5											
		4 3	5.0										
	5	6 5											
S-2		4 3			soft	gray	silty Clay	CL	water at 6.0				
		3 6	4.1										
		7 6											
		5 6	5.0										
	10	6 7			Soft	BRN	Sandy Clay	CL					
S-3		7 8											
		6 9	2.2										
		8 10											
		8 7	5.0										
	15	8 9			Soft	gray	silty Clay	CL	Damp				
S-4		8 10											
		27 29											
		50/.5		17.5	m. hard	BRN	weathered Sandstone						
				19.5									
	20												
					m. hard	LT BRN	silty sandstone						
	25												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): NA

Remarks:

Converted to Well: Yes _____ No _____ Well I.D. #: _____

Tetra Tech

BORING LOG

Page ___ of ___

PROJECT NAME: SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: American Drilling
DRILLING RIG: CME 55

BORING No.: 11MW005
DATE: 11/17/12
GEOLOGIST: Kevin Losekamp
DRILLER: Bernie Byers

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	25						Silty Sandstone						
				27.0 / 27.3		BLK	Coal						
						gray	Siltstone/Shale		V. Dusty				
	30												
	35												
				39'									
	40					gray	Sandstone		V. Dusty				
									Lost hole sit				
						gray	Shale		V Dusty				
	45												
									Lost hole sit at 46'. 15min				
				47'									
						gray	Siltstone						
				49'									
	50					gray	Shale		Lost hole sit.				
	50.0												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): NA

Remarks: Screen 30-50 Sand 28-30
Bentonite 26-28

Converted to Well: Yes _____ No _____ Well I.D. #: _____

Tetra Tech

BORING LOG

Page 1 of ___

PROJECT NAME: SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: American Drilling
DRILLING RIG: CME

BORING No.: 11MW106
DATE: 11/15/12 - 11/29/12
GEOLOGIST: Kevin Losekamp
DRILLER: Bernie 13 yrs

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	0			7" steel casing					11-15-12				
S-1		6/10		8	Hard	gray	Concrete	gw					
		8/7	4		Soft	Lt BRN	Silty clay	CL	no odor				
		4/3					wet at 3.5'						
		2/27	4										
	5	15/21							Some Sandstone at 4.5'				
S-2		18/16	3										
		14/29							Some water at 8'.				
		31/45			M Hard	Pink to BRN	Weathered Sandstone						
		40	3.5	11.5									
	10				M-Hard	gray	Siltstone						
					M-Hard	BRN	Sandstone some silt						
									resume 11-17-12				
	15												
				4" casing									
	20												
				20.5		gray	Siltstone		V. Dusty				
	25					gray	Shale						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: 2" Macro core with HSA to 8.5'. 9.25" ID HSA to 8.5'. 6" Air hammer to

Drilling Area Background (ppm): NA

Converted to Well: Yes X No ___ Well I.D. #: ___

Tetra Tech

BORING LOG

PROJECT NAME: SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: American Drilling
DRILLING RIG: CME300

BORING No.: 11MWT06
DATE: 11-15-12 - 11
GEOLOGIST: Kevin Losekamp
DRILLER: Bernie Byers

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	25						Shale						
				27'									
						BEN	Sandstone		No dust fracture				
				29'									
	30					gray to Dk gray	Shale Carbonaceous						
				31'									
						gray	Siltstone		v dusty				
				4" Casing									
	35												
			39'						Set 6" Casing 0-39'.				
	40												
	45												
	50												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): NA

Remarks: _____

Converted to Well: Yes _____ No _____ Well I.D. #: _____

Tetra Tech

BORING LOG

PROJECT NAME: SWMU 11
PROJECT NUMBER: 112G02635
DRILLING COMPANY: American Drilling
DRILLING RIG: CME 300

BORING No.: 11MW106
DATE: 11/15/12 - 11/
GEOLOGIST: Kevin Losekamp
DRILLER: Bernie Byers

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	50												
				54									
	55					BRN	Sandstone		No dust				
							↓						
						LT BRN							
	60												
				62		gray	Siltstone						
							↓						
	65												
				65.5		BLK	Coal		water				
						gray	Siltstone						
							↓						
	70												
				72 EOB									
	75												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): NA

Remarks: Set 2" well at 62-72 Screen Sand 60-72 Bentonite 58-60. Water level at 52.0 BGS in borehole.

Converted to Well: Yes X No _____ Well I.D. #: 11MW106

TETRA TECH

BORING LOG

PROJECT NAME: NSA Crane - SWMU 18
PROJECT NUMBER: 112G01851
DRILLING COMPANY: Micah Group
DRILLING RIG: Gus Pech 100

BORING No.: 18CMWT001
DATE: 4/13/11
GEOLOGIST: T. Evans
DRILLER: Ben Borth / IN # 2359 WD

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS*	Remarks	PID/FID Reading (ppm) Sample	Headspace	Borehole**	BZ**
	0												
S-1		5/9	1.4/			Gray	Gravel & Silty Dump	GC	1330 Fill	0	–	0	0
		14/15	/2.0				Sand & gravel	GW					
S-2		7/7	1.9/			Brn to	Silt + tr clay quading Gray	ML+	1335	0	–	0	0
		7/7	/2.0			Lt Brn	Clay	CL					
S-3	5	3/4	1.0/			Lt Brn	Silty Clay Mottled		1342	0	–	0	0
		10/27	/2.0	11H 5/			Silty Sand	SM	Gray				
S-4		29/50/.2	0.4/0.7				Same as above (loose Sand-time)		1345	0	–	0	0
						Tan Brn	Silty F Sand Some Lim	–					
S-5		50/.2	0.2/0.2			Tan Brn & Gray	Dry. Dump	–	1357	–	–	–	0
	10												
						Tan &	Silty F Sand Lime						
						Gray							
	15												
						Gray	Silty Lime Clay			–	–	–	0
									1432 @ 19'				
	20												
										–	–	–	0
						Gray	Silty VF Sand Lime		1437				
	25									–	–	–	0

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: 4¼" ID HSA 2" SPT 0 – 8.2
5½" Air Rotary 8.2 – 35.0

Drilling Area Background (ppm): Ø

Converted to Well: Yes ✓ No _____ Well I.D. #: 18CMWT001

TETRA TECH

BORING LOG

PROJECT NAME: NSA Crane - SWMU 18
PROJECT NUMBER: 112G01851
DRILLING COMPANY: Micah Group
DRILLING RIG: Gus Pech 1000

BORING No.: 18C MW TW01
DATE: 11/3/11
GEOLOGIST: T. Eumers
DRILLER: Ben Borth / IN # 2359 WD

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Headspace	Borehole**	BZ**
	25												
						Gray	Silty F Sandstone						-
							Hard @ 26'						
						BLK	Coal 27.0-27.5						
							Hard @ 29'		1445				
	30												
						Dk Gr	Shale / Mudstone			-	-	-	0
							Water @ 33.5-34		1457				
	35					Gray	Fine Sandstone			-	-	0	0
				35.0					1500-1510 Allow to sit				
									1540 Blow air -				
									water in borehole				
									16" WL: 30.8'				
	40								11/4 @ 0815				
									WL = 5.7'				
							Set well		0900				
							2" PVC screen (20-slot)		24.3-34.3				
							#2 Sand		20.3-34.5				
							Bentonite		14.5-20.3				

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): Ø

Converted to Well: Yes ✓ No _____ Well I.D. #: 18C MW TW01

APPENDIX C

SAMPLE LOG SHEETS

TETRA TECH NUS, Inc.

SOIL LOG SAMPLE LOG SHEET

Event: SWMU 11 - RFI
Site Name: CRANE NSWC - SWMU 11
Project No: 112G02635.FI.SS (ED00000156)

Sample ID:	**11SB010406**	Sampler:	Kevin Losekamp
Location ID:	11SB01	MS/MSD:	NA
QC Duplicate ID:	11SBFD042611-02		

Sample Information

Date	04/26/11	Concentration	Not known
Sample Source	Subsurface Soil-SB	Sample Data Type	Grab

Location Data

Field GPS Northing	N/A	Field XY Coordinate System	N/A
Field GPS Easting	N/A	Field XY Datum	N/A
Field GPS Method	N/A	Update GIS with New Data?	N/A

Sample Details

Date	Time	method	Monitor	Depth	Color	Notes

Laboratory Analysis

Coll.	Date	Time	Description	Analysis	Preservative	No.	Type	Vol.	COC Notes	Chain No.
✓	04/26/11	10:21	VOCs	SW-846 8260B	4°C/NaHSO4 +MeOH Combo(2+1)	3	Glass - Clear	40 mL vial (pre-tared)	None	ED00000156-1
✓	04/26/11	10:21	SVOCs (including Low Level PAHs)	SW-846 8270C/8270C-Low	4°C	1	Glass - Clear	4 oz. wide-mouth w/Tefl on cap	None	ED00000156-5
✓	04/26/11	10:21	Pesticides/PCBs	SW-846 8081B/8082A	4°C	1	Glass - Clear	4 oz. wide-mouth w/Tefl on cap	None	ED00000156-5
✓	04/26/11	10:21	Metals (including Mercury)/Cyanide	SW-846 6010C/9012A	4°C	2	Glass - Clear	4 oz. wide-mouth w/Tefl on cap	None	ED00000156-5

Field Analysis

USCS	Date	Time	Ambient Air Temp.	Water Bath Temp.	Gas Tech Tube Type	GasTech Tube Series	Tube Lot QC Number	Tube Lab Tracking	50 Purge	100 Purge	200 Purge

General Notes

None

SOIL LOG SAMPLE LOG SHEET

TETRA TECH NUS, Inc.

Event: SWMU 11 - RFI
Site Name: CRANE NSWC - SWMU 11
Project No: 112G02635.FI.SS (ED00000156)

Sample ID:	**11SB010002**	Sampler:	Kevin Losekamp
Location ID:	11SB01	MS/MSD:	NA
QC Duplicate ID:	11SBFD042611-01		

Sample Information

Date	04/26/11	Concentration	Not known
Sample Source	Surface Soil-SS	Sample Data Type	Grab

Location Data

Field GPS Northing	N/A	Field XY Coordinate System	N/A
Field GPS Easting	N/A	Field XY Datum	N/A
Field GPS Method	N/A	Update GIS with New Data?	N/A

Sample Details

Date	Time	method	Monitor	Depth	Color	Notes

Laboratory Analysis

Coll.	Date	Time	Description	Analysis	Preservative	No.	Type	Vol.	COC Notes	Chain No.
✓	04/26/11	9:48	VOCs	SW-846 8260B	4°C/NaHSO4 +MeOH Combo(2+1)	3	Glass - Clear	40 mL vial (pre-tared)	None	ED00000156-1
✓	04/26/11	9:48	SVOCs (including Low Level PAHs)	SW-846 8270C/8270C-Low	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5
✓	04/26/11	9:48	Pesticides/PCBs	SW-846 8081B/8082A	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5
✓	04/26/11	9:48	Metals (including Mercury)/Cyanide	SW-846 6010C/9012A	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5

Field Analysis

USCS	Date	Time	Ambient Air Temp.	Water Bath Temp.	Gas Tech Tube Type	GasTech Tube Series	Tube Lot QC Number	Tube Lab Tracking	50 Purge	100 Purge	200 Purge

General Notes

None

SOIL LOG SAMPLE LOG SHEET

TETRA TECH NUS, Inc.

Event: SWMU 11 - RFI
Site Name: CRANE NSWC - SWMU 11
Project No: 112G02635.FI.SS (ED00000156)

Sample ID:	**11SB020406**	Sampler:	Kevin Losekamp
Location ID:	11SB02	MS/MSD:	NA
QC Duplicate ID:	N/A		

Sample Information

Date	04/26/11	Concentration	Not known
Sample Source	Subsurface Soil-SB	Sample Data Type	Grab

Location Data

Field GPS Northing	N/A	Field XY Coordinate System	N/A
Field GPS Easting	N/A	Field XY Datum	N/A
Field GPS Method	N/A	Update GIS with New Data?	N/A

Sample Details

Date	Time	method	Monitor	Depth	Color	Notes

Laboratory Analysis

Coll.	Date	Time	Description	Analysis	Preservative	No.	Type	Vol.	COC Notes	Chain No.
✓	04/26/11	11:14	VOCs	SW-846 8260B	4°C/NaHSO4 +MeOH Combo(2+1)	3	Glass - Clear	40 mL vial (pre-tared)	None	ED00000156-1
✓	04/26/11	11:14	SVOCs (including Low Level PAHs)	SW-846 8270C/8270C-Low	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5
✓	04/26/11	11:14	Pesticides/PCBs	SW-846 8081B/8082A	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5
✓	04/26/11	11:14	Metals (including Mercury)/Cyanide	SW-846 6010C/9012A	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5
✗	N/A	N/A	Dioxins/Furans	SW-846 8290A	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	N/A

Field Analysis

USCS	Date	Time	Ambient Air Temp.	Water Bath Temp.	Gas Tech Tube Type	GasTech Tube Series	Tube Lot QC Number	Tube Lab Tracking	50 Purge	100 Purge	200 Purge

General Notes

None

SOIL LOG SAMPLE LOG SHEET

TETRA TECH NUS, Inc.

Event: SWMU 11 - RFI
Site Name: CRANE NSWC - SWMU 11
Project No: 112G02635.FI.SS (ED00000156)

Sample ID:	**11SB020002**	Sampler:	Kevin Losekamp
Location ID:	11SB02	MS/MSD:	NA
QC Duplicate ID:	N/A		

Sample Information

Date	04/26/11	Concentration	Not known
Sample Source	Surface Soil-SS	Sample Data Type	Grab

Location Data

Field GPS Northing	N/A	Field XY Coordinate System	N/A
Field GPS Easting	N/A	Field XY Datum	N/A
Field GPS Method	N/A	Update GIS with New Data?	N/A

Sample Details

Date	Time	method	Monitor	Depth	Color	Notes

Laboratory Analysis

Coll.	Date	Time	Description	Analysis	Preservative	No.	Type	Vol.	COC Notes	Chain No.
✓	04/26/11	11:12	VOCs	SW-846 8260B	4°C/NaHSO4 +MeOH Combo(2+1)	3	Glass - Clear	40 mL vial (pre-tared)	None	ED00000156-1
✓	04/26/11	11:12	SVOCs (including Low Level PAHs)	SW-846 8270C/8270C-Low	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5
✓	04/26/11	11:12	Pesticides/PCBs	SW-846 8081B/8082A	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5
✓	04/26/11	11:12	Metals (including Mercury)/Cyanide	SW-846 6010C/9012A	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5
✓	04/26/11	11:12	Dioxins/Furans	SW-846 8290A	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-3

Field Analysis

USCS	Date	Time	Ambient Air Temp.	Water Bath Temp.	Gas Tech Tube Type	GasTech Tube Series	Tube Lot QC Number	Tube Lab Tracking	50 Purge	100 Purge	200 Purge

General Notes

None

SOIL LOG SAMPLE LOG SHEET

TETRA TECH NUS, Inc.

Event: SWMU 11 - RFI
Site Name: CRANE NSWC - SWMU 11
Project No: 112G02635.FI.SS (ED00000156)

Sample ID:	**11SB030406**	Sampler:	Kevin Losekamp
Location ID:	11SB03	MS/MSD:	NA
QC Duplicate ID:	N/A		

Sample Information

Date	04/26/11	Concentration	Not known
Sample Source	Subsurface Soil-SB	Sample Data Type	Grab

Location Data

Field GPS Northing	N/A	Field XY Coordinate System	N/A
Field GPS Easting	N/A	Field XY Datum	N/A
Field GPS Method	N/A	Update GIS with New Data?	N/A

Sample Details

Date	Time	method	Monitor	Depth	Color	Notes

Laboratory Analysis

Coll.	Date	Time	Description	Analysis	Preservative	No.	Type	Vol.	COC Notes	Chain No.
✓	04/26/11	12:29	SVOCs (including Low Level PAHs)	SW-846 8270C/8270C-Low	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5
✓	04/26/11	12:29	Metals (including Mercury)/Cyanide	SW-846 6010C/9012A	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5
✓	04/26/11	12:34	VOCs	SW-846 8260B	4°C/NaHSO4 +MeOH Combo(2+1)	3	Glass - Clear	40 mL vial (pre-tared)	None	ED00000156-1
✓	04/26/11	12:34	Pesticides/PCBs	SW-846 8081B/8082A	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5

Field Analysis

USCS	Date	Time	Ambient Air Temp.	Water Bath Temp.	Gas Tech Tube Type	GasTech Tube Series	Tube Lot QC Number	Tube Lab Tracking	50 Purge	100 Purge	200 Purge

General Notes

None

SOIL LOG SAMPLE LOG SHEET

TETRA TECH NUS, Inc.

Event: SWMU 11 - RFI
Site Name: CRANE NSWC - SWMU 11
Project No: 112G02635.FI.SS (ED00000156)

Sample ID:	**11SB030002**	Sampler:	Kevin Losekamp
Location ID:	11SB03	MS/MSD:	NA
QC Duplicate ID:	N/A		

Sample Information

Date	04/26/11	Concentration	Not known
Sample Source	Surface Soil-SS	Sample Data Type	Grab

Location Data

Field GPS Northing	N/A	Field XY Coordinate System	N/A
Field GPS Easting	N/A	Field XY Datum	N/A
Field GPS Method	N/A	Update GIS with New Data?	N/A

Sample Details

Date	Time	method	Monitor	Depth	Color	Notes

Laboratory Analysis

Coll.	Date	Time	Description	Analysis	Preservative	No.	Type	Vol.	COC Notes	Chain No.
✓	04/26/11	12:17	VOCs	SW-846 8260B	4°C/NaHSO4 +MeOH Combo(2+1)	3	Glass - Clear	40 mL vial (pre-tared)	None	ED00000156-1
✓	04/26/11	12:17	SVOCs (including Low Level PAHs)	SW-846 8270C/8270C-Low	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5
✓	04/26/11	12:17	Pesticides/PCBs	SW-846 8081B/8082A	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5
✓	04/26/11	12:17	Metals (including Mercury)/Cyanide	SW-846 6010C/9012A	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5

Field Analysis

USCS	Date	Time	Ambient Air Temp.	Water Bath Temp.	Gas Tech Tube Type	GasTech Tube Series	Tube Lot QC Number	Tube Lab Tracking	50 Purge	100 Purge	200 Purge

General Notes

None

SOIL LOG SAMPLE LOG SHEET

TETRA TECH NUS, Inc.

Event: SWMU 11 - RFI
Site Name: CRANE NSWC - SWMU 11
Project No: 112G02635.FI.SS (ED00000156)

Sample ID:	**11SB040002**	Sampler:	Kevin Losekamp
Location ID:	11SB04	MS/MSD:	NA
QC Duplicate ID:	N/A		

Sample Information

Date	04/26/11	Concentration	Not known
Sample Source	Surface Soil-SS	Sample Data Type	Grab

Location Data

Field GPS Northing	N/A	Field XY Coordinate System	N/A
Field GPS Easting	N/A	Field XY Datum	N/A
Field GPS Method	N/A	Update GIS with New Data?	N/A

Sample Details

Date	Time	method	Monitor	Depth	Color	Notes

Laboratory Analysis

Coll.	Date	Time	Description	Analysis	Preservative	No.	Type	Vol.	COC Notes	Chain No.
✓	04/26/11	12:15	VOCs	SW-846 8260B	4°C/NaHSO4 +MeOH Combo(2+1)	3	Glass - Clear	40 mL vial (pre-tared)	None	ED00000156-1
✓	04/26/11	12:15	SVOCs (including Low Level PAHs)	SW-846 8270C/8270C-Low	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5
✓	04/26/11	12:15	Pesticides/PCBs	SW-846 8081B/8082A	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5
✓	04/26/11	12:15	Metals (including Mercury)/Cyanide	SW-846 6010C/9012A	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5

Field Analysis

USCS	Date	Time	Ambient Air Temp.	Water Bath Temp.	Gas Tech Tube Type	GasTech Tube Series	Tube Lot QC Number	Tube Lab Tracking	50 Purge	100 Purge	200 Purge

General Notes

None

TETRA TECH NUS, Inc.

SOIL LOG SAMPLE LOG SHEET

Event: SWMU 11 - RFI
Site Name: CRANE NSWC - SWMU 11
Project No: 112G02635.FI.SS (ED00000156)

Sample ID:	**11SB040406**	Sampler:	Kevin Losekamp
Location ID:	11SB04	MS/MSD:	NA
QC Duplicate ID:	N/A		

Sample Information

Date	04/26/11	Concentration	Not known
Sample Source	Subsurface Soil-SB	Sample Data Type	Grab

Location Data

Field GPS Northing	N/A	Field XY Coordinate System	N/A
Field GPS Easting	N/A	Field XY Datum	N/A
Field GPS Method	N/A	Update GIS with New Data?	N/A

Sample Details

Date	Time	method	Monitor	Depth	Color	Notes

Laboratory Analysis

Coll.	Date	Time	Description	Analysis	Preservative	No.	Type	Vol.	COC Notes	Chain No.
✓	04/26/11	12:25	VOCs	SW-846 8260B	4°C/NaHSO4 +MeOH Combo(2+1)	3	Glass - Clear	40 mL vial (pre-tared)	None	ED00000156-1
✓	04/26/11	12:25	SVOCs (including Low Level PAHs)	SW-846 8270C/8270C-Low	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5
✓	04/26/11	12:25	Pesticides/PCBs	SW-846 8081B/8082A	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5
✓	04/26/11	12:25	Metals (including Mercury)/Cyanide	SW-846 6010C/9012A	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5

Field Analysis

USCS	Date	Time	Ambient Air Temp.	Water Bath Temp.	Gas Tech Tube Type	GasTech Tube Series	Tube Lot QC Number	Tube Lab Tracking	50 Purge	100 Purge	200 Purge

General Notes

None

SOIL LOG SAMPLE LOG SHEET

TETRA TECH NUS, Inc.

Event: SWMU 11 - RFI
Site Name: CRANE NSWC - SWMU 11
Project No: 112G02635.FI.SS (ED00000156)

Sample ID:	**11SS050002**	Sampler:	Kevin Losekamp
Location ID:	11SB05	MS/MSD:	NA
QC Duplicate ID:	N/A		

Sample Information

Date	04/26/11	Concentration	Not known
Sample Source	Surface Soil-SS	Sample Data Type	Grab

Location Data

Field GPS Northing	N/A	Field XY Coordinate System	N/A
Field GPS Easting	N/A	Field XY Datum	N/A
Field GPS Method	N/A	Update GIS with New Data?	N/A

Sample Details

Date	Time	method	Monitor	Depth	Color	Notes

Laboratory Analysis

Coll.	Date	Time	Description	Analysis	Preservative	No.	Type	Vol.	COC Notes	Chain No.
✓	04/26/11	11:15	SVOCs (including Low Level PAHs)	SW-846 8270C/8270C-Low	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5
✓	04/26/11	11:15	Pesticides/PCBs	SW-846 8081B/8082A	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5
✓	04/26/11	11:15	Metals (including Mercury)/Cyanide	SW-846 6010C/9012A	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5

Field Analysis

USCS	Date	Time	Ambient Air Temp.	Water Bath Temp.	Gas Tech Tube Type	GasTech Tube Series	Tube Lot QC Number	Tube Lab Tracking	50 Purge	100 Purge	200 Purge

General Notes

None

SOIL LOG SAMPLE LOG SHEET

TETRA TECH NUS, Inc.

Event: SWMU 11 - RFI
Site Name: CRANE NSWC - SWMU 11
Project No: 112G02635.FI.SS (ED00000156)

Sample ID:	**11SS060002**	Sampler:	Kevin Losekamp
Location ID:	11SB06	MS/MSD:	NA
QC Duplicate ID:	N/A		

Sample Information

Date	04/26/11	Concentration	Not known
Sample Source	Surface Soil-SS	Sample Data Type	Grab

Location Data

Field GPS Northing	N/A	Field XY Coordinate System	N/A
Field GPS Easting	N/A	Field XY Datum	N/A
Field GPS Method	N/A	Update GIS with New Data?	N/A

Sample Details

Date	Time	method	Monitor	Depth	Color	Notes

Laboratory Analysis

Coll.	Date	Time	Description	Analysis	Preservative	No.	Type	Vol.	COC Notes	Chain No.
✓	04/26/11	11:10	SVOCs (including Low Level PAHs)	SW-846 8270C/8270C-Low	4°C	1	Glass - Clear	4 oz. wide-mouth w/Tefl on cap	None	ED00000156-5
✓	04/26/11	11:10	Pesticides/PCBs	SW-846 8081B/8082A	4°C	1	Glass - Clear	4 oz. wide-mouth w/Tefl on cap	None	ED00000156-5
✓	04/26/11	11:10	Metals (including Mercury)/Cyanide	SW-846 6010C/9012A	4°C	2	Glass - Clear	4 oz. wide-mouth w/Tefl on cap	None	ED00000156-5

Field Analysis

USCS	Date	Time	Ambient Air Temp.	Water Bath Temp.	Gas Tech Tube Type	GasTech Tube Series	Tube Lot QC Number	Tube Lab Tracking	50 Purge	100 Purge	200 Purge

General Notes

None

SOIL LOG SAMPLE LOG SHEET

TETRA TECH NUS, Inc.

Event: SWMU 11 - RFI
Site Name: CRANE NSWC - SWMU 11
Project No: 112G02635.FI.SS (ED00000156)

Sample ID:	**11SS070002**	Sampler:	Kevin Losekamp
Location ID:	11SB07	MS/MSD:	NA
QC Duplicate ID:	N/A		

Sample Information

Date	04/26/11	Concentration	Not known
Sample Source	Surface Soil-SS	Sample Data Type	Grab

Location Data

Field GPS Northing	N/A	Field XY Coordinate System	N/A
Field GPS Easting	N/A	Field XY Datum	N/A
Field GPS Method	N/A	Update GIS with New Data?	N/A

Sample Details

Date	Time	method	Monitor	Depth	Color	Notes

Laboratory Analysis

Coll.	Date	Time	Description	Analysis	Preservative	No.	Type	Vol.	COC Notes	Chain No.
✓	04/26/11	11:05	SVOCs (including Low Level PAHs)	SW-846 8270C/8270C-Low	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5
✓	04/26/11	11:05	Pesticides/PCBs	SW-846 8081B/8082A	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5
✓	04/26/11	11:05	Metals (including Mercury)/Cyanide	SW-846 6010C/9012A	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5

Field Analysis

USCS	Date	Time	Ambient Air Temp.	Water Bath Temp.	Gas Tech Tube Type	GasTech Tube Series	Tube Lot QC Number	Tube Lab Tracking	50 Purge	100 Purge	200 Purge

General Notes

None

SOIL LOG SAMPLE LOG SHEET

TETRA TECH NUS, Inc.

Event: SWMU 11 - RFI
Site Name: CRANE NSWC - SWMU 11
Project No: 112G02635.FI.SS (ED00000156)

Sample ID:	**11SS080002**	Sampler:	Kevin Losekamp
Location ID:	11SB08	MS/MSD:	NA
QC Duplicate ID:	N/A		

Sample Information

Date	04/26/11	Concentration	Not known
Sample Source	Surface Soil-SS	Sample Data Type	Grab

Location Data

Field GPS Northing	N/A	Field XY Coordinate System	N/A
Field GPS Easting	N/A	Field XY Datum	N/A
Field GPS Method	N/A	Update GIS with New Data?	N/A

Sample Details

Date	Time	method	Monitor	Depth	Color	Notes

Laboratory Analysis

Coll.	Date	Time	Description	Analysis	Preservative	No.	Type	Vol.	COC Notes	Chain No.
✓	04/26/11	11:00	SVOCs (including Low Level PAHs)	SW-846 8270C/8270C-Low	4°C	1	Glass - Clear	4 oz. wide-mouth w/Tefl on cap	None	ED00000156-5
✓	04/26/11	11:00	Pesticides/PCBs	SW-846 8081B/8082A	4°C	1	Glass - Clear	4 oz. wide-mouth w/Tefl on cap	None	ED00000156-5
✓	04/26/11	11:00	Metals (including Mercury)/Cyanide	SW-846 6010C/9012A	4°C	2	Glass - Clear	4 oz. wide-mouth w/Tefl on cap	None	ED00000156-5

Field Analysis

USCS	Date	Time	Ambient Air Temp.	Water Bath Temp.	Gas Tech Tube Type	GasTech Tube Series	Tube Lot QC Number	Tube Lab Tracking	50 Purge	100 Purge	200 Purge

General Notes

None

SOIL LOG SAMPLE LOG SHEET

TETRA TECH NUS, Inc.

Event: SWMU 11 - RFI
Site Name: CRANE NSWC - SWMU 11
Project No: 112G02635.FI.SS (ED00000156)

Sample ID:	**11SS090002**	Sampler:	Kevin Losekamp
Location ID:	11SB09	MS/MSD:	NA
QC Duplicate ID:	N/A		

Sample Information

Date	04/26/11	Concentration	Not known
Sample Source	Surface Soil-SS	Sample Data Type	Grab

Location Data

Field GPS Northing	N/A	Field XY Coordinate System	N/A
Field GPS Easting	N/A	Field XY Datum	N/A
Field GPS Method	N/A	Update GIS with New Data?	N/A

Sample Details

Date	Time	method	Monitor	Depth	Color	Notes

Laboratory Analysis

Coll.	Date	Time	Description	Analysis	Preservative	No.	Type	Vol.	COC Notes	Chain No.
✓	04/26/11	10:55	SVOCs (including Low Level PAHs)	SW-846 8270C/8270C-Low	4°C	1	Glass - Clear	4 oz. wide-mouth w/Tefl on cap	None	ED00000156-5
✓	04/26/11	10:55	Pesticides/PCBs	SW-846 8081B/8082A	4°C	1	Glass - Clear	4 oz. wide-mouth w/Tefl on cap	None	ED00000156-5
✓	04/26/11	10:55	Metals (including Mercury)/Cyanide	SW-846 6010C/9012A	4°C	2	Glass - Clear	4 oz. wide-mouth w/Tefl on cap	None	ED00000156-5
✓	04/26/11	10:55	Dioxins/Furans	SW-846 8290A	4°C	2	Glass - Clear	4 oz. wide-mouth w/Tefl on cap	None	ED00000156-3

Field Analysis

USCS	Date	Time	Ambient Air Temp.	Water Bath Temp.	Gas Tech Tube Type	GasTech Tube Series	Tube Lot QC Number	Tube Lab Tracking	50 Purge	100 Purge	200 Purge

General Notes

None

SOIL LOG SAMPLE LOG SHEET

TETRA TECH NUS, Inc.

Event: SWMU 11 - RFI
Site Name: CRANE NSWC - SWMU 11
Project No: 112G02635.FI.SS (ED00000156)

Sample ID: **11SS100002**
Location ID: 11SB10
QC Duplicate ID: N/A

Sampler: Kevin Losekamp
MS/MSD: NA

Sample Information

Date	04/26/11	Concentration	Not known
Sample Source	Surface Soil-SS	Sample Data Type	Grab

Location Data

Field GPS Northing	N/A	Field XY Coordinate System	N/A
Field GPS Easting	N/A	Field XY Datum	N/A
Field GPS Method	N/A	Update GIS with New Data?	N/A

Sample Details

Date	Time	method	Monitor	Depth	Color	Notes

Laboratory Analysis

Coll.	Date	Time	Description	Analysis	Preservative	No.	Type	Vol.	COC Notes	Chain No.
✓	04/26/11	10:45	SVOCs (including Low Level PAHs)	SW-846 8270C/8270C-Low	4°C	1	Glass - Clear	4 oz. wide-mouth w/Tefl on cap	None	ED00000156-5
✓	04/26/11	10:45	Pesticides/PCBs	SW-846 8081B/8082A	4°C	1	Glass - Clear	4 oz. wide-mouth w/Tefl on cap	None	ED00000156-5
✓	04/26/11	10:45	Metals (including Mercury)/Cyanide	SW-846 6010C/9012A	4°C	2	Glass - Clear	4 oz. wide-mouth w/Tefl on cap	None	ED00000156-5

Field Analysis

USCS	Date	Time	Ambient Air Temp.	Water Bath Temp.	Gas Tech Tube Type	GasTech Tube Series	Tube Lot QC Number	Tube Lab Tracking	50 Purge	100 Purge	200 Purge

General Notes

None

SOIL LOG SAMPLE LOG SHEET

TETRA TECH NUS, Inc.

Event: SWMU 11 - RFI
Site Name: CRANE NSWC - SWMU 11
Project No: 112G02635.FI.SS (ED00000156)

Sample ID:	**11SS110002**	Sampler:	Kevin Losekamp
Location ID:	11SB11	MS/MSD:	NA
QC Duplicate ID:	11SSFD042611-03		

Sample Information

Date	04/26/11	Concentration	Not known
Sample Source	Surface Soil-SS	Sample Data Type	Grab

Location Data

Field GPS Northing	N/A	Field XY Coordinate System	N/A
Field GPS Easting	N/A	Field XY Datum	N/A
Field GPS Method	N/A	Update GIS with New Data?	N/A

Sample Details

Date	Time	method	Monitor	Depth	Color	Notes

Laboratory Analysis

Coll.	Date	Time	Description	Analysis	Preservative	No.	Type	Vol.	COC Notes	Chain No.
✓	04/26/11	14:40	SVOCs (including Low Level PAHs)	SW-846 8270C/8270C-Low	4°C	1	Glass - Clear	4 oz. wide-mouth w/Tefl on cap	None	ED00000156-5
✓	04/26/11	14:40	Pesticides/PCBs	SW-846 8081B/8082A	4°C	1	Glass - Clear	4 oz. wide-mouth w/Tefl on cap	None	ED00000156-5
✓	04/26/11	14:40	Metals (including Mercury)/Cyanide	SW-846 6010C/9012A	4°C	2	Glass - Clear	4 oz. wide-mouth w/Tefl on cap	None	ED00000156-5
✓	04/26/11	14:40	Dioxins/Furans	SW-846 8290A	4°C	2	Glass - Clear	4 oz. wide-mouth w/Tefl on cap	None	ED00000156-3

Field Analysis

USCS	Date	Time	Ambient Air Temp.	Water Bath Temp.	Gas Tech Tube Type	GasTech Tube Series	Tube Lot QC Number	Tube Lab Tracking	50 Purge	100 Purge	200 Purge

General Notes

None

SOIL LOG SAMPLE LOG SHEET

TETRA TECH NUS, Inc.

Event: SWMU 11 - RFI
Site Name: CRANE NSWC - SWMU 11
Project No: 112G02635.FI.SS (ED00000156)

Sample ID:	**11SS120002**	Sampler:	Kevin Losekamp
Location ID:	11SB12	MS/MSD:	NA
QC Duplicate ID:	N/A		

Sample Information

Date	04/26/11	Concentration	Not known
Sample Source	Surface Soil-SS	Sample Data Type	Grab

Location Data

Field GPS Northing	N/A	Field XY Coordinate System	N/A
Field GPS Easting	N/A	Field XY Datum	N/A
Field GPS Method	N/A	Update GIS with New Data?	N/A

Sample Details

Date	Time	method	Monitor	Depth	Color	Notes

Laboratory Analysis

Coll.	Date	Time	Description	Analysis	Preservative	No.	Type	Vol.	COC Notes	Chain No.
✓	04/26/11	14:30	SVOCs (including Low Level PAHs)	SW-846 8270C/8270C-Low	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5
✓	04/26/11	14:30	Pesticides/PCBs	SW-846 8081B/8082A	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5
✓	04/26/11	14:30	Metals (including Mercury)/Cyanide	SW-846 6010C/9012A	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5

Field Analysis

USCS	Date	Time	Ambient Air Temp.	Water Bath Temp.	Gas Tech Tube Type	GasTech Tube Series	Tube Lot QC Number	Tube Lab Tracking	50 Purge	100 Purge	200 Purge

General Notes

None

SOIL LOG SAMPLE LOG SHEET

TETRA TECH NUS, Inc

Event: SWMU 11 - RFI
Site Name: CRANE NSWC - SWMU 11
Project No: 112G02635.FI.SS (ED00000156)

Sample ID: **11SS130002**
Location ID: 11SB13
QC Duplicate ID: N/A

Sampler: Kevin Losekamp
MS/MSD: NA

Sample Information

Date	04/26/11	Concentration	Not known
Sample Source	Surface Soil-SS	Sample Data Type	Grab

Location Data

Field GPS Northing	N/A	Field XY Coordinate System	N/A
Field GPS Easting	N/A	Field XY Datum	N/A
Field GPS Method	N/A	Update GIS with New Data?	N/A

Sample Details

Date	Time	method	Monitor	Depth	Color	Notes

Laboratory Analysis

Coll.	Date	Time	Description	Analysis	Preservative	No.	Type	Vol.	COC Notes	Chain No.
✓	04/26/11	14:55	SVOCs (including Low Level PAHs)	SW-846 8270C/8270C-Low	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5
✓	04/26/11	14:55	Pesticides/PCBs	SW-846 8081B/8082A	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5
✓	04/26/11	14:55	Metals (including Mercury)/Cyanide	SW-846 6010C/9012A	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5

Field Analysis

USCS	Date	Time	Ambient Air Temp.	Water Bath Temp.	Gas Tech Tube Type	GasTech Tube Series	Tube Lot QC Number	Tube Lab Tracking	50 Purge	100 Purge	200 Purge

General Notes

None

SOIL LOG SAMPLE LOG SHEET

TETRA TECH NUS, Inc.

Event: SWMU 11 - RFI
Site Name: CRANE NSWC - SWMU 11
Project No: 112G02635.FI.SS (ED00000156)

Sample ID:	**11SS140002**	Sampler:	Kevin Losekamp
Location ID:	11SB14	MS/MSD:	NA
QC Duplicate ID:	N/A		

Sample Information

Date	04/26/11	Concentration	Not known
Sample Source	Surface Soil-SS	Sample Data Type	Grab

Location Data

Field GPS Northing	N/A	Field XY Coordinate System	N/A
Field GPS Easting	N/A	Field XY Datum	N/A
Field GPS Method	N/A	Update GIS with New Data?	N/A

Sample Details

Date	Time	method	Monitor	Depth	Color	Notes

Laboratory Analysis

Coll.	Date	Time	Description	Analysis	Preservative	No.	Type	Vol.	COC Notes	Chain No.
✓	04/26/11	15:00	SVOCs (including Low Level PAHs)	SW-846 8270C/8270C-Low	4°C	3	Glass - Clear	4 oz. wide-mouth w/Teflon cap	MS/MSD	ED00000156-5
✓	04/26/11	15:00	Pesticides/PCBs	SW-846 8081B/8082A	4°C	3	Glass - Clear	4 oz. wide-mouth w/Teflon cap	MS/MSD	ED00000156-5
✓	04/26/11	15:00	Metals (including Mercury)/Cyanide	SW-846 6010C/9012A	4°C	3	Glass - Clear	4 oz. wide-mouth w/Teflon cap	MS/MSD	ED00000156-5
✓	04/26/11	15:00	Dioxins/Furans	SW-846 8290A	4°C	1	Glass - Clear	8 oz. wide-mouth w/Teflon cap	None	ED00000156-3

Field Analysis

USCS	Date	Time	Ambient Air Temp.	Water Bath Temp.	Gas Tech Tube Type	GasTech Tube Series	Tube Lot QC Number	Tube Lab Tracking	50 Purge	100 Purge	200 Purge

General Notes

None

SOIL LOG SAMPLE LOG SHEET

TETRA TECH NUS, Inc.

Event: SWMU 11 - RFI
Site Name: CRANE NSWC - SWMU 11
Project No: 112G02635.FI.SS (ED00000156)

Sample ID: **11SS150002**
Location ID: 11SB15
QC Duplicate ID: N/A

Sampler: Kevin Losekamp
MS/MSD: NA

Sample Information

Date	04/26/11	Concentration	Not known
Sample Source	Surface Soil-SS	Sample Data Type	Grab

Location Data

Field GPS Northing	N/A	Field XY Coordinate System	N/A
Field GPS Easting	N/A	Field XY Datum	N/A
Field GPS Method	N/A	Update GIS with New Data?	N/A

Sample Details

Date	Time	method	Monitor	Depth	Color	Notes

Laboratory Analysis

Coll.	Date	Time	Description	Analysis	Preservative	No.	Type	Vol.	COC Notes	Chain No.
✓	04/26/11	15:10	SVOCs (including Low Level PAHs)	SW-846 8270C/8270C-Low	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5
✓	04/26/11	15:10	Pesticides/PCBs	SW-846 8081B/8082A	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5
✓	04/26/11	15:10	Metals (including Mercury)/Cyanide	SW-846 6010C/9012A	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5

Field Analysis

USCS	Date	Time	Ambient Air Temp.	Water Bath Temp.	Gas Tech Tube Type	GasTech Tube Series	Tube Lot QC Number	Tube Lab Tracking	50 Purge	100 Purge	200 Purge

General Notes

None

SOIL LOG SAMPLE LOG SHEET

TETRA TECH NUS, Inc.

Event: SWMU 11 - RFI
Site Name: CRANE NSWC - SWMU 11
Project No: 112G02635.FI.SS (ED00000156)

Sample ID:	**11SS160002**	Sampler:	Kevin Losekamp
Location ID:	11SB16	MS/MSD:	NA
QC Duplicate ID:	N/A		

Sample Information

Date	04/26/11	Concentration	Not known
Sample Source	Surface Soil-SS	Sample Data Type	Grab

Location Data

Field GPS Northing	N/A	Field XY Coordinate System	N/A
Field GPS Easting	N/A	Field XY Datum	N/A
Field GPS Method	N/A	Update GIS with New Data?	N/A

Sample Details

Date	Time	method	Monitor	Depth	Color	Notes

Laboratory Analysis

Coll.	Date	Time	Description	Analysis	Preservative	No.	Type	Vol.	COC Notes	Chain No.
✓	04/26/11	15:15	SVOCs (including Low Level PAHs)	SW-846 8270C/8270C-Low	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5
✓	04/26/11	15:15	Pesticides/PCBs	SW-846 8081B/8082A	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5
✓	04/26/11	15:15	Metals (including Mercury)/Cyanide	SW-846 6010C/9012A	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5

Field Analysis

USCS	Date	Time	Ambient Air Temp.	Water Bath Temp.	Gas Tech Tube Type	GasTech Tube Series	Tube Lot QC Number	Tube Lab Tracking	50 Purge	100 Purge	200 Purge

General Notes

None

TETRA TECH NUS, Inc.

SOIL LOG SAMPLE LOG SHEET

Event: SWMU 11 - RFI
Site Name: CRANE NSWC - SWMU 11
Project No: 112G02635.FI.SS (ED00000156)

Sample ID: **11SS170002**
Location ID: 11SB17
QC Duplicate ID: N/A

Sampler: Kevin Losekamp
MS/MSD: NA

Sample Information

Date	04/26/11	Concentration	Not known
Sample Source	Surface Soil-SS	Sample Data Type	Grab

Location Data

Field GPS Northing	N/A	Field XY Coordinate System	N/A
Field GPS Easting	N/A	Field XY Datum	N/A
Field GPS Method	N/A	Update GIS with New Data?	N/A

Sample Details

Date	Time	method	Monitor	Depth	Color	Notes

Laboratory Analysis

Coll.	Date	Time	Description	Analysis	Preservative	No.	Type	Vol.	COC Notes	Chain No.
✓	04/26/11	14:10	SVOCs (including Low Level PAHs)	SW-846 8270C/8270C-Low	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5
✓	04/26/11	14:10	Pesticides/PCBs	SW-846 8081B/8082A	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5
✓	04/26/11	14:10	Metals (including Mercury)/Cyanide	SW-846 6010C/9012A	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5

Field Analysis

USCS	Date	Time	Ambient Air Temp.	Water Bath Temp.	Gas Tech Tube Type	GasTech Tube Series	Tube Lot QC Number	Tube Lab Tracking	50 Purge	100 Purge	200 Purge

General Notes

None

SOIL LOG SAMPLE LOG SHEET

TETRA TECH NUS, Inc.

Event: SWMU 11 - RFI
Site Name: CRANE NSWC - SWMU 11
Project No: 112G02635.FI.SS (ED00000156)

Sample ID:	**11SS180002**	Sampler:	Kevin Losekamp
Location ID:	11SB18	MS/MSD:	NA
QC Duplicate ID:	N/A		

Sample Information

Date	04/26/11	Concentration	Not known
Sample Source	Surface Soil-SS	Sample Data Type	Grab

Location Data

Field GPS Northing	N/A	Field XY Coordinate System	N/A
Field GPS Easting	N/A	Field XY Datum	N/A
Field GPS Method	N/A	Update GIS with New Data?	N/A

Sample Details

Date	Time	method	Monitor	Depth	Color	Notes

Laboratory Analysis

Coll.	Date	Time	Description	Analysis	Preservative	No.	Type	Vol.	COC Notes	Chain No.
✓	04/26/11	14:20	SVOCs (including Low Level PAHs)	SW-846 8270C/8270C-Low	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5
✓	04/26/11	14:20	Pesticides/PCBs	SW-846 8081B/8082A	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5
✓	04/26/11	14:20	Metals (including Mercury)/Cyanide	SW-846 6010C/9012A	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5
✓	04/26/11	14:20	Dioxins/Furans	SW-846 8290A	4°C	1	Glass - Clear	8 oz. wide-mouth w/Teflon cap	None	ED00000156-3

Field Analysis

USCS	Date	Time	Ambient Air Temp.	Water Bath Temp.	Gas Tech Tube Type	GasTech Tube Series	Tube Lot QC Number	Tube Lab Tracking	50 Purge	100 Purge	200 Purge

General Notes

None

SOIL LOG SAMPLE LOG SHEET

TETRA TECH NUS, Inc.

Event: SWMU 11 - RFI
Site Name: CRANE NSWC - SWMU 11
Project No: 112G02635.FI.SS (ED00000156)

Sample ID: **11SS190002**
Location ID: 11SB19
QC Duplicate ID: N/A

Sampler: Kevin Losekamp
MS/MSD: NA

Sample Information

Date	04/26/11	Concentration	Not known
Sample Source	Surface Soil-SS	Sample Data Type	Grab

Location Data

Field GPS Northing	N/A	Field XY Coordinate System	N/A
Field GPS Easting	N/A	Field XY Datum	N/A
Field GPS Method	N/A	Update GIS with New Data?	N/A

Sample Details

Date	Time	method	Monitor	Depth	Color	Notes

Laboratory Analysis

Coll.	Date	Time	Description	Analysis	Preservative	No.	Type	Vol.	COC Notes	Chain No.
✓	04/26/11	15:30	Dioxins/Furans	SW-846 8290A	4°C	1	Glass - Clear	8 oz. wide-mouth w/Tefl on cap	None	ED00000156-3

Field Analysis

USCS	Date	Time	Ambient Air Temp.	Water Bath Temp.	Gas Tech Tube Type	GasTech Tube Series	Tube Lot QC Number	Tube Lab Tracking	50 Purge	100 Purge	200 Purge

General Notes

None

SOIL LOG SAMPLE LOG SHEET

TETRA TECH NUS, Inc.

Event: SWMU 11 - RFI
Site Name: CRANE NSWC - SWMU 11
Project No: 112G02635.FI.SS (ED00000156)

Sample ID:	**11SS200002**	Sampler:	Kevin Losekamp
Location ID:	11SB20	MS/MSD:	NA
QC Duplicate ID:	N/A		

Sample Information

Date	04/26/11	Concentration	Not known
Sample Source	Surface Soil-SS	Sample Data Type	Grab

Location Data

Field GPS Northing	N/A	Field XY Coordinate System	N/A
Field GPS Easting	N/A	Field XY Datum	N/A
Field GPS Method	N/A	Update GIS with New Data?	N/A

Sample Details

Date	Time	method	Monitor	Depth	Color	Notes

Laboratory Analysis

Coll.	Date	Time	Description	Analysis	Preservative	No.	Type	Vol.	COC Notes	Chain No.
✓	04/26/11	15:45	Dioxins/Furans	SW-846 8290A	4°C	1	Glass - Clear	8 oz. wide-mouth w/Teflon cap	None	ED00000156-3

Field Analysis

USCS	Date	Time	Ambient Air Temp.	Water Bath Temp.	Gas Tech Tube Type	GasTech Tube Series	Tube Lot QC Number	Tube Lab Tracking	50 Purge	100 Purge	200 Purge

General Notes

None

SOIL LOG SAMPLE LOG SHEET

TETRA TECH NUS, Inc.

Event: SWMU 11 - RFI
Site Name: CRANE NSWC - SWMU 11
Project No: 112G02635.FI.SS (ED00000156)

Sample ID:	**11SS210002**	Sampler:	Kevin Losekamp
Location ID:	11SB21	MS/MSD:	NA
QC Duplicate ID:	11SSFD042611-04		

Sample Information

Date	04/26/11	Concentration	Not known
Sample Source	Surface Soil-SS	Sample Data Type	Grab

Location Data

Field GPS Northing	N/A	Field XY Coordinate System	N/A
Field GPS Easting	N/A	Field XY Datum	N/A
Field GPS Method	N/A	Update GIS with New Data?	N/A

Sample Details

Date	Time	method	Monitor	Depth	Color	Notes

Laboratory Analysis

Coll.	Date	Time	Description	Analysis	Preservative	No.	Type	Vol.	COC Notes	Chain No.
✓	04/26/11	16:30	Dioxins/Furans	SW-846 8290A	4°C	1	Glass - Clear	8 oz. wide-mouth w/Teflon cap	None	ED00000156-3

Field Analysis

USCS	Date	Time	Ambient Air Temp.	Water Bath Temp.	Gas Tech Tube Type	GasTech Tube Series	Tube Lot QC Number	Tube Lab Tracking	50 Purge	100 Purge	200 Purge

General Notes

None

TETRA TECH NUS, Inc.

SOIL LOG SAMPLE LOG SHEET

Event: SWMU 11 - RFI
Site Name: CRANE NSWC - SWMU 11
Project No: 112G02635.FI.SS (ED00000156)

Sample ID:	**11SS220002**	Sampler:	Kevin Losekamp
Location ID:	11SB22	MS/MSD:	NA
QC Duplicate ID:	N/A		

Sample Information

Date	04/26/11	Concentration	Not known
Sample Source	Surface Soil-SS	Sample Data Type	Grab

Location Data

Field GPS Northing	N/A	Field XY Coordinate System	N/A
Field GPS Easting	N/A	Field XY Datum	N/A
Field GPS Method	N/A	Update GIS with New Data?	N/A

Sample Details

Date	Time	method	Monitor	Depth	Color	Notes

Laboratory Analysis

Coll.	Date	Time	Description	Analysis	Preservative	No.	Type	Vol.	COC Notes	Chain No.
✓	04/26/11	16:25	Dioxins/Furans	SW-846 8290A	4°C	1	Glass - Clear	8 oz. wide-mouth w/Tefl on cap	None	ED00000156-3

Field Analysis

USCS	Date	Time	Ambient Air Temp.	Water Bath Temp.	Gas Tech Tube Type	GasTech Tube Series	Tube Lot QC Number	Tube Lab Tracking	50 Purge	100 Purge	200 Purge

General Notes

None

SOIL LOG SAMPLE LOG SHEET

TETRA TECH NUS, Inc.

Event: SWMU 11 - RFI
Site Name: CRANE NSWC - SWMU 11
Project No: 112G02635.FI.SS (ED00000156)

Sample ID:	**11SS230002**	Sampler:	Kevin Losekamp
Location ID:	11SB23	MS/MSD:	NA
QC Duplicate ID:	N/A		

Sample Information

Date	04/26/11	Concentration	Not known
Sample Source	Surface Soil-SS	Sample Data Type	Grab

Location Data

Field GPS Northing	N/A	Field XY Coordinate System	N/A
Field GPS Easting	N/A	Field XY Datum	N/A
Field GPS Method	N/A	Update GIS with New Data?	N/A

Sample Details

Date	Time	method	Monitor	Depth	Color	Notes

Laboratory Analysis

Coll.	Date	Time	Description	Analysis	Preservative	No.	Type	Vol.	COC Notes	Chain No.
✓	04/26/11	16:20	Dioxins/Furans	SW-846 8290A	4°C	1	Glass - Clear	8 oz. wide-mouth w/Teflon cap	None	ED00000156-3

Field Analysis

USCS	Date	Time	Ambient Air Temp.	Water Bath Temp.	Gas Tech Tube Type	GasTech Tube Series	Tube Lot QC Number	Tube Lab Tracking	50 Purge	100 Purge	200 Purge

General Notes

None

SOIL LOG SAMPLE LOG SHEET

TETRA TECH NUS, Inc.

Event: SWMU 11 - RFI
Site Name: CRANE NSWC - SWMU 11
Project No: 112G02635.FI.SS (ED00000156)

Sample ID:	**11SS240002**	Sampler:	Kevin Losekamp
Location ID:	11SB24	MS/MSD:	NA
QC Duplicate ID:	N/A		

Sample Information

Date	04/26/11	Concentration	Not known
Sample Source	Surface Soil-SS	Sample Data Type	Grab

Location Data

Field GPS Northing	N/A	Field XY Coordinate System	N/A
Field GPS Easting	N/A	Field XY Datum	N/A
Field GPS Method	N/A	Update GIS with New Data?	N/A

Sample Details

Date	Time	method	Monitor	Depth	Color	Notes

Laboratory Analysis

Coll.	Date	Time	Description	Analysis	Preservative	No.	Type	Vol.	COC Notes	Chain No.
✓	04/26/11	16:10	Dioxins/Furans	SW-846 8290A	4°C	1	Glass - Clear	8 oz. wide-mouth w/Teflon cap	None	ED00000156-3

Field Analysis

USCS	Date	Time	Ambient Air Temp.	Water Bath Temp.	Gas Tech Tube Type	GasTech Tube Series	Tube Lot QC Number	Tube Lab Tracking	50 Purge	100 Purge	200 Purge

General Notes

None

TETRA TECH NUS, Inc.

SOIL LOG SAMPLE LOG SHEET

Event: SWMU 11 - RFI
Site Name: CRANE NSWC - SWMU 11
Project No: 112G02635.FI.SS (ED00000156)

Sample ID:	**11SB250507**	Sampler:	Kevin Losekamp
Location ID:	11SB25	MS/MSD:	NA
QC Duplicate ID:	N/A		

Sample Information

Date	04/26/11	Concentration	Not known
Sample Source	Subsurface Soil-SB	Sample Data Type	Grab

Location Data

Field GPS Northing	N/A	Field XY Coordinate System	N/A
Field GPS Easting	N/A	Field XY Datum	N/A
Field GPS Method	N/A	Update GIS with New Data?	N/A

Sample Details

Date	Time	method	Monitor	Depth	Color	Notes

Laboratory Analysis

Coll.	Date	Time	Description	Analysis	Preservative	No.	Type	Vol.	COC Notes	Chain No.
✓	04/26/11	12:41	VOCs	SW-846 8260B	4°C/NaHSO4 +MeOH Combo(2+1)	3	Glass - Clear	40 mL vial (pre-tared)	None	ED00000156-1
✓	04/26/11	12:41	SVOCs (including Low Level PAHs)	SW-846 8270C/8270C-Low	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5

Field Analysis

USCS	Date	Time	Ambient Air Temp.	Water Bath Temp.	Gas Tech Tube Type	GasTech Tube Series	Tube Lot QC Number	Tube Lab Tracking	50 Purge	100 Purge	200 Purge

General Notes

None

SOIL LOG SAMPLE LOG SHEET

TETRA TECH NUS, Inc.

Event: SWMU 11 - RFI
Site Name: CRANE NSWC - SWMU 11
Project No: 112G02635.FI.SS (ED00000156)

Sample ID:	**11SB260507**	Sampler:	Kevin Losekamp
Location ID:	11SB26	MS/MSD:	MS/MSD
QC Duplicate ID:	N/A		

Sample Information

Date	04/26/11	Concentration	Not known
Sample Source	Subsurface Soil-SB	Sample Data Type	Grab

Location Data

Field GPS Northing	N/A	Field XY Coordinate System	N/A
Field GPS Easting	N/A	Field XY Datum	N/A
Field GPS Method	N/A	Update GIS with New Data?	N/A

Sample Details

Date	Time	method	Monitor	Depth	Color	Notes

Laboratory Analysis

Coll.	Date	Time	Description	Analysis	Preservative	No.	Type	Vol.	COC Notes	Chain No.
✓	04/26/11	12:53	VOCs	SW-846 8260B	4°C/NaHSO4 +MeOH Combo(2+1)	3	Glass - Clear	40 mL vial (pre-tared)	MS/MSD	ED00000156-1
✓	04/26/11	12:53	SVOCs (including Low Level PAHs)	SW-846 8270C/8270C-Low	4°C	3	Glass - Clear	4 oz. wide-mouth w/Tefl on cap	Run MS/MSD	ED00000156-4

Field Analysis

USCS	Date	Time	Ambient Air Temp.	Water Bath Temp.	Gas Tech Tube Type	GasTech Tube Series	Tube Lot QC Number	Tube Lab Tracking	50 Purge	100 Purge	200 Purge

General Notes

None

SOIL LOG SAMPLE LOG SHEET

TETRA TECH NUS, Inc.

Event: SWMU 11 - RFI
Site Name: CRANE NSWC - SWMU 11
Project No: 112G02635.FI.SS (ED00000156)

Sample ID:	**11SB270507**	Sampler:	Kevin Losekamp
Location ID:	11SB27	MS/MSD:	NA
QC Duplicate ID:	N/A		

Sample Information

Date	04/26/11	Concentration	Not known
Sample Source	Subsurface Soil-SB	Sample Data Type	Grab

Location Data

Field GPS Northing	N/A	Field XY Coordinate System	N/A
Field GPS Easting	N/A	Field XY Datum	N/A
Field GPS Method	N/A	Update GIS with New Data?	N/A

Sample Details

Date	Time	method	Monitor	Depth	Color	Notes

Laboratory Analysis

Coll.	Date	Time	Description	Analysis	Preservative	No.	Type	Vol.	COC Notes	Chain No.
	04/26/11	13:02	VOCs	SW-846 8260B	4°C/NaHSO4 +MeOH Combo(2+1)	3	Glass - Clear	40 mL vial (pre-tared)	None	ED00000156-1
	04/26/11	13:02	SVOCs (including Low Level PAHs)	SW-846 8270C/8270C-Low	4°C	1	Glass - Clear	4 oz. wide-mouth w/Tefl on cap	None	ED00000156-5

Field Analysis

USCS	Date	Time	Ambient Air Temp.	Water Bath Temp.	Gas Tech Tube Type	GasTech Tube Series	Tube Lot QC Number	Tube Lab Tracking	50 Purge	100 Purge	200 Purge

General Notes

None

SOIL LOG SAMPLE LOG SHEET

TETRA TECH NUS, Inc.

Event: SWMU 11 - RFI
Site Name: CRANE NSWC - SWMU 11
Project No: 112G02635.FI.SS (ED00000156)

Sample ID:	**11SB280507**	Sampler:	Kevin Losekamp
Location ID:	11SB28	MS/MSD:	MS/MSD
QC Duplicate ID:	N/A		

Sample Information

Date	04/26/11	Concentration	Not known
Sample Source	Subsurface Soil-SB	Sample Data Type	Grab

Location Data

Field GPS Northing	N/A	Field XY Coordinate System	N/A
Field GPS Easting	N/A	Field XY Datum	N/A
Field GPS Method	N/A	Update GIS with New Data?	N/A

Sample Details

Date	Time	method	Monitor	Depth	Color	Notes

Laboratory Analysis

Coll.	Date	Time	Description	Analysis	Preservative	No.	Type	Vol.	COC Notes	Chain No.
✓	04/26/11	13:11	VOCs	SW-846 8260B	4°C/NaHSO4 +MeOH Combo(2+1)	3	Glass - Clear	40 mL vial (pre-tared)	None	ED00000156-1
✓	04/26/11	13:11	SVOCs (including Low Level PAHs)	SW-846 8270C/8270C-Low	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5

Field Analysis

USCS	Date	Time	Ambient Air Temp.	Water Bath Temp.	Gas Tech Tube Type	GasTech Tube Series	Tube Lot QC Number	Tube Lab Tracking	50 Purge	100 Purge	200 Purge

General Notes

None

TETRA TECH NUS, Inc.

SOIL LOG SAMPLE LOG SHEET

Event: SWMU 11 - RFI
Site Name: CRANE NSWC - SWMU 11
Project No: 112G02635.FI.SS (ED00000156)

Sample ID:	**11SS290002**	Sampler:	Kevin Losekamp
Location ID:	11SB29	MS/MSD:	NA
QC Duplicate ID:	N/A		

Sample Information

Date	04/27/11	Concentration	Not known
Sample Source	Surface Soil-SS	Sample Data Type	Grab

Location Data

Field GPS Northing	N/A	Field XY Coordinate System	N/A
Field GPS Easting	N/A	Field XY Datum	N/A
Field GPS Method	N/A	Update GIS with New Data?	N/A

Sample Details

Date	Time	method	Monitor	Depth	Color	Notes

Laboratory Analysis

Coll.	Date	Time	Description	Analysis	Preservative	No.	Type	Vol.	COC Notes	Chain No.
✓	04/27/11	13:22	SVOCs (including Low Level PAHs)	SW-846 8270C/8270C-Low	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5
✓	04/27/11	13:22	Pesticides/PCBs	SW-846 8081B/8082A	4°C	3	Glass - Clear	4 oz. wide-mouth w/Teflon cap	MS/MSD	ED00000156-5
✓	04/27/11	13:22	Metals (including Mercury)/Cyanide	SW-846 6010C/9012A	4°C	3	Glass - Clear	4 oz. wide-mouth w/Teflon cap	MS/MSD	ED00000156-5

Field Analysis

USCS	Date	Time	Ambient Air Temp.	Water Bath Temp.	Gas Tech Tube Type	GasTech Tube Series	Tube Lot QC Number	Tube Lab Tracking	50 Purge	100 Purge	200 Purge

General Notes

None

TETRA TECH NUS, Inc.

SOIL LOG SAMPLE LOG SHEET

Event: SWMU 11 - RFI
Site Name: CRANE NSWC - SWMU 11
Project No: 112G02635.FI.SS (ED00000156)

Sample ID:	**11SS300002**	Sampler:	Kevin Losekamp
Location ID:	11SB30	MS/MSD:	NA
QC Duplicate ID:	N/A		

Sample Information

Date	04/27/11	Concentration	Not known
Sample Source	Surface Soil-SS	Sample Data Type	Grab

Location Data

Field GPS Northing	N/A	Field XY Coordinate System	N/A
Field GPS Easting	N/A	Field XY Datum	N/A
Field GPS Method	N/A	Update GIS with New Data?	N/A

Sample Details

Date	Time	method	Monitor	Depth	Color	Notes

Laboratory Analysis

Coll.	Date	Time	Description	Analysis	Preservative	No.	Type	Vol.	COC Notes	Chain No.
✓	04/27/11	13:51	SVOCs (including Low Level PAHs)	SW-846 8270C/8270C-Low	4°C	3	Glass - Clear	4 oz. wide-mouth w/Teflon cap	MS/MSD	ED00000156-5
✓	04/27/11	13:51	Pesticides/PCBs	SW-846 8081B/8082A	4°C	3	Glass - Clear	4 oz. wide-mouth w/Teflon cap	MS/MSD	ED00000156-5
✓	04/27/11	13:51	Metals (including Mercury)/Cyanide	SW-846 6010C/9012A	4°C	3	Glass - Clear	4 oz. wide-mouth w/Teflon cap	MS/MSD	ED00000156-5

Field Analysis

USCS	Date	Time	Ambient Air Temp.	Water Bath Temp.	Gas Tech Tube Type	GasTech Tube Series	Tube Lot QC Number	Tube Lab Tracking	50 Purge	100 Purge	200 Purge

General Notes

None

TETRA TECH NUS, Inc.

SOIL LOG SAMPLE LOG SHEET

Event: SWMU 11 - RFI
Site Name: CRANE NSWC - SWMU 11
Project No: 112G02635.FI.SS (ED00000156)

Sample ID:	**11SS310002**	Sampler:	Kevin Losekamp
Location ID:	11SB31	MS/MSD:	NA
QC Duplicate ID:	11SSFD042711-01		

Sample Information

Date	04/27/11	Concentration	Not known
Sample Source	Surface Soil-SS	Sample Data Type	Grab

Location Data

Field GPS Northing	N/A	Field XY Coordinate System	N/A
Field GPS Easting	N/A	Field XY Datum	N/A
Field GPS Method	N/A	Update GIS with New Data?	N/A

Sample Details

Date	Time	method	Monitor	Depth	Color	Notes

Laboratory Analysis

Coll.	Date	Time	Description	Analysis	Preservative	No.	Type	Vol.	COC Notes	Chain No.
✓	04/27/11	13:44	SVOCs (including Low Level PAHs)	SW-846 8270C/8270C-Low	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5
✓	04/27/11	13:44	Pesticides/PCBs	SW-846 8081B/8082A	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5
✓	04/27/11	13:44	Metals (including Mercury)/Cyanide	SW-846 6010C/9012A	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	None	ED00000156-5

Field Analysis

USCS	Date	Time	Ambient Air Temp.	Water Bath Temp.	Gas Tech Tube Type	GasTech Tube Series	Tube Lot QC Number	Tube Lab Tracking	50 Purge	100 Purge	200 Purge

General Notes

None

SOIL LOG SAMPLE LOG SHEET

TETRA TECH NUS, Inc.

Event: SWMU 11 - RFI
Site Name: CRANE NSWC - SWMU 11
Project No: 112G02635.FI.SS (ED00000156)

Sample ID:	**11SS320002**	Sampler:	Kevin Losekamp
Location ID:	11SB32	MS/MSD:	NA
QC Duplicate ID:	N/A		

Sample Information

Date	04/27/11	Concentration	Not known
Sample Source	Surface Soil-SS	Sample Data Type	Grab

Location Data

Field GPS Northing	N/A	Field XY Coordinate System	N/A
Field GPS Easting	N/A	Field XY Datum	N/A
Field GPS Method	N/A	Update GIS with New Data?	N/A

Sample Details

Date	Time	method	Monitor	Depth	Color	Notes

Laboratory Analysis

Coll.	Date	Time	Description	Analysis	Preservative	No.	Type	Vol.	COC Notes	Chain No.
✓	04/27/11	13:39	SVOCs (including Low Level PAHs)	SW-846 8270C/8270C-Low	4°C	1	Glass - Clear	4 oz. wide-mouth w/Tefl on cap	None	ED00000156-5
✓	04/27/11	13:39	Pesticides/PCBs	SW-846 8081B/8082A	4°C	1	Glass - Clear	4 oz. wide-mouth w/Tefl on cap	None	ED00000156-5
✓	04/27/11	13:39	Metals (including Mercury)/Cyanide	SW-846 6010C/9012A	4°C	2	Glass - Clear	4 oz. wide-mouth w/Tefl on cap	None	ED00000156-5

Field Analysis

USCS	Date	Time	Ambient Air Temp.	Water Bath Temp.	Gas Tech Tube Type	GasTech Tube Series	Tube Lot QC Number	Tube Lab Tracking	50 Purge	100 Purge	200 Purge

General Notes

None

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSA-CRANE SWMU-11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB330406
Sample Location: 11SB33
Sampled By: K.SMITH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 11/16/11	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0915	4 - 6	Light Brown	sandy clay-dry-hard
Method: DPT			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	Encores	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSA-CRANE SWMU-11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB330607
Sample Location: 11SB33
Sampled By: K.SMITH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 11/16/11	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0915	6 - 7	brown	sandy clay-dry-hard
Method: DPT			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings				
(Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	Encores	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSA-CRANE SWMU-11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB340406
Sample Location: 11SB34
Sampled By: K.SMITH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 11/16/11			
Time: 1020	4 -6	Brown	silty clay-dense-soft
Method: DPT			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	Encores	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSA-CRANE SWMU-11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB340708
Sample Location: 11SB34
Sampled By: K.SMITH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 11/16/11			
Time: 1020	7 - 8	Brown	clay-dense-hard
Method: DPT			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	Encores	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSA-CRANE SWMU-11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB350305
Sample Location: 11SB35
Sampled By: K.SMITH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 11/16/11	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0950	3 - 5	Brown	sandy clay (with rocks)-moist-soft
Method: DPT			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	Encores	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSA-CRANE SWMU-11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB350506
Sample Location: 11SB35
Sampled By: K.SMITH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 11/16/11	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0950	5 - 6	Reddish Brown	sandy clay (fine)-dry-soft
Method: DPT			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	Encores	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSA-CRANE SWMU-11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB360204
Sample Location: 11SB36
Sampled By: K.SMITH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 11/17/11	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0910	2 - 4	Brown	sandy clay-moist-soft
Method: DPT			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	Encores	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSA-CRANE SWMU-11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB360405
Sample Location: 11SB36
Sampled By: K.SMITH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 11/17/11	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0910	4 - 5	Brown	sandy clay (with rocks)-moist-soft
Method: DPT			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	Encores	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSA-CRANE SWMU-11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB370103
Sample Location: 11SB37
Sampled By: K.SMITH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 11/16/11	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1600	1 - 3	Brown	sandy clay-dry-hard
Method: DPT			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	Encores	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSA-CRANE SWMU-11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB370304
Sample Location: 11SB37
Sampled By: K.SMITH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 11/16/11			
Time: 1600	3 - 4	Light Brown (orange)	sandy clay-dry-hard
Method: DPT			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	Encores	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSA-CRANE SWMU-11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB380406
Sample Location: 11SB38
Sampled By: K.SMITH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 11/15/11	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1420	4 - 6	Light Brown	silty clay-moist-soft
Method: DPT			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	Encores	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSA-CRANE SWMU-11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB380607
Sample Location: 11SB38
Sampled By: K.SMITH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 11/15/11			
Time: 1420	6 - 7	Reddish Brown	sandy clay-hard-dry
Method: DPT			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	Encores	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSA-CRANE SWMU-11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB390406
Sample Location: 11SB39
Sampled By: K.SMITH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 11/15/11			
Time: 1508	4 - 6	Brown	sandy clay-moist-hard
Method: DPT			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	Encores	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSA-CRANE SWMU-11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB390708
Sample Location: 11SB39
Sampled By: K.SMITH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 11/15/11	7 - 8	Light Brown	sandy clay-dry-hard
Time: 1508			
Method: DPT			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	Encores	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSA-CRANE SWMU-11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB400305
Sample Location: 11SB40
Sampled By: K.SMITH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 11/15/11	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1450	3 - 5	Brown	clay-moist-soft
Method: DPT			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	Encores	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSA-CRANE SWMU-11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB400506
Sample Location: 11SB40
Sampled By: K.SMITH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 11/15/11			
Time: 1450	5 - 6	Light Brown	sandy clay-dry-hard
Method: DPT			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	Encores	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSA-CRANE SWMU-11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB410204
Sample Location: 11SB41
Sampled By: K.SMITH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 11/17/11	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0930	2 - 4	Black	sandy clay-moist-hard
Method: DPT			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	Encores	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSA-CRANE SWMU-11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB410405
Sample Location: 11SB41
Sampled By: K.SMITH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 11/17/11	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0930	4 - 5	Dark Brown	sandy clay-dense-hard
Method: DPT			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	Encores	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSA-CRANE SWMU-11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB420102
Sample Location: 11SB42
Sampled By: K.SMITH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 11/16/11	1 - 2	Brown	sandy clay-dry-hard
Time: 1530			
Method: DPT			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	Encores	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSA-CRANE SWMU-11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB420203
Sample Location: 11SB42
Sampled By: K.SMITH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 11/16/11	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1530	2 - 3	Brown	sandy clay-dry-hard
Method: DPT			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	Encores	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSA-CRANE SWMU-11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB430406
Sample Location: 11SB43
Sampled By: K.SMITH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 11/16/11			
Time: 1450	4 - 6	Brown	silty clay-moist-soft
Method: DPT			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	Encores	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSA-CRANE SWMU-11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB430809
Sample Location: 11SB43
Sampled By: K.SMITH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 11/16/11	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1450	8 - 9	Reddish Brown	sandy clay-dense-hard
Method: DPT			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	Encores	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSA-CRANE SWMU-11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB440406
Sample Location: 11SB44
Sampled By: K.SMITH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 11/16/11	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1330	5 - 6	Reddish Brown	sandy clay(fine)-dry-soft
Method: DPT			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	Encores	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSA-CRANE SWMU-11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB440607
Sample Location: 11SB44
Sampled By: K.SMITH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 11/16/11	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1330	6 - 7	Reddish Brown	sandy clay(fine)-dry-soft
Method: DPT			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	Encores	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSA-CRANE SWMU-11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB450204
Sample Location: 11SB45
Sampled By: K.SMITH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 11/16/11	2 - 4	dark brown	clay-dense-soft
Time: 1100			
Method: DPT			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	Encores	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSA-CRANE SWMU-11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB450506
Sample Location: 11SB45
Sampled By: K.SMITH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 11/16/11			
Time: 1100	5 - 6	Reddish Brown	sandy clay-dry-hard
Method: DPT			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	Encores	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSA-CRANE SWMU-11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB460305
Sample Location: 11SB46
Sampled By: K.SMITH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 11/17/11	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0950	3 - 5	Reddish Brown	sandy(fine) clay-dry-hard
Method: DPT			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	Encores	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
Y	

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSA-CRANE SWMU-11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB460506
Sample Location: 11SB46
Sampled By: K.SMITH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 11/17/11	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0950	5 - 6	Reddish Brown	sandy(fine) clay-dry-hard
Method: DPT			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	Encores	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
Y	

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSA-CRANE SWMU-11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB470103
Sample Location: 11SB47
Sampled By: K.SMITH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 11/16/11	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1515	1 - 3	Brown	sandy clay-dense-hard
Method: DPT			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	Encores	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSA-CRANE SWMU-11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB470304
Sample Location: 11SB47
Sampled By: K.SMITH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 11/16/11	3 - 4	Brown	sandy clay-dense-hard
Time: 1515			
Method: DPT			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	Encores	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSA-CRANE SWMU-11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB480305
Sample Location: 11SB48
Sampled By: K.SMITH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 11/16/11	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1410	3 - 5	Dark Brown	silty clay-moist-soft
Method: DPT			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	Encores	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSA-CRANE SWMU-11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB480506
Sample Location: 11SB48
Sampled By: K.SMITH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 11/16/11			
Time: 1410	5 - 6	Reddish Brown	sandy clay-dry-hard
Method: DPT			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	Encores	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSA-CRANE SWMU-11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB490204
Sample Location: 11SB49
Sampled By: K.SMITH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 11/16/11			
Time: 1230	2 - 4	Brown	sandy clay-dense-hard
Method: DPT			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	Encores	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSA-CRANE SWMU-11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB490405
Sample Location: 11SB49
Sampled By: K.SMITH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 11/16/11	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1230	4 - 5	Brown	sandy clay-dense-hard
Method: DPT			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	Encores	x	

OBSERVATIONS / NOTES:

Refusal at 5 feet 2 inches.

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSA-CRANE SWMU-11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB500305
Sample Location: 11SB50
Sampled By: K.SMITH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 11/16/11			
Time: 1250	3 - 5	Greyish Brown	sandy clay-dense-hard
Method: DPT			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	Encores	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSA-CRANE SWMU-11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB500506
Sample Location: 11SB50
Sampled By: K.SMITH
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 11/16/11			
Time: 1250	5 - 6	Reddish Brown	sandy clay(fine)-dry-soft
Method: DPT			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	Encores	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech

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Project Site Name: SWMU 11
Project No.: 112G02635

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB51-0204
Sample Location: 11SB51
Sampled By: K. Losekamp
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10/30/12 Time: 1130 Method: DPT Monitor Reading (ppm NA	2-4	BRN	Silty Clay

COMPOSITE SAMPLE DATA:

	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
	11SB-FD103012-01

Signature(s):

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Project Site Name: SWMU 11
Project No.: 112G02635

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB61-0506
Sample Location: 11SB61
Sampled By: K. Losekamp
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10/30/12	5-6	BRN	Silty Clay
Time: 1155			
Method: DPT			
Monitor Reading (ppm NA			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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Project Site Name: SWMU 11
Project No.: 112G02635

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 115B52-0204
Sample Location: 115B52
Sampled By: K. Losekamp
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10/30/12	2-4	BRN	Silty Clay
Time: 1200			
Method: DPT			
Monitor Reading (ppm NA			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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Project Site Name: SWMU 11
Project No.: 112G02635

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 115B52-0506
Sample Location: 115B52
Sampled By: K. Losekamp
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10/30/12	5-6	BRN	Silty Clay
Time: 1205			
Method: DPT			
Monitor Reading (ppm NA			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

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Project Site Name: SWMU 11
Project No.: 112G02635

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 115B53-0204
Sample Location: 115B53
Sampled By: K. Losekamp
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10/30/12 Time: 1225 Method:DPT Monitor Reading (ppm NA	2-4	BRN	Silty Clay

COMPOSITE SAMPLE DATA:

	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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Project Site Name: SWMU 11
Project No.: 112G02635

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 115B53-0506
Sample Location: 115B53
Sampled By: K. Losekamp
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10/30/12 Time: 1230 Method:DPT Monitor Reading (ppm NA	5-6	BRN	Sandy Clay

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs			

OBSERVATIONS / NOTES:

PID Hit of 6.7

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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Project Site Name: SWMU 11
Project No.: 112G02635

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 115B54-0204
Sample Location: 115B54
Sampled By: K. Losekamp
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10/30/12 Time: 1245 Method: DPT Monitor Reading (ppm NA	2-4	BRN	Silty Clay

COMPOSITE SAMPLE DATA:

	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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Project Site Name: SWMU 11
Project No.: 112G02635

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 115B54-040S
Sample Location: 115B54
Sampled By: K. Losekamp
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10/30/12 Time: 1250 Method:DPT Monitor Reading (ppm NA	4-5	BRN	Silty Clay

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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Project Site Name: SWMU 11
Project No.: 112G02635

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 115B55-0406
Sample Location: 115B55
Sampled By: K. Losekamp
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10/30/12 Time: 1310 Method: DPT Monitor Reading (ppm NA	4-6	BRN	Silty Clay

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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Project Site Name: SWMU 11
Project No.: 112G02635

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 115B55-0607
Sample Location: 115B55
Sampled By: K. Losekamp
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10/30/12	6-7	BRN	Silty clay
Time: 1315			
Method:DPT			
Monitor Reading (ppm NA			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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Project Site Name: SWMU 11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 115B56-0406
Sample Location: 115B56
Sampled By: K. Losekamp
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10/30/12 Time: 1330 Method:DPT Monitor Reading (ppm NA	4-6	BRN	Silty Clay

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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Project Site Name: SWMU 11
Project No.: 112G02635

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 115B56-0708
Sample Location: 115B56
Sampled By: K. Losekamp
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10/30/12 Time: 1335 Method:DPT Monitor Reading (ppm NA	7-8	BRN	Silty Clay

COMPOSITE SAMPLE DATA:

	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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Project Site Name: SWMU 11
Project No.: 112G02635

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 115B57-0406
Sample Location: 115B57
Sampled By: K. Losekamp
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10/30/12 Time: 1345 Method:DPT Monitor Reading (ppm NA	4-6	gray	Silty Clay wet soft

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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Project Site Name: SWMU 11
Project No.: 112G02635

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 115B57-0607
Sample Location: 115B57
Sampled By: K. Losekamp
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10/30/12 Time: 1350 Method: DPT Monitor Reading (ppm NA	6-7	gray	Silty Sandy Clay soft wet

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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Project Site Name: SWMU 11
Project No.: 112G02635

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 115B58-0305
Sample Location: 115B58
Sampled By: K. Losekamp
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10/30/12	3-5	BRN	Silty Clay
Time: 1405			
Method: DPT			
Monitor Reading (ppm NA			

COMPOSITE SAMPLE DATA:

	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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Project Site Name: SWMU 11
Project No.: 112G02635

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 115B58-0506
Sample Location: 115B58
Sampled By: K. Losekamp
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10/30/12 Time: 1410 Method:DPT Monitor Reading (ppm NA	5-6	BRN	silty Clay

COMPOSITE SAMPLE DATA:

	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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Project Site Name: SWMU 11
Project No.: 112G02635

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 115B590204
Sample Location: 115B59
Sampled By: K. Losekamp
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10/30/12 Time: 1430 Method:DPT Monitor Reading (ppm NA	2-4	BRN	Silty Sandy Clay

COMPOSITE SAMPLE DATA:

	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs			

OBSERVATIONS / NOTES:

Refusal at 4'.

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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Project Site Name: NSA Crane SWMU 11
Project No.: 112G02635

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 115B60-0204
Sample Location: 115B60
Sampled By: KL, JF, JG
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 11/29 Time: 1145 Method: DPT Monitor Reading (ppm NA	2-4	BRN	Silty Clay

COMPOSITE SAMPLE DATA:

	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	3 40ml VOA		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
	115BFD-112972-01

Signature(s):

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Project Site Name: NSA Crane SWMU 11
Project No.: 112G02635

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 115360-D405
Sample Location:
Sampled By: KL, JF, JG
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 11/29 Time: 1150 Method: DPT Monitor Reading (ppm NA	4-5	BRN	Silty Clay

COMPOSITE SAMPLE DATA:

	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	3 40ml VOA		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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Project Site Name: NSA Crane SWMU 11
Project No.: 112G02635

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 115B61-0810
Sample Location: 115B61
Sampled By: KL, JF, JG
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 11/29/12 Time: 1000 Method: PPT Monitor Reading (ppm NA	8-10	BRN	Silty Clay

COMPOSITE SAMPLE DATA:

	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	3 40ml VOA		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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Project Site Name: NSA Crane SWMU 11
Project No.: 112G02635

[] Surface Soil
[✓] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 115361-1011
Sample Location: 115361
Sampled By: KL, JF, JG
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 11/29/12 Time: 1015 Method: DPT Monitor Reading (ppm NA	10-11	BRN	Sandy silty Clay

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	3 40ml VOA		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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Project Site Name: NSA Crane SWMU 11
Project No.: 112G02635

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 115B62-0911
Sample Location: 115B62
Sampled By: KL, JF, JG
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 11/29/12	9-11	BRN	Silty Clay
Time: 1030			
Method: DPT			
Monitor Reading (ppm NA			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	3 40ml VOA		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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Project Site Name: NSA Crane SWMU 11
Project No.: 112G02635

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: @115B62-1112
Sample Location: 115B62
Sampled By: KL, JF, JG
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 11/29/12 Time: 1035 Method: DPT Monitor Reading (ppm NA	11-12	BRN	Silty Clay

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	3 40ml VOA		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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Project Site Name: NSA Crane SWMU 11
Project No.: 112G02635

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 115I363-1112
Sample Location: 115I363
Sampled By: KL, JF, JG
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 11/29/12 Time: 1050 Method: DPT Monitor Reading (ppm NA	11-12	BRN	Silty Clay

COMPOSITE SAMPLE DATA:

	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	3 40ml VOA		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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Project Site Name: NSA Crane SWMU 11
Project No.: 112G02635

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 113363-0811
Sample Location: 113363
Sampled By: KL, JF, JG
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 11/29/12 Time: 1045 Method: DPT Monitor Reading (ppm NA	9-11	BRN	Silty Clay

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	3 40ml VOA		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NSA Crane SWMU 11
Project No.: 112G02635

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 115B64-0911
Sample Location: 115B64
Sampled By: KL, JF, JG
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 11/29/12	9-11	BRN	Silty Clay
Time: 1100			
Method: PPT			
Monitor Reading (ppm NA			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	3 40ml VOA		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NSA Crane SWMU 11
Project No.: 112G02635

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 115136 4-1112
Sample Location: 115836 4
Sampled By: KL, JF, JG
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 11/29/12 Time: 1110 Method: DPT Monitor Reading (ppm NA	11-12	BRN	Silty Clay

COMPOSITE SAMPLE DATA:

	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	3 40ml VOA		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NSA Crane SWMU 11
Project No.: 112G02635

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 115B65-0911
Sample Location: 115B65
Sampled By: KL, JF, JG
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 11/29/12 Time: 1130 Method: DPT Monitor Reading (ppm NA	9-11	BRN	Silty Clay

COMPOSITE SAMPLE DATA:

	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	3 40ml VOA		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NSA Crane SWMU 11
Project No.: 112G02635

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 115BGS-1112
Sample Location: 115BGS
Sampled By: KL, JF, JG
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 01/29/12 Time: 1135 Method: DPT Monitor Reading (ppm NA	11-12	BRN	Silty Clay

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	3 40ml VOA		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NSA Crane SWMU 11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 1151366-1315
Sample Location: 1151366
Sampled By: KL
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:1/23/13 Time: 1205 Method:DPT Monitor Reading (ppm NA	13-15	Blw	silty clay

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	3 encore	x	
% moisture	1 4 oz	x	
MS/MSD			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NSA Crane SWMU 11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 115I366-1516
Sample Location: 115I366
Sampled By: KL
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:1/23/13	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1210	15-16	BRN	silty Clay / some Sand
Method:DPT			
Monitor Reading (ppm NA			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	3 encore	x	
% moisture	1 4 oz	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.: 11FD012313-01

Signature(s):

Tetra Tech

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NSA Crane SWMU 11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 1151367-1416
Sample Location: 1151367
Sampled By: KL
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:1/23/13 Time: 1230 Method:DPT Monitor Reading (ppm NA	14-16	Brn	Silty Clay

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	3 encore	x	
% moisture	1 4 oz	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NSA Crane SWMU 11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB67-16-17
Sample Location: 11SB67
Sampled By: KL
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:1/23/13			
Time: 1235	16-17'	BRN	Silty Clay
Method:DPT			
Monitor Reading (ppm NA			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	3 encore	x	
% moisture	1 4 oz	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NSA Crane SWMU 11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 11SB68 1315
Sample Location: 11SB68
Sampled By: KL
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:1/23/13	13-15	BRN	Silty Clay
Time: 1250			
Method:DPT			
Monitor Reading (ppm NA			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	3 ~~encore~~ VOA 2 HCl 2 (MeOH)	x	
% moisture	1 4 oz	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NSA Crane SWMU 11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 115B68 1516
Sample Location: 115B68
Sampled By: KL
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:1/23/13			
Time: 1255	15-16	Brn	Silty Clay
Method:DPT			
Monitor Reading (ppm NA			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	3 encore	x	
% moisture	1 4 oz	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NSA Crane SWMU 11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 115B69-1416
Sample Location: 115B69
Sampled By: KL
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date:1/23/13	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1305	14-16	Brn	silty clay
Method:DPT			
Monitor Reading (ppm NA			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	3 encore	x	
% moisture	1 4 oz	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NSA Crane SWMU 11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 115B69-1617
Sample Location: 115B69
Sampled By: KL
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:1/23/13 Time: 1310 Method:DPT Monitor Reading (ppm NA	16-17	BRN	Sandy Silty Clay

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	3 encore	x	
% moisture	1 4 oz	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NSA Crane SWMU 11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 115B70-1315
Sample Location: 115B70
Sampled By: KL
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:1/23/13 Time: 1330 Method:DPT Monitor Reading (ppm NA	13-15	BRN	Silty clay

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	3 encore	x	
% moisture	1 4 oz	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: NSA Crane SWMU 11
Project No.: 112G02635

[] Surface Soil
[x] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 115B70 1516
Sample Location: 115B70
Sampled By: KL
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:1/23/13 Time: 1340 Method:DPT Monitor Reading (ppm NA	15-16	BRN	Sandy silty clay

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	3 encore	x	
% moisture	1 4 oz	x	

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

TETRA TECH

MONITORING WELL DEVELOPMENT RECORD

Well:	11MW01	Depth to Bottom (ft.):	31.75	Responsible Personnel:	K. SIMPSON
Site:	SWMU 11	Static Water Level Before (ft.):	9.85	Driller:	Micah Group / Ben Borth
Date Installed:		After (ft.):		Project Name:	NSA Crane - SWMU 18
Date Developed:	15 NOV 11	Screen Length (ft.):	10'	Project Number:	112G01851
Dev. Method:	SURGE + PUMP	Specific Capacity:		PID/FID (ppm):	Wellhead: 0
Pump Type:	12V SUB.	Casing ID (in.):	2" PVC		Breathing Zone: 0

PUMP RATE = 2 GPM

Time	Estimated Sediment Thickness (feet)	Cumulative Water Volume (gal or ~~cly~~)	Water Level Readings (feet below TOC)	Temperature (degrees C)	pH	Specific Conductance (units ~~mS/cm~~)	Turbidity (NTU)	Remarks (odor, color, etc.)
1349	0	0	9.85	—	—	—	—	TAN, NO ODOR
1350	↓	2	—	15.5	9.40	0.467	>999	
1359		10	28.00	—	—	—	—	DRY
1418		10	27.10	—	—	—	—	RESTART
1419		12		15.3	5.91	0.467	>999	
1420		13	28.00	—	—	—	—	DRY
—	—	29	NOV	11	—	Bailer	—	—
1300	0	13	8.34					
1329	0	20.5	27.60	15.8	7.8	0.612	>999	Tan no odor

SURGED 1ST 5 MIN + SURGED WITH PUMP

TETRA TECH

MONITORING WELL DEVELOPMENT RECORD

Well:	11MWT02	Depth to Bottom (ft.):	27.35	Responsible Personnel:	R. SIMPSON
Site:	SWMU 11	Static Water Level Before (ft.):	4.49	Driller:	Micah Group / Ben Borth
Date Installed:		After (ft.):		Project Name:	NSA Crane - SWMU 18
Date Developed:	15 NOV 11	Screen Length (ft.):	10'	Project Number:	112G01851
Dev. Method:	SURGE + PUMP	Specific Capacity:		PID/FID (ppm):	Wellhead: 0
Pump Type:	12V SUB	Casing ID (in.):	2" PVC (FM)		Breathing Zone: 0

Time	Estimated Sediment Thickness (feet)	Cumulative Water Volume (gal ~~or L~~)	Water Level Readings (feet below TOC)	Temperature (degrees C)	pH	Specific Conductance (units ~~µS/cm~~)	Turbidity (NTU)	Remarks (odor, color, etc.)
1050	0	0	4.49					GRAY, NO ODOR
1054		6	23.00	17.7	6.27	1.29	>999	
1056		9	24.00					DRY TO PUMP
1127		9	21.30					
1129		15	22.00	16.6	6.02	1.20	>999	
1132		20	24.00					DRY TO PUMP
								PUMP RATE = 1.5 GPM

SURGED FOR 5 MIN FIRST + SURGED WITH PUMP

TETRA TECH

MONITORING WELL DEVELOPMENT RECORD

Well:	11MW03	Depth to Bottom (ft.):	27.30	Responsible Personnel:	R. SIMPSON
Site:	SWMU 11	Static Water Level Before (ft.):	8.05	Driller:	Micah Group / Ben Borth
Date Installed:		After (ft.):		Project Name:	NSA Crane - SWMU 18
Date Developed:	15 NOV 11	Screen Length (ft.):	10'	Project Number:	112G01851
Dev. Method:	SURGE + PUMP	Specific Capacity:		PID/FID (ppm): Wellhead:	0
Pump Type:	12V SUB.	Casing ID (in.):	2" PVC	Breathing Zone:	0

PUMP RATE = 2 GPM

Time	Estimated Sediment Thickness (feet)	Cumulative Water Volume (gal or L)	Water Level Readings (feet below TOC)	Temperature (degrees C)	pH	Specific Conductance (units µS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
1245	0	0	8.05					TAN COLOR, NO ODOR
1247		4	22.00	16.2	8.70	1.42	>9999	
1250		10	26.00					DRY TO PUMP INLET
1316		10	22.70	16.1	9.01	1.34	>9999	
1317		12						DRY TO PUMP INLET
		29 NOV '11			Bailer			
1041	0	12	8.42					
1107	0	16.5	25.31	15.5	8.1	1.52	>999	Tan color, No odor
1123	0	16.5	20.85					
1129	0	18.5	25.9	15.9	7.7	1.21	9999	Tan

SURGED FOR 5 MIN 1ST + SURGED w/PUMP

TETRA TECH

MONITORING WELL DEVELOPMENT RECORD

Well: 11MW04
Site: SWMU 11
Date Installed:
Date Developed: 15 NOV 11
Dev. Method: PUMP + SURGE
Pump Type: 12V SUB

Depth to Bottom (ft.): 36.15
Static Water Level Before (ft.): 19.00
After (ft.):
Screen Length (ft.): 10'
Specific Capacity:
Casing ID (in.): 2" PVC

Responsible Personnel: K. SIMPSON
Driller: Micah Group / Ben Borth
Project Name: NSA Crane - SWMU 18
Project Number: 112G01851
PID/FID (ppm): Wellhead: 0
Breathing Zone: 0

SURGED 1ST FOR 5 MIN PUMP RATE = 2 GPM

Time	Estimated Sediment Thickness (feet)	Cumulative Water Volume (gal or L)	Water Level Readings (feet below TOC)	Temperature (degrees C)	pH	Specific Conductance (units µS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
1447	0	0	19.00					TAN, NO ODOR
1448		2	21.65	14.8	6.10	1.30	>999	
1449		4	34.00					DRY, TO PUMP INLET
1510		4	32.70					
1511		4						RESTART
1512		5	34.00	14.7	6.34	1.43	>999	DRY
			21 NOV 11 AT BAILER					
1253	0	5	29.09					
1300	0	6.5	32.30	15.0	6.27	1.61	>999	TAN, NO ODOR
1308	0	7.5	34.10					

Tetra Tech

MONITORING WELL DEVELOPMENT RECORD

Well: 11MW105
Site: _____ SWMU 11
Date Installed: 11-18-12
Date Developed: 11-19-12
Dev. Method: _Surge and pump_____
Pump Type: _12V Sub_____

Depth to Bottom (ft.): 49.96
Static Water Level Before (ft.): _____
Static Water Level After (ft.): 29.56
Screen Length (ft.): 20'
Specific Capacity: _____
Casing ID (in.): 2"

Responsible Personnel: ___ K. Losekamp
Drilling Co.: ___ American Drilling
Project Name: _ SWMU 11
Project Number: 112G02635

	Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units _____)	Turbidity (NTU)	Remarks (odor, color, etc.)
	1600	.5'	0	29.56					
	1605	.5'	6	39.41	14.1	6.10	.888	1000+	very turbid Brown high silt
	1610	.3'	10	48.61					Dry to pump inlet
11/20/12	0800	.5	10	29.10					restart
	0805	.5	17	46.10	13.1	6.01	.087	1000+	
	0807	.3	19	48.33					Started to clear up
	1015	.3	19	43.87					restart
	1018	.3	21	46.17	14.7	6.61	.017	1000+	brown
	1020	.3	22	48.47					dry to pump

Tetra Tech

MONITORING WELL DEVELOPMENT RECORD

Well: 11MW106
Site: _____ SWMU 11
Date Installed: 11/18/12
Date Developed: 11/20/12
Dev. Method: _Surge and pump_____
Pump Type: _12V Sub_____

Depth to Bottom (ft.): ~~70.94~~ 71.87
Static Water Level Before (ft.): 52.56
Static Water Level After (ft.): _____
Screen Length (ft.): 10' 62-72
Specific Capacity: _____
Casing ID (in.): 2"

Responsible Personnel: ___ K. Losekamp
Drilling Co.: ___ American Drilling
Project Name: _ SWMU 11
Project Number: 112G02635

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units _____)	Turbidity (NTU)	Remarks (odor, color, etc.)
0830	.5	0	52.56					Start
0832	.3	4	58.10	13.10	5.72	.871	+1000	very turbid
0840	.3	12	69.10					Dry to pump starting
								to clear up.
0930	.2	12	53.87					Restart
0932	.1	15	57.11	13.87	5.87	.801	870	Cloudy
0935	.0	19	62.11					Clear / cloudy
0940	.0	22	68.10					Clear
0950	.0	22	59.71					restart
0958	.0	29	69.89					Cloudy / dry to pump

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSA Crane-SWMU 11
Project No.: 112G02635

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 11MW01 01
Sample Location: 11MW01 01
Sampled By: K. SMITH
C.O.C. No.: 0890
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 12/12/2011								
Time: 1600								ORP
Method: BLADDER	CLEAR	5.20	0.488	13.44	101.1	27.2	0.02	222

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 12/12/2011								
Method: BLADDER								
Monitor Reading (ppm): 0.0								
Well Casing Diameter & Material								
Type: 2" PVC		SEE LOW FLOW PURGE						
Total Well Depth (TD): 31.65'								
Static Water Level (WL): 20.61'								
One Casing Volume(gal/L):			DATA SHEET					
Start Purge (hrs): 1400								
End Purge (hrs): 1500								
Total Purge Time (min): 110								
Total Vol. Purged (gal/L):								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	3-40mL VIAL	✓

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s): Kendra Smith

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSA CRANE-SWMU 11
PROJECT NUMBER: 1126G02635

WELL ID.: 11MW107-121211
DATE: 12/12/2011

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity (%) or ppt	Comments
1400	21.80	—	—	INITIAL WATER LEVEL						
1415	21.6	210	5.31	0.470	0.0	101.0	12.98	237	0.02	
1425	21.0	200	5.25	0.474	800	50.6	13.03	324	0.02	WATER DARK BROWN
1435	20.79	200	5.20	0.444	410	42.6	14.11	240	0.02	
1445	—	200	5.19	0.419	204	40.2	14.30	226	0.02	CLEAR WATER
1455	15.25	200	5.18	0.411	154	22.1	14.33	216	0.02	
1505	16.40	200	5.22	0.411	211	54.1	14.16	214	0.02	
1515	17.15	200	5.19	0.419	211.04	34.0	14.21	209	0.02	
1525	18.60	200	5.17	0.418	80.1	34.7	14.10	213	0.02	
1535	20.15	200	5.17	0.420	78.3	29.5	13.89	218	0.02	
1540	20.75	190	5.18	0.423	88.1	28.1	13.71	220	0.01	
1545	20.100	190	5.19	0.427	100.1	27.9	13.55	221	0.02	
1550	20.101	190	5.20	0.428	101.1	27.2	13.44	222	0.02	
				SAMPLE COLLECTED @ 1600						

SIGNATURE(S): Kendra Ingel

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Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSA Crane-SWMU 11
Project No.: 112G02635

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 11MWTQ201
Sample Location: 11MWTQ02
Sampled By: K. SMITH
C.O.C. No.: 0890
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other ORP
Date: 12/14/2011								
Time: 1010								
Method: BLADDER	CLEAR	5.50	0.897	14.09	60.2	5.40	0.04	120

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 12/14/2011								
Method: BLADDER								
Monitor Reading (ppm): 0.0								
Well Casing Diameter & Material Type: 2" PVC		SEE LOW FLOW PURGE						
Total Well Depth (TD): 27.26'								
Static Water Level (WL): 18.15		DATA SHEET						
One Casing Volume(gal/L):								
Start Purge (hrs): 0830								
End Purge (hrs): 1005								
Total Purge Time (min):								
Total Vol. Purged (gal/L):								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	3-40 mL VIAL	✓

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	11FD-12141-01

Signature(s): [illegible]

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSA CRANE-SWMU 11
PROJECT NUMBER: 112G026035
WELL ID.: 11MW102
DATE: 12/14/2011

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0830	6.55'	—	—	—	INITIAL	WATER	LEVEL	—	—	BROWN WATER
0845	10.45'	220	5.68	0.889	343	5.54	14.41	105	0.04	WATER CLEAR
0855	12.56'	220	5.76	0.844	239	6.93	14.30	108	0.04	
0905	14.01'	200	5.76	0.844	118	7.43	14.23	109	0.04	
0915	15.92'	200	5.73	0.849	108	6.78	14.16	108	0.04	
0925	17.41'	175	5.70	0.853	76.4	6.49	14.14	110	0.04	
0940	17.39	175	5.68	0.869	83.1	5.51	13.95	109	0.04	
0950	17.80	180	5.59	0.877	66.6	5.40	14.01	115	0.04	
0955	17.95	180	5.56	0.885	69.0	5.57	14.05	115	0.04	
1000	18.10	180	5.52	0.894	62.0	5.41	14.08	119	0.04	
1005	18.15	180	5.50	0.894	60.2	5.40	14.09	120	0.04	

— WELL STABILIZED —

SAMPLE COLLECTED AT 1010
WATER LEVEL AFTER PUMP IS OUT WELL 18.3'

FIELD DUP COLLECTED AT THIS WELL

SIGNATURE(S): [illegible]

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Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSA Crane-SWMU 11
Project No.: 112G02635

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 11MWT0301
Sample Location: 11MWT003
Sampled By: K. SMITH
C.O.C. No.: 0390
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (^{0}C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 12/14/2011								
Time: 1545								ORP
Method: BLADDER	Clear	6.84	1.06	15.11	0.0	6.55	0.05	93

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 12/14/2011								
Method: 1545								
Monitor Reading (ppm): 0.0								
Well Casing Diameter & Material				SEE	LOW	FLOW	PURGE	
Type: 2" PVC								
Total Well Depth (TD): 27.66'								
Static Water Level (WL): 21.10'				DATA	SHEET			
One Casing Volume(gal/L):								
Start Purge (hrs): 1345								
End Purge (hrs): 1535								
Total Purge Time (min):								
Total Vol. Purged (gal/L):								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	3-40ML VIAL	✓

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Kendra Smith

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSA CRANE - SWMU 11
PROJECT NUMBER: 112602635
WELL ID.: 11MW03
DATE: 12/17/2011

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1345	7.86				INITIAL	READ	WATER	LEVEL		BROWN WATER
1355	11.15'	220	6.77	1.16	0.0	9.37	14.61	103	0.06	CLOUDY
1405	13.25'	220	7.07	1.11	0.0	9.76	14.74	100	0.05	
1415	15.75'	220	7.18	1.09	0.0	9.50	15.00	103	0.05	
1425	16.75'	200	7.23	1.08	0.0	7.14	14.90	101	0.05	
1435	17.75'	200	7.19	1.09	0.0	7.00	14.91	94	0.05	
1445	18.32'	200	7.12	1.07	0.0	6.80	14.96	89	0.05	
1455	19.00'	200	7.03	1.06	0.0	6.75	15.01	88	0.05	
1505	19.61'	200	6.95	1.05	0.0	6.70	15.04	89	0.05	
1515	20.21'	200	6.88	1.06	0.0	6.60	15.06	92	0.05	
1525	20.75'	200	6.85	1.07	0.0	6.56	15.09	93	0.05	
1530	21.00'	200	6.84	1.08	0.0	6.57	15.10	93	0.05	
1535	21.10'	200	6.84	1.08	0.0	6.55	15.11	93	0.05	

SAMPLE COLLECTED @ 1545
WATER LEVEL 21.59

SIGNATURE(S): Kenna [illegible]

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Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NSA Crane-SWMU 11
Project No.: 112G02635

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 11MWTC401
Sample Location: 11MWTC04
Sampled By: K SMITH
C.O.C. No.: 0390
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 12/15/2011	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Time: 1645	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	ORP
Method: BLADDER	Cloudy	6.16	1.49	13.13	800	1.17	0.7	178

PURGE DATA:

Date: 12/15/2011	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method: BLADDER								
Monitor Reading (ppm): 0.0								
Well Casing Diameter & Material								
Type: 2" PVC			SEE	LOW	FLOW	PURGE		
Total Well Depth (TD): 36.11'								
Static Water Level (WL): 34.67			DATA	SHEET				
One Casing Volume(gal/L):								
Start Purge (hrs): 1530								
End Purge (hrs): 1620								
Total Purge Time (min):								
Total Vol. Purged (gal/L):								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	3-40ML VIAL	✓

OBSERVATIONS / NOTES:

WELL WENT DRY, PUMP WAS TURNED OFF TO RECHARGE

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s): Kendrick Smith

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSA-CRANE-SWMU 11
PROJECT NUMBER: 112GD02035

WELL ID.: 11MW07
DATE: 12/15/2011

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1530	32.70			WATER LEVEL					BROWN	WATER COLOR
1540	34.34	200	6.93	1.48	800	1.28	13.38	176	0.7	cloudy
1550	NA	180	6.16	1.49	800	1.17	13.13	173	0.7	
		WELL	IS DRY,	WAIT TIL	RECHARGE					
1610	34.67	START	PUMP	BACK UP						
1620		WELL	WENT	DRY,	TURN	OFF	PUMP			
		COLLECT	SAMPLE	@ 1645						

SIGNATURE(S): Kendra [illegible]

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GROUNDWATER SAMPLE LOG SHEET

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Project Site Name: SWMU 11
Project No.: 112G02635

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 11MW10102
Sample Location: 11MW101
Sampled By: KL RCR
C.O.C. No.:
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (^{0}C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 11/28/12								
Time: 1130								
Method: Bladder	Clear	6.70	.246	9.73	9.2	—	—	—

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 11/28/12								
Method: Low Flow Bladder								
Monitor Reading (ppm): NA								
Well Casing Diameter & Material Type: 2" PVC		See Purge Data Sheet						
Total Well Depth (TD): 34.75								
Static Water Level (WL): 9.82								
One Casing Volume (gal/L): 3.57								
Start Purge (hrs): 0930								
End Purge (hrs): 1130								
Total Purge Time (min): 120								
Total Vol. Purged (gal/L): 7.9								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Vocs	HCL	3 40mL VOAs	

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSA Crane SWMU 11
PROJECT NUMBER: 112G02635

WELL ID.: 11MW101
DATE: 11/28/12

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0930	9.82	200	6.13	.661	101.9	–	10.01	168	–	Cloudy
0945	9.82	200	6.57	.431	187.6	–	9.87	161	–	Cloudy
1000	9.88	250	6.61	.289	100.6	–	9.84	152	–	
1015	9.87	250	6.66	.267	89.1	–	9.77	147	–	
1030	9.87	250	6.67	.254	70.1	–	9.63	144	–	
1045	9.87		6.67	.250	41.7	–	9.71	143	–	Clear
1100	9.87		6.69	.247	28.3	–	9.68	142	–	
1110	9.87		6.70	.246	13.9	–	9.71	140	–	
1115	9.87		6.70	.247	10.0	–	9.77	140	–	
1120	9.87		6.70	.246	9.3	–	9.73	139	–	
1125	9.87		6.70	.245	9.3	–	9.71	139	–	
1130	9.88		6.70	.246	9.2	–	9.73	139	–	

SIGNATURE(S): [illegible]

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GROUNDWATER SAMPLE LOG SHEET

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Project Site Name: SWMU 11
Project No.: 112G02635

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 11MWT0202
Sample Location: 11MWT02
Sampled By: CR
C.O.C. No.:
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 11/29/12	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (^{0}C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Time: 1340								
Method: Low flow bladder	Clear	8.10	0.185	12.6	9.7	8.45	—	—

PURGE DATA:

Date: 11/29/12	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method: Low Flow bladder	200	8.43	0.191	14.8	6.0	6.17	—	
Monitor Reading (ppm): —		8.60	0.185	13.7	11.1	5.87	—	
Well Casing Diameter & Material		8.49	0.194	13.1	10.3	9.17	—	
Type: 2" PVC		8.55	0.198	12.9	11.5	9.22	—	
Total Well Depth (TD): 27.35		8.10	0.192	12.5	10.9	8.88	—	
Static Water Level (WL): 5.20		8.00	0.176	12.3	10.0	8.77	—	
One Casing Volume(gal/L): 3.61		8.10	0.185	12.6	9.7	8.45	—	
Start Purge (hrs): 1230								
End Purge (hrs): 1340								
Total Purge Time (min): 70								
Total Vol. Purged (gal/L): 3.69								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Vocs	HCL	3 VOAs	X

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): C. Rer

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSA Crane SWMU 11
PROJECT NUMBER: 112G02635

WELL ID.: 11MWT02
DATE: 11/29/12

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1230	4.98	200	—	—	—	—	—	—	—	Clear
1240	6.44		8.43	0.191	6.0	6.17	14.8	32	—	
1250	7.10		8.60	0.185	11.1	5.87	13.7	39		
1300	7.67		8.49	0.194	10.3	9.17	13.1	31		
1310	7.69		8.55	0.188	11.5	9.22	12.9	23		
1320	7.80		8.10	0.192	10.9	8.88	12.5	20		
1330	7.89		8.00	0.176	10.0	8.77	12.3	53		
1340	7.98		8.10	0.185	9.7	8.45	12.6	46		

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GROUNDWATER SAMPLE LOG SHEET

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Project Site Name: SWMU 11
Project No.: 112G02635

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 11MWT0302
Sample Location: 11MWT03
Sampled By: CR
C.O.C. No.:
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 11/29/12	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Time: 1030								
Method:	Clear	6.7	0.641	6.05	56.5	4.97	—	

PURGE DATA:

Date: 11/29/12	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method: 0	250	6.48	0.817	—	42.8	8.20	—	
Monitor Reading (ppm): —		6.45	0.370	~~362~~ 2.9	71.9	6.73	—	
Well Casing Diameter & Material		7.05	0.711	~~283~~ 3.6	54.6	6.41	—	
Type: 2" PVC		6.74	0.720	3.8	13.8	12.5	—	
Total Well Depth (TD): 27.3		6.59	0.271	4.5	54.5	11.9	—	
Static Water Level (WL): 9.84		6.57	0.341	5.1	52.3	4.79	—	
One Casing Volume(gal/L): 2.84		6.70	0.641	6.05	56.5	4.97	—	
Start Purge (hrs): 0920								
End Purge (hrs): 1030								
Total Purge Time (min): 70								
Total Vol. Purged (gal/L): 4.65								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Vocs	HCL	3 VOAs	X

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): C. Rea

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSA Crane SWMU 11
PROJECT NUMBER: 112G02635

WELL ID.: 11MWT03
DATE: 11/29/12

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0920	9.64	100	—	—	—	—	—	—	—	clear
0930	10.12		6.48	0.817	42.8	8.20	—	106	—	
0940	10.51		6.45	0.320	71.9	6.73	2.9	124	—	
0950	11.33		7.05	0.711	54.6	6.41	3.6	116	—	
1000	12.08		6.74	0.720	13.8	12.5	3.8	129		
1010	12.88		6.59	0.271	54.5	11.9	4.5	135		
1020	12.88		6.51	0.341	52.3	4.79	5.1	132		
1030	13.30		6.7	0.641	56.5	4.97	6.05	99		

SIGNATURE(S): _____

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GROUNDWATER SAMPLE LOG SHEET

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Project Site Name: SWMU 11
Project No.: 112G02635

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 11MW1050 1
Sample Location: 11MW105
Sampled By: TCL
C.O.C. No.:
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (^{0}C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 11/27/12								
Time: 1145								
Method: Bladder	Clear	6.19	.071	16.30	7.8	0	0	–

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 11/27/12								
Method: Low Flow Bladder								
Monitor Reading (ppm): NA								
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD): 49.31								
Static Water Level (WL): 21.56								
One Casing Volume (gal/L): 4.52								
Start Purge (hrs): 0900								
End Purge (hrs): 1145								
Total Purge Time (min): 165								
Total Vol. Purged (gal/L): 8.71								

See Low Flow Data Sheets

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Vocs	HCL		

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
	11FD112712-01

Signature(s):

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSA Crane SWMU 11
PROJECT NUMBER: 112G02635

WELL ID.: 11MW105
DATE: 11/27/12

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0900	21.56	200	5.77		150	0	14.31	—		semi clear
0915	21.87		5.89		>1000		15.31			very turbid
0930	21.99		6.10		>1000		15.33			very turbid
0945	22.07		6.15		525		15.37			
1000	22.10		6.11		324		15.87			
1015	22.08		6.18		291		15.89			
1030	22.08		6.19		178.1		16.01			Clear
1045	22.08		6.18		124.0		16.01			
1100	22.08		6.19		77.0		16.21			
1115	22.08		6.19		23.0		16.23			
1130	22.06		6.19		12.0		16.27			Clear
1135	22.06		6.19		8.1		16.28			
1140	22.06		6.19		8.1		16.29			
1145	22.06	200	6.19	.071	7.8	0	16.30	—		Clear

SIGNATURE(S):

Tetra Tech

GROUNDWATER SAMPLE LOG SHEET

Page___ of ___

Project Site Name: SWMU 11
Project No.: 112G02635

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 11MW06 01
Sample Location: 11MW06
Sampled By: KL
C.O.C. No.:
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 11/27/12								
Time: 1545								
Method: Bladder	Clear	6.56	.076	15.47	8.75	0	—	—

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 11/27/12								
Method: Low Flow Bladder								
Monitor Reading (ppm): 0								
Well Casing Diameter & Material			See Low			Flow		
Type: 2" PVC								
Total Well Depth (TD): 71.89								
Static Water Level (WL): 53.78								
One Casing Volume(gal/L): 2.95			Data		Sheets			
Start Purge (hrs): 1245								
End Purge (hrs): 1545								
Total Purge Time (min): 180								
Total Vol. Purged (gal/L): 9.51								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Vocs	HCL		

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): [signature]

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSA Crane SWMU 11
PROJECT NUMBER: 112G02635

WELL ID.: 11MW106
DATE: 11/27/12

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1245	53.78	200	6.77	.808	71000	0	16.10		0	Murky
1300	54.11		6.51	.787	71000		16.10			
1315	53.98		6.53	.701	71000		17.01			
1330	53.99		6.61	.700	887		15.77			Cloudy
1345	53.91		6.51	.419	610		15.37			
1400	53.87		6.55	.331	519		15.77			
1415	53.81		6.57	.297	478		15.61			
1430	53.77		6.56	.231	211		15.51			
1445	53.78		6.56	.189	109		15.39			
1500	53.78		6.56	.151	58.17		15.33			Clear / slight turb
1515	53.78		6.56	.088	42.76		15.39			
1530	53.78		6.57	.071	20.01		15.42			
1535	53.78		6.56	.077	11.81		15.47			
1540	53.78		6.66	.075	8.17		15.41			Clear
1545	53.78	200	6.56	.076	8.75		15.47			Clear

SIGNATURE(S): [signature]

PAGE___OF___

Tetra Tech

GROUNDWATER SAMPLE LOG SHEET

Page___ of ___

Project Site Name: SWMU 11
Project No.: 112G02635

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: 18CMWT0102
Sample Location: 18CMWT0102
Sampled By: CR
C.O.C. No.:
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (^{0}C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 11/28/12								
Time: 1535								
Method: Low Flow Bladder	clear	6.05	0.880	17.4	10.8	1.25	—	

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 11/28/12								
Method: Low Flow bladder								
Monitor Reading (ppm): —								
Well Casing Diameter & Material								
Type: 2" PVC								
Total Well Depth (TD): 36.68								
Static Water Level (WL): 6.08								
One Casing Volume(gal/L): 4.98								
Start Purge (hrs): 1375								
End Purge (hrs): 1535								
Total Purge Time (min): 120								
Total Vol. Purged (gal/L): 6.34								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Vocs	HCL		X

OBSERVATIONS / NOTES:

@For Purge Data, See Low Flow Purge Data Sheet

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): C. Rea

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NSA Crane SWMU 11
PROJECT NUMBER: 112G02635

WELL ID.: 18CMWT01
DATE: 11/28/12

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1335	6.09	700	—	—	—	—	—	—	—	Reddish Tint
1345	7.03		4.5	—	180	9.08	16.73	267	—	
1355	7.61		6.05	0.407	138	8.87	16.71	93.	—	
1405	8.04		6.42	0.875	96.0	4.54	16.80	56.	—	
1415	8.12		6.38	0.777	75.0	3.55	17.00	47.	—	
1425	8.34		6.32	0.834	62.8	2.48	17.5	-4.	—	
1435	8.39		6.19	.874	54.0	2.57	17.3	25.	—	Clear
1445	8.24		5.8	.765	40.7	7.94	17.5	-4	—	
1455	8.29		6.02	.872	35.6	7.46	17.4	18.	—	
1505	8.28		6.01	.887	28.7	1.93	16.98	16.	—	
1515	8.21		6.03	.891	20.8	1.49	17.4	10	—	
1525	8.21		5.98	.898	12.9	1.31	17.5	12	—	
1535	8.18		6.05	.880	10.8	1.25	17.4	-59		

SIGNATURE(S): _____

PAGE___OF___

Tetra Tech

GROUNDWATER LEVEL MEASUREMENT SHEET

Project Name: SWMU 11 **Project No.:** 112G02635

Location: NSA Crane **Personnel:** K. Losekamp

Weather Conditions: Sunny, Low 30s **Measuring Device:** Solnist Water Level Meter

Tidally Influenced: Yes ____ No ___x_ **Remarks:**

Well or Piezometer Number	Date	Time	Elevation of Reference Point (feet)*	Total Well Depth (feet)*	Water Level Indicator Reading (feet)*	Thickness of Sediment (feet)*	Groundwater Elevation (feet)*	Comments
11MWT01	11/27/2012	800		31.75	9.81	0		
11MWT02	11/27/2012	805		27.35	5.2	0		
11MWT03	11/27/2012	815		27.3	9.84	0		
11MWT04	11/27/2012	830		36.1	35.21	0		
11MWT05	11/27/2012	820		49.31	21.56	0.5		
11MWT06	11/27/2012	810		71.89	53.78	0.1		
18CMWT001	11/27/2012	840		36.68	6.09	0		

* All measurements to the nearest 0.01 foot

APPENDIX D

DAILY ACTIVITY LOGS, CHAIN-OF-CUSTODY FORMS, AND LOG-BOOK

DAILY ACTIVITY LOGS

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY LOG

DATE	4/11/2011
NO.	1
SHEET 1 OF 1	

PROJECT NAME: Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) for Solid Waste Management Unit (SWMU) 11, Old Storage Building 225, located at the Naval Support Activity (NSA), Crane, Indiana.

PROJECT NO: 112G02635

FIELD ACTIVITY SUBJECT: Utility Location

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

SWMU 11 Utility Locate

Indiana one call (888) 382 -5544

11:00 – Six separate dig tickets were issued for the SWMU 11 sampling plan.

IUPPS # 110 411 3022 (Building 225)

IUPPS # 110 411 3030 (Building 226)

IUPPS # 110 411 3053 (Building 101)

IUPPS # 110 411 3064 (Building 3205)

IUPPS # 110 411 3077 (Building 3205)

IUPPS # 110 411 3089 (Building 3222)

New Ticket #'s will expire 05/01/2011.

VISITORS ON SITE: None

CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None

WEATHER CONDITIONS:

IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE:

SIGNATURE:

DATE: 04/11/2011

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY LOG

DATE	4/25/2011
NO.	1
SHEET 1 OF 1	

PROJECT NAME: Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) for Solid Waste Management Unit (SWMU) 11, Old Storage Building 225, located at the Naval Support Activity (NSA), Crane, Indiana.	**PROJECT NO:** 112G02635

FIELD ACTIVITY SUBJECT: Mobilize to NSA Crane

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

07:00 Kevin Losekamp, Kendra Smith, and George Ten Eyck Depart Cincinnati.

11:30 Arrive at trailer. K. Losekamp unpacks sample bottles, supplies, and equipment. G. Ten Eyck and K. Smith walk through SWMU 17 with Tom Brent.

16:00 G. Ten Eyck, K. Losekamp, and K. Smith marked locations and checked for utilities.

18:00 Depart Crane.

VISITORS ON SITE: Tom Brent	**CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS:** None
WEATHER CONDITIONS:	**IMPORTANT TELEPHONE CALLS**: None

PERSONNEL ON SITE: George Ten Eyck, Kevin Losekamp, Kendra Smith.

SIGNATURE: **DATE:** 04/25/2011

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY LOG

DATE	4/26/2011
NO.	1
SHEET 1 OF 1	

PROJECT NAME: Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) for Solid Waste Management Unit (SWMU) 11, Old Storage Building 225, located at the Naval Support Activity (NSA), Crane, Indiana.

PROJECT NO: 112G02635

FIELD ACTIVITY SUBJECT: Collect soil samples

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

07:00 K. Losekamp, K. Smith, and G. Ten Eyck arrive at trailer to pack supplies for the day.

08:00 Ben Borth and Mark Stafford (Micah Group) arrive at trailer for health and safety meeting.

08:45 Walk through locations with drillers. Moved SB17 north because of a gas line.

09:45 Started Drilling SB01.

15:00 Completed drilling IA-1, IA-2, IA-3, and IA-4.

15:30 G. Ten Eyck and K. Losekamp move to Building 3222 to mark locations with GPS unit.

17:00 Return to trailer and pack samples for shipment.

18:00 Depart Crane for FedEx.

VISITORS ON SITE:

CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None

WEATHER CONDITIONS:

IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: George Ten Eyck, Kevin Losekamp, Kendra Smith, Ben Borth, and Mark Stafford.

SIGNATURE:

DATE: 04/26/2011

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY LOG

DATE	4/27/2011
NO.	1
SHEET 1 OF 2	

PROJECT NAME: Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) for Solid Waste Management Unit (SWMU) 11, Old Storage Building 225, located at the Naval Support Activity (NSA), Crane, Indiana.	**PROJECT NO:** 112G02635

FIELD ACTIVITY SUBJECT: Collect soil samples

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

07:00 K. Losekamp, K. Smith, and G. Ten Eyck arrive at trailer to pack supplies for the day and calibrate PID.

08:00 Drillers arrive at trailer and discuss plan for the day.

08:45 Begin collecting samples at the concrete tank area (SB29-32)

09:45 Re-drill SB28 to collect MS/MSD samples.

10:15 Drillers released from site.

11:30 K. Losekamp to SWMU 27 to collect settling basin samples with drillers

13:00 Return to trailer and drillers demobilize from Crane.

13:30 Prepare samples, COCs, and pack coolers for shipment.

14:00 G. Ten Eyck to SWMU 17

16:00 G. Ten Eyck returns to the trailer to help prepare sample and ship.

18:00 Depart Crane for FedEx.

VISITORS ON SITE: None	**CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS:** None
WEATHER CONDITIONS:	**IMPORTANT TELEPHONE CALLS**: None

TETRA TECH NUS, INC.

PERSONNEL ON SITE: George Ten Eyck, Kevin Losekamp, Kendra Smith, Ben Borth, and Mark Stafford.	
SIGNATURE:	**DATE:** 04/27/2011

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY LOG

DATE	4/28/2011
NO.	1
SHEET 1 OF 1	

PROJECT NAME: Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) for Solid Waste Management Unit (SWMU) 11, Old Storage Building 225, located at the Naval Support Activity (NSA), Crane, Indiana.	**PROJECT NO:** 112G02635

FIELD ACTIVITY SUBJECT: Collect sediment samples and ship.

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

07:00 K. Losekamp, K. Smith, and G. Ten Eyck arrive at trailer to pack supplies for the day and calibrate PID.

08:30 Leave the trailer for SWMU 11.

09:00 Begin locating sediment samples.

10:15 Begin collecting sediment samples.

13:30 Complete sediment sampling

14:30 Prepare samples, COCs, and pack coolers for shipment.

17:50 K. Losekamp leaves trailer for FedEx. Ship to Empirical and Cape Fear.

18:15 G. Ten Eyck and K. Smith depart trailer for Bloomington.

VISITORS ON SITE: None	**CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS:** None
WEATHER CONDITIONS:	**IMPORTANT TELEPHONE CALLS**: None

PERSONNEL ON SITE: George Ten Eyck, Kevin Losekamp, Kendra Smith.

SIGNATURE: **DATE:** 04/28/2011

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY LOG

DATE	4/29/2011
NO.	1
SHEET 1 OF 1	

PROJECT NAME: Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) for Solid Waste Management Unit (SWMU) 11, Old Storage Building 225, located at the Naval Support Activity (NSA), Crane, Indiana.	**PROJECT NO:** 112G02635

FIELD ACTIVITY SUBJECT: Prepare samples, pack coolers, ship samples and equipment.

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

07:30 K. Losekamp, K. Smith, and G. Ten Eyck arrive at trailer to prepare samples and pack coolers.

10:15 K. Losekamp leaves trailer to update soil boring locations with a GPS unit.

12:00 K. Losekamp returns to the trailer.

13:30 Sample coolers and equipment packed. Begin cleaning trailer.

14:30 K. Losekamp and K. Smith leave trailer for FedEx and demobilize back to Cincinnati.

14:30 G. Ten Eyck marks SWMU 28 for utilities.

15:30 G. Ten Eyck marks SWMU 17 for excavation boundaries.

16:00 G. Ten Eyck leaves trailer and demobilizes back to Cincinnati.

VISITORS ON SITE: None	**CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS:** None
WEATHER CONDITIONS:	**IMPORTANT TELEPHONE CALLS**: None

PERSONNEL ON SITE: George Ten Eyck, Kevin Losekamp, Kendra Smith.

SIGNATURE: **DATE:** 04/29/2011

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY LOG

DATE	11/03/2011
NO.	1
SHEET 1 OF 1	

PROJECT NAME: Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) for Solid Waste Management Unit (SWMU) 11, Old Storage Building 225, located at the Naval Support Activity (NSA), Crane, Indiana.	**PROJECT NO:** 112G02635

FIELD ACTIVITY SUBJECT: Utility locate

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

09:30 G. Ten Eyck calls IUPPS for utility location. New ticket numbers are 111 014 0648 and 111 014 0660.

VISITORS ON SITE: None	**CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS:** None
WEATHER CONDITIONS:	**IMPORTANT TELEPHONE CALLS**: None

PERSONNEL ON SITE:

SIGNATURE: **DATE:** 11/03/2011

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY LOG

DATE	11/04/2011
NO.	1
SHEET 1 OF 1	

PROJECT NAME: Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) for Solid Waste Management Unit (SWMU) 11, Old Storage Building 225, located at the Naval Support Activity (NSA), Crane, Indiana.	**PROJECT NO:** 112G02635

FIELD ACTIVITY SUBJECT: Install groundwater monitoring wells

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

13:20 Setup drill rig (Gus Pech 100) at 11MWT01.

13:30 Set up dust monitoring equipment.

13:45 Begin hollow stem auger

13:54 Split spoon refusal at 8'. Switch to air rotary.

14:20 Begin air rotary.

15:20 Advance borehole to 29'. Leave borehole open to accumulate water.

15:50 Set well at 11MWT01.

16:00 Move rig to 11MWT02.

16:40 Split spoon refusal at 9'.

16:45 Clean up for the day. Mob to trailer.

17:30 Tetra Tech off site.

VISITORS ON SITE: None	**CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS:** None
WEATHER CONDITIONS: 50's, clear and windy	**IMPORTANT TELEPHONE CALLS**: None

PERSONNEL ON SITE: Tim Evans, Kevin Losekamp, Wade Betts, Andy Womack, and Jason Cook.

SIGNATURE: **DATE:** 11/04/2011

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY LOG

DATE	11/05/2011
NO.	1
SHEET 1 OF 2	

PROJECT NAME: Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) for Solid Waste Management Unit (SWMU) 11, Old Storage Building 225, located at the Naval Support Activity (NSA), Crane, Indiana.	**PROJECT NO:** 112G02635

FIELD ACTIVITY SUBJECT: Install groundwater monitoring wells

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

07:30 Tetra Tech at site trailer.

08:05 Conduct health and safety tailgate meeting and set up dust monitoring equipment.

08:20 Advance borehole at 11MWT02 into rock at 14'.

09:30 Set a 6'' steel casing in borehole from 1' to 14' bgs.

10:20 Move rig to 11MWT03.

10:25 Begin drilling.

11:15 Top of rock is at 10'. Switch to air rotary.

11:25 At 25'. Allow borehole to stay open to accumulate water during lunch.

13:00 Water in the borehole. Set the well at 11MWT03.

13:40 Move to 11MWT04.

14:05 Begin drilling 11MWT04 with split spoon and hollow stem auger.

14:20 Drilling stopped due fuel filter and air filters being clogged.

16:02 Drilling continued. Down at 19' to the top of bedrock. Switch to air rotary.

16:55 At 35'. Allow borehole to sit overnight

17:05 Tetra Tech moves to trailer.

17:30 Tetra Tech off site

VISITORS ON SITE: None	**CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS:** None

TETRA TECH NUS, INC.

WEATHER CONDITIONS: 50's, clear	**IMPORTANT TELEPHONE CALLS**: None
PERSONNEL ON SITE: Tim Evans, Kevin Losekamp, Ben Borth, Wade Betts, Andy Womack, and Jason Cook.	
SIGNATURE:	**DATE:** 11/05/2011

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY LOG

DATE	11/06/2011
NO.	1
SHEET 1 OF 1	

PROJECT NAME: Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) for Solid Waste Management Unit (SWMU) 11, Old Storage Building 225, located at the Naval Support Activity (NSA), Crane, Indiana.	**PROJECT NO:** 112G02635

FIELD ACTIVITY SUBJECT: Install groundwater monitoring wells

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

07:30 Tetra Tech at site trailer.

08:15 Conduct health and safety tailgate meeting (eye safety) and set up dust monitoring equipment.

08:45 Drillers pull rods to check for water. No standing water but mud on the tape.

09:15 Set well at 11MWT04.

10:10 Move rig to 11MWT02.

10:25 Continue drilling borehole at 14' bgs.

11:20 At 25' bgs. Water level is 24.3' bgs. Continue drilling.

11:40 At 28' bgs. Set well at 11MWT02.

12:05 Drillers move rig to decontamination pad and go to lunch.

13:00 Drillers decon rig and move to Subarea D at SWMU 18.

VISITORS ON SITE: None	**CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS:** None
WEATHER CONDITIONS: 50's, clear	**IMPORTANT TELEPHONE CALLS**: None

PERSONNEL ON SITE: Tim Evans, Kevin Losekamp, Ben Borth, Wade Betts, Andy Womack, and Jason Cook.

SIGNATURE: **DATE:** 11/06/2011

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY LOG

DATE	11/15/2011
NO.	1
SHEET 1 OF 1	

PROJECT NAME: Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) for Solid Waste Management Unit (SWMU) 11, Old Storage Building 225, located at the Naval Support Activity (NSA), Crane, Indiana.	**PROJECT NO:** 112G02635

FIELD ACTIVITY SUBJECT: Mobilize to site and collect soil samples

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

11:30 Arrive at NSA Crane trailer. John Floyd, Kendra Smith, and Chris White (TTL) on site.

12:00 Conduct site safety meeting and contact Denny Gordon (explosives) and Tom (Fire Department)

13:00 Have safety meeting with Pam Houck and Tom to obtain safe work permits.

13:50 Started drilling at SB38.

14:25 Started drilling at SB39.

14:55 Started drilling at SB40.

15:30 Return to trailer to process samples.

17:00 Depart trailer to FedEx to ship samples.

VISITORS ON SITE: None	**CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS:** None
WEATHER CONDITIONS:	**IMPORTANT TELEPHONE CALLS**: None

PERSONNEL ON SITE: John Floyd, Kendra Smith, and Chris White.

SIGNATURE: **DATE:** 11/15/2011

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY LOG

DATE	11/16/2011
NO.	1
SHEET 1 OF 2	

PROJECT NAME: Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) for Solid Waste Management Unit (SWMU) 11, Old Storage Building 225, located at the Naval Support Activity (NSA), Crane, Indiana.	**PROJECT NO:** 112G02635

FIELD ACTIVITY SUBJECT: Mobilize to site and collect soil samples

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

07:30 J. Floyd and K. Smith arrive at trailer and prepare supplies.

08:00 At SWMU 11 conducting health and safety meeting (first aid kits).

09:20 Start drilling at SB33.

09:45 Start drilling at SB35.

09:55 Start drilling at SB34.

10:30 Start drilling at SB45.

11:30 Lunch

12:30 Start drilling at SB49.

12:50 Start drilling at SB50.

13:25 Start drilling at SB44.

13:55 Start drilling at SB48.

14:30 Start drilling at SB43.

15:10 Start drilling at SB47.

15:20 Start drilling at SB42.

15:30 Start drilling at SB37.

16:00 Depart SWMU 11 for trailer.

17:30 K. Smith off site to take samples to FedEx.

19:15 J. Floyd departs trailer.

TETRA TECH NUS, INC.

VISITORS ON SITE: None	**CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS:** None
WEATHER CONDITIONS:	**IMPORTANT TELEPHONE CALLS**: None
PERSONNEL ON SITE: John Floyd, Kendra Smith, and Chris White.	
SIGNATURE:	**DATE:** 11/16/2011

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY LOG

DATE	11/17/2011
NO.	1
SHEET 1 OF 2	

PROJECT NAME: Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) for Solid Waste Management Unit (SWMU) 11, Old Storage Building 225, located at the Naval Support Activity (NSA), Crane, Indiana.	**PROJECT NO:** 112G02635

FIELD ACTIVITY SUBJECT: Collect soil samples

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

07:30 J. Floyd and K. Smith arrive at trailer and prepare supplies.

08:20 At SWMU 11 conducting health and safety meeting (railroad safety). Contact Crane railroad to get clearance to work near rail lines.

08:45 Move rig over railroad tracks to first location.

09:00 Start drilling at SB36.

09:20 Start drilling at SB41.

09:35 Start drilling at SB46.

10:00 K. Smith measuring all soil borings at SWMU 11 with tape measure.

11:30 Complete measuring and start collecting sediment samples.

12:10 Sediment sampling complete. Mob back to trailer.

13:30 Prepare samples for shipping.

17:15 K. Smith leaves trailer for FedEx.

VISITORS ON SITE: None	**CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS:** None
WEATHER CONDITIONS:	**IMPORTANT TELEPHONE CALLS**: None

PERSONNEL ON SITE: John Floyd, Kendra Smith, and Chris White.

TETRA TECH NUS, INC.

SIGNATURE: **DATE:** 11/17/2011

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY LOG

DATE	12/12/2011
NO.	1
SHEET 1 OF 1	

PROJECT NAME: Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) for Solid Waste Management Unit (SWMU) 11, Old Storage Building 225, located at the Naval Support Activity (NSA), Crane, Indiana.	**PROJECT NO:** 112G02635

FIELD ACTIVITY SUBJECT: Mobilize to site and collect groundwater samples.

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

07:50 K. Smith departs Cincinnati for NSA Crane.

11:30 At visitor's center to pick up Rapid Gate badge.

12:00 Arrive at trailer to pick up sampling equipment.

12:30 Leave trailer for SWMU 11.

12:45 K. Losekamp on site to help assemble equipment and pump.

14:00 K. Losekamp off site. Start purging 11MWT01.

16:00 Sample collected.

16:45 Mob back to trailer.

17:15 K. Smith leaves trailer for Bloomington.

VISITORS ON SITE: None	**CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS:** None
WEATHER CONDITIONS:	**IMPORTANT TELEPHONE CALLS**: None

PERSONNEL ON SITE: Kendra Smith

SIGNATURE: **DATE:** 12/12/2011

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY LOG

DATE	12/13/2011
NO.	1
SHEET 1 OF 1	

PROJECT NAME: Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) for Solid Waste Management Unit (SWMU) 11, Old Storage Building 225, located at the Naval Support Activity (NSA), Crane, Indiana.	**PROJECT NO:** 112G02635

FIELD ACTIVITY SUBJECT: Mobilize to site and collect groundwater samples.

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

07:10 K. Smith arrives at trailer to calibrate equipment and gather supplies.

08:10 Arrive at SWMU 11. Collect a round of groundwater levels from every well on site.

09:00 Set up on 11MWT04 to begin purge. Pump is not functioning correctly.

11:00 T. Evans on site to help fix the pump. Airline fitting is malfunctional and needs to be replaced.

14:00 K. Smith to Indiana Oxygen Company to replace empty tanks and get new ones.

VISITORS ON SITE: Tim Evans	**CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS:** None
WEATHER CONDITIONS:	**IMPORTANT TELEPHONE CALLS**: None

PERSONNEL ON SITE: Kendra Smith

SIGNATURE: **DATE:** 12/13/2011

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY LOG

DATE	12/14/2011
NO.	1
SHEET 1 OF 2	

PROJECT NAME: Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) for Solid Waste Management Unit (SWMU) 11, Old Storage Building 225, located at the Naval Support Activity (NSA), Crane, Indiana.	**PROJECT NO:** 112G02635

FIELD ACTIVITY SUBJECT: Mobilize to site and collect groundwater samples.

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

07:00 K. Smith arrives at trailer to calibrate equipment and gather supplies.

08:00 Arrive at SWMU 11. Set up on 11MWT02.

08:30 Begin purging.

10:05 Well stabilized begin sampling.

10:20 Sample collected. Begin packing equipment.

10:45 Mob back to trailer to decon pump.

11:30 Lunch

13:15 Pump deconed. Return to SWMU 11.

13:30 Set up on 11MWT03.

13:45 Start purging 11MWT03.

15:35 Start sampling.

16:15 Sample collected mob back to trailer.

17:00 K. Smith departs trailer for Bloomington.

VISITORS ON SITE:	**CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS:** None
WEATHER CONDITIONS:	**IMPORTANT TELEPHONE CALLS**: None

TETRA TECH NUS, INC.

PERSONNEL ON SITE: Kendra Smith	
SIGNATURE:	**DATE:** 12/14/2011

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY LOG

DATE	12/15/2011
NO.	1
SHEET 1 OF 1	

PROJECT NAME: Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) for Solid Waste Management Unit (SWMU) 11, Old Storage Building 225, located at the Naval Support Activity (NSA), Crane, Indiana.	**PROJECT NO:** 112G02635

FIELD ACTIVITY SUBJECT: Collect groundwater samples.

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

07:00 K. Smith arrives at trailer and packs equipment for SWMU 3.

13:30 SWMU 3 complete. Decon pump for SWMU 11.

15:00 Setup on 11MWT04.

15:30 Begin purging 11MWT04.

16:20 Collected sample. Pack equipment and mob back to trailer.

17:30. K. Smith leaves trailer for Bloomington.

VISITORS ON SITE:	**CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS:** None
WEATHER CONDITIONS:	**IMPORTANT TELEPHONE CALLS**: None

PERSONNEL ON SITE: Kendra Smith

SIGNATURE: **DATE:** 12/15/2011

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY LOG

DATE	12/17/2011
NO.	1
SHEET 1 OF 1	

PROJECT NAME: Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) for Solid Waste Management Unit (SWMU) 11, Old Storage Building 225, located at the Naval Support Activity (NSA), Crane, Indiana.

PROJECT NO: 112G02635

FIELD ACTIVITY SUBJECT: Collect groundwater samples.

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

07:45 K. Smith arrives at trailer and packs equipment for groundwater sampling.

09:00 Pump deconed. Arrive at 18CMWT001 and begin set up.

10:00 Water is coming through the airline. Tim Evans comes to help fix the problem.

10:30 Problem fixed. Begin purging 18CMWT001.

12:05 Collected sample. Pack equipment.

13:00 Measured 11MWT02 to SB02.

13:30 Mob to trailer.

14:30 Made Chain of custody, pack all equipment and samples. K. Smith demobilizes from Crane back to Cincinnati.

VISITORS ON SITE:

CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None

WEATHER CONDITIONS:

IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Kendra Smith

SIGNATURE:

DATE: 12/17/2011

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY LOG

DATE	10/29/2012
NO.	1
SHEET 1 OF 1	

PROJECT NAME: Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) for Solid Waste Management Unit (SWMU) 11, Old Storage Building 225, located at the Naval Support Activity (NSA), Crane, Indiana.

PROJECT NO: 112G02635

FIELD ACTIVITY SUBJECT: Measure out DPT locations around pad.

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

07:00 K. Losekamp arrives at trailer and packs equipment for soil sampling.

09:00 K. Losekamp at SWMU 11 measuring out locations 11SB51-11SB59

11:00 Use GPS to check location previously marked out.

12:00 Locations marked. KL offsite for the day.

VISITORS ON SITE: None

CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None

WEATHER CONDITIONS:

IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Kevin Losekamp

SIGNATURE:

DATE: 10/29/2012

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY LOG

DATE	10/30/2012
NO.	1
SHEET 1 OF 1	

PROJECT NAME: Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) for Solid Waste Management Unit (SWMU) 11, Old Storage Building 225, located at the Naval Support Activity (NSA), Crane, Indiana.

PROJECT NO: 112G02635

FIELD ACTIVITY SUBJECT: Collect subsurface soil samples via DPT around pad.

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

07:00 K. Losekamp arrives at trailer and packs equipment for soil sampling.

08:00 K. Losekamp meets driller (Nathan Free) at gate to get pass for the day.

09:00 At SWMU 11 for Health and Safety meeting.

10:00 Begin drilling the locations in numerical order starting with 11SB51.

15:45 Drilling complete. DPT offsite. KL to trailer to process and pack samples.

17:30 KL offsite to FedEx.

VISITORS ON SITE: None

CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None

WEATHER CONDITIONS: Windy

IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Kevin Losekamp and Nathan Free(driller)

SIGNATURE:

DATE: 10/30/2012

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY LOG

DATE	11/15/2012
NO.	1
SHEET 1 OF 1	

PROJECT NAME: Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) for Solid Waste Management Unit (SWMU) 11, Old Storage Building 225, located at the Naval Support Activity (NSA), Crane, Indiana.	**PROJECT NO:** 112G02635

FIELD ACTIVITY SUBJECT: Acquire passes for the drillers, and begin drilling a well

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

07:00 K. Losekamp at trailer packing equipment for well drilling

10:00 K. Losekamp meets drillers at gate to obtain passes.

10:30 At SWMU 11 for the health and safety meeting.

11:00 Fire Dept. on site to issue a hot work/fire permit and explosive safety permit.

11:30 Begin cutting out concrete pad at 11MWT06 to begin drilling the overburden

12:45 Tooling switched to begin HAS and split spoon drilling the overburden.

13:30 Split spoon to 8.5' bgs with 9.25'' ID HSA. 4 drums of overburden soil generated from the cuttings.

14:15 Switch tooling to begin air hammer drilling. Drill to 13' bgs and set first casing (7'') for the overburden.

16:00 Decon augers and secure site for the night.

17:30 Offsite.

VISITORS ON SITE: None	**CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS:** None
WEATHER CONDITIONS: Windy	**IMPORTANT TELEPHONE CALLS**: None

PERSONNEL ON SITE: Kevin Losekamp, Joe Clevenger (driller), and Bernie Byers(driller)

SIGNATURE: **DATE:** 11/15/2012

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY LOG

DATE	11/16/2012
NO.	1
SHEET 1 OF 1	

PROJECT NAME: Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) for Solid Waste Management Unit (SWMU) 11, Old Storage Building 225, located at the Naval Support Activity (NSA), Crane, Indiana.	**PROJECT NO:** 112G02635

FIELD ACTIVITY SUBJECT: Drill second section of 11MWT06.

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

07:00 K. Losekamp at trailer packing equipment for well drilling.

08:00 K. Losekamp meets drillers at SWMU 11 to begin drilling.

08:30 Set up site for air hammer drilling. Switch tooling on the rig to air hammer.

09:00 Set up on 11MWT06 to begin air hammer.

09:45 Air hammer bit not working. Pull rods and investigate.

11:00 Take drill bit apart and clean it.

12:30 Drillers leave site to get lubricant for bit.

13:00 Drillers return and lubricate bit.

16:00 Steve Sikora of American Drilling on site to drop off new bit.

17:15 Offsite.

VISITORS ON SITE: Steve Sikora and Tom Brent	**CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS:** None
WEATHER CONDITIONS: Windy	**IMPORTANT TELEPHONE CALLS**: None

PERSONNEL ON SITE: Kevin Losekamp, Joe Clevenger (driller), and Bernie Byers(driller)

SIGNATURE: **DATE:** 11/16/2012

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY LOG

DATE	11/17/2012
NO.	1
SHEET 1 OF 1	

PROJECT NAME: Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) for Solid Waste Management Unit (SWMU) 11, Old Storage Building 225, located at the Naval Support Activity (NSA), Crane, Indiana.	**PROJECT NO:** 112G02635

FIELD ACTIVITY SUBJECT: Drill second section of 11MWT06.

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

07:00 K. Losekamp at site. WL in 11MWT04 is 35.0' bgs

07:35 K. Losekamp meets drillers at SWMU 11 to begin drilling.

08:15 Set up on 11MWT05 to begin drilling overburden.

09:00 Down to 17.5' bgs weathered bedrock. Switch to air tooling.

10:30 Down 46.5' bgs. No sign of water after borehole sat open for 15 minutes.

10:45 Down to 50.0' bgs, Leave hole open. Pull rods and call project management.

11:30 Move to 11MWT06 and begin drilling the second section of the well.

14:30 Down 39' bgs. Set 6'' steel casing to 39' through upper water-bearing zone.

15:00 Begin grout of casing in place.

16:30 Offsite.

VISITORS ON SITE: Steve Sikora and Tom Brent	**CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS:** None
WEATHER CONDITIONS: Windy	**IMPORTANT TELEPHONE CALLS**: None

PERSONNEL ON SITE: Kevin Losekamp, Joe Clevenger (driller), and Bernie Byers(driller)

SIGNATURE: **DATE:** 11/17/2012

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY LOG

DATE	11/18/2012
NO.	1
SHEET 1 OF 1	

PROJECT NAME: Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) for Solid Waste Management Unit (SWMU) 11, Old Storage Building 225, located at the Naval Support Activity (NSA), Crane, Indiana.	**PROJECT NO:** 112G02635

FIELD ACTIVITY SUBJECT: Set 11MWT05

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

07:00 K. Losekamp at site. WL in 11MWT05 is 35.11' bgs

07:45 KL calls Tom Brent to discuss well. A 20 foot screen will be set from 50-30' bgs.

08:30 Set well at 11MWT05.

10:30 Pull hollow stem augers from borehole.

11:30 Begin grout of 11MWT05.

12:45 Dig form for pad and mix concrete.

14:00 Pad complete.

14:30 Move to 11MWT06 and drill to 56' bgs. Contact between siltstone and sandstone encountered no dust. Let borehole sit overnight.

17:30 Offsite.

VISITORS ON SITE: Tom Brent	**CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS:** None
WEATHER CONDITIONS: Calm	**IMPORTANT TELEPHONE CALLS**: Tom Brent

PERSONNEL ON SITE: Kevin Losekamp, Joe Clevenger (driller), and Bernie Byers(driller)

SIGNATURE: **DATE:** 11/18/2012

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY LOG

DATE	11/19/2012
NO.	1
SHEET 1 OF 1	

PROJECT NAME: Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) for Solid Waste Management Unit (SWMU) 11, Old Storage Building 225, located at the Naval Support Activity (NSA), Crane, Indiana.

PROJECT NO: 112G02635

FIELD ACTIVITY SUBJECT: Set 11MWT05

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

06:45 K. Losekamp at site. WL is 11MWT05 is 30.00' bgs.

07:00 Check for water through the drill rods at 11MWT06. No water.

07:30 Meet with Tom Brent about weekend progress.

08:30 Begin drilling 11MWT06 deeper.

10:00 Down 72 feet. Let hol sit for 15 minutes.

10:15 Copious amounts of water. Pull rods and set well at 62-72 feet bgs.

14:30 Grout well.

17:30 Pad complete.

17:30 Offsite.

VISITORS ON SITE:

CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None

WEATHER CONDITIONS: Calm

IMPORTANT TELEPHONE CALLS:

PERSONNEL ON SITE: Kevin Losekamp, Joe Clevenger (driller), and Bernie Byers(driller)

SIGNATURE:

DATE: 11/19/2012

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY LOG

DATE	11/20/2012
NO.	1
SHEET 1 OF 1	

PROJECT NAME: Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) for Solid Waste Management Unit (SWMU) 11, Old Storage Building 225, located at the Naval Support Activity (NSA), Crane, Indiana.	**PROJECT NO:** 112G02635

FIELD ACTIVITY SUBJECT: Set 11MWT05

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

08:00 K. Losekamp at site. Begin development of 11MWT05.

09:30 Move to develop 11MWT06.

12:30 Development complete. Clean up and secure the site.

14:30 Dispose of development water at Tom's building.

16:00 Offsite for the shift.

VISITORS ON SITE:	**CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS:** None
WEATHER CONDITIONS: Calm	**IMPORTANT TELEPHONE CALLS**:

PERSONNEL ON SITE: Kevin Losekamp, Joe Clevenger (driller), and Bernie Byers(driller)

SIGNATURE: **DATE:** 11/20/2012

SITE LOGBOOK

TITLE SWMU 11
Former Bldg 225

PROJECT NO. 112G02635

BOOK NO.

Work continued from Page

George Tom Egch called Indiana Utility plant Protection Service IUPPS or Indy Dig 811

1-800-382-5544 for Utility clearance at SWMU 11

Because the four "Downwind" sample locations and the Concrete Tank are not contiguous to the Former Building 225 area, there were 5 "Ticket" locator numbers issued.

Building 225 (main area of SWMU 11)

IUPPS # 110 411 3022

Building 226 - Downwind Area north of Bldg 226

IUPPS # 110 411 3030

Building 101 Downwind area southwest of Building 101

IUPPS # 110 411 3053

Building 3205 Downwind area west of Building 3205

IUPPS # 110 411 3064

Building 3205 Downwind area South west of Bldg 3205

IUPPS # 110 411 3077

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SIGNATURE GET DATE 4/11/11

DISCLOSED TO AND UNDERSTOOD BY DATE 4/11/11 WITNESS DATE

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Work continued from Page 1

Building 3222 Concrete Tank (Bldg 2981)

Area surrounding ~~Area~~ Bldg 3222

UPPS # 110 411 3089

Tickets good until May 1, 2011 - if need extention call 3 days prior to Dig Date -

GLT

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SIGNATURE GLT

DATE

DISCLOSED TO AND UNDERSTOOD BY

DATE 4/4/11

WITNESS

DATE

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April 25-2011
Kevin Loselamp, Kendra Smith, &
George Ten Eyck moved to CMAVE
Sump 11

Arrived at Trailer at 11:30 Am -
Kevin unpacked coolers, sorted glassware,
And unpacked equipment -
George & Kendra visited another sump 17
w/ Tom Bread -

At 4:00 pm George, Kevin, & Kendra - Marked
~~Dit~~ Bore hole locations At Sump 11
And -
located utilities -

left sump 11 At 5:30 -
left TRAILER At 6:00 pm -

April 18 Email from John Barton - Mud Cup
Driller Ben Booth 270-726-0525
on site 8 Am - 4/26

GT

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4/26/11 7:00 Kendra Smith, George Tom Egeh, & Kevin Lose Lump
8:00 Arrived at Trailer

8:00 Mecah Group arrived at Trailer -
Ben Borth - Driller
Mark Stafford - helper

16 hand auger 2 feet
11 Soil Boring 8 feet refusal
2 Soil Boring 5 feet

8:00 → 8:30 Site Safety meeting in Trailer
with Smith, Lose Lump, Tom Egeh,
Borth, & Stafford -

Arrived at Some 11 at 8:45 -
walked site w/ Driller - cleared all
utilities - SB17 moved North because
of gas line -
No other utility issues

SB01 hit refusal at 7 feet -
sampled 0-2' & 4-6'
Field Duplicate
11SB FD 042611-01 = 11SB01 0002

11SB FD 042611-02 = 11SB01 0406

Drilled Soil Borings that required VOC
Samples first

11SB01 → 11SB04 & 11SB 25 → 11SB 28

processed VOC samples, packed coolers,

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Work continued from Page previous page

04/26 Continued -

Sent VOCs samples to Lab via Fed Ex 04/26/11

Semi VOCs, Metals, CN, Pesticides, PCB, & Dioxins/Furans will be sent to Lab 04/27/11

Collected Areas IA-2, IA-3, And IA-4 (Downwind Areas) in PM.

No Temporary groundwater points were placed Because of the shallow Bedrock And the soil samples collected showed little if any, soil moisture.

Bed rock Ranged from 7 to 10 feet in Boring 11SB01 → 11SB04 And 11SB25, 26, 27, & 28
All soil samples ~~at~~ were very dry including samples ~~called~~ in grassy Areas collected

Drillers left site at 5:30

Tim Eyck & Lose Kamp moved to Concrete Tank Building 3222 area -

located Boring 11SB 29 → 11SB 31 w/ GPS unit
finished at 6:00 pm -
returned to trailer - left trailer at 6:15

SIGNATURE GLT DATE 4/26

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4/27/11

Arrived At Trader At 7:00 Am -

AM calibrated PID Air 0.0 ppm
Gas 100. ppm

Drillers Arrived 8:00 - Discussed Days Activities
left Trader At 8:30

Collected Samples 11SB29, 11SB30, 11SB31
& 11SB31

finished At 9:30

Moved to Building 225 Area -
Collect MS/MSD Samples At
11SB-29

Patch Asphalt & Concrete hole - left
Site At 10:15 -

Rinsate Samples Collected 4/27/11

Hand Auger = 11RB042711-01
SVOCs, Pest, PCBs, Mercury, CN, Dioxin/Furan

DPT = 11RB042711-02
VOCs, SVOCs, Pest/PCB, Mercury, CN2, Dioxin/Furan

Field Dup 11SSFD042711-01 =
11SS31-0002

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4/27/11

Drillers released from site at 10:15-

Drillers moved to SWMU 22 ~~pt~~ to collect samples for another project-

Drillers left Trailer at 12:30-

~~A~~ Kevin Loseleamp sampled another site at Crane, SWMU 27, Between 11:30 ~~And~~ to 1:30

Returned to Trailer to pack samples, prepare COC, and pack coolers-

Tom Eyd worked on SWMU 17 Between 2pm And 4:00 pm

Two coolers sent to Empirical-
One contained ~~MS~~ rinsate samples
And MSB26 MS/MSD samples-
plus samples from SWMU 27-

Loseleamp left Trailer at 6:00
Tom Eyd & Smith left Trailer at 6:30

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4/28/11

FD 042811-01 = 11SD02 0006

Arrived at Tract 7:00 Am

Original Day - K. Loselamp sampled at Sumu 27
planned to Sediment sampling and which samples
had priority to send to Lab -

10:30
Located sediment samples at sumu 11
Began sampling at 11:30

finished sampling at 1:00
Returned to trailer - processed samples -

shipped 3 cooler to Lab - 1 w/ sumu 27 samples
2 w/ Sumu 11 Dioxin/Furan samples
to Corp Fewr Lab -

Loselamp left Trailer to Field Ex at 5:50 -
Smith & Tan Eyd left trailer at 5:15

Packed and shipped Rented equipment
to Field Environmental

SIGNATURE GLT

DATE

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DATE

WITNESS

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TITLE

PROJECT NO.

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4/29/11 Friday

Arrived at Trailer 7:30 -
Bought Ice for Coolers -

Pack remaining samples -
Shipped 4 cooler to Lab - including samples
for SWMU 27

Confirmed Sample locations w/ GPS unit

Cleared Trailer - Loselamp & Smith left
Trailer at 2:30

Ten Eyck ~~Marked Utilities~~ OCT Set flags and
marking for utility check at SWMU 22.

Ten Eyck Marked proposed excavation
Boundaries at SWMU 17

Ten Eyck left Trailer at 5:00

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TITLE Oct 5, 2011 GTT

PROJECT NO.

BOOK NO.

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G. Ten Eyck
J. Flogel

Arrived at trailer 9:00 AM
Met w/ Tom Brent 30 min
Arrived at SWMU 11 @ 10:30 AM 2nd
to mark locations

Issues w/ Satilites - only 4 Available -
Visually located Boring 01, 02, 03, & 04
from April 2011 Activity.
GPS unit showed these location 12 feet ~~from~~ off
Re-set GPS unit states to pression for more
accuracy - little help.

Marked locations (soil Boring) Based on
Actual location of SB01, 02, & 03 using
measuring tape
spaced according to Tech Memo -

11:45 Tim Evans & Kieth Simpson Stopped at site
their GPS
using Both GPS units, check location of proposed
MW02 - Both Agreed on location -
Both showed 4 SATs -

located all proposed soil Borings and
proposed Monitoring wells - took
photos of Monitoring well locations
checked MW locations using measuring wheel

off site at 2:00 pm

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SIGNATURE GTT DATE 10/5/11

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Oct 6th on site at 11:00

Site walk over w/ perspective Drillers -
Gil Alexander Mark Cp. Drilling
Chris White TTL Assoc.
Clayton Washburn Miller Drilling
Also Tom Brent, Navy, Mark Simpson & Tim Evans
TT, John Floyd.

Drillers stated expressed concern regarding proximity to rail tracks and driving over rail tracks.

MWT04 will mostly likely be moved to MWT04alt because of that concern.

Also MWT03 was moved 260' north because of nearness to overhead wires and rail track.

Stake locations for SD5 + SD06 pinning, poor satellite coverage didn't allow use of GPS locations based on location of SD04 which still had the flag.

Off site at 1:30

SIGNATURE KT DATE

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10/14 called for Utility clearance
original IPUSS Ticket # on page #1
of this log Book

11/4/11
New IUPPS numbers are:

for Bldg 225, MWT01, MWT02, + MWT03
111 014 0643 Expires 11/28
111 02 1925

for MWT04 Alt
111 014 0660 expire 11/28
111 02 1926 new Ticket expire 11/28

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11/15/2011

JOHN T. FLOYD
KENDRA SMITH
CHRIS WHITE

1200 OPERATIONS/HEALTH AND SAFETY BRIEFING

1205 CONTACTED DENNY GORDON (812) 381-2129, NAVY EXPLOSIVES SAFETY ~~OFFICER~~ SPECIALIST REFERRED ME TO THE ARMY → PAM HOUCK (812) 296-0556 (CELL)
ARMY SAFETY (812) 854-5472 (WORK)
(BASED ON LOCATION, MR. GORDON DEFERRED TO ARMY)
→ LEFT DETAILED VOICEMAIL ON HER CELL PHONE
→ LEFT DETAILED MSG (812) 384-7050

1230 SPOKE WITH PAM HOUCK, SHE WILL MEET US @ SWMU 11 AT 1300 HOURS.

1240 CALLED FIRE DEPT FOR WORK PERMIT
(812) 854-1235 (RANG BUSY)
(812) 854-3343 (SPOKE TO MR. FERGUSON, WILL DISPATCH SOON

1305 MEET UP WITH PAM (EXPLOSIVE) AND TOM TO GET THE PERMIT FOR SWMU 11.

CHRIS AND KENDRA LOCATED THE POINTS AND ALSO MEASURED THEM FROM THE END OF CURBS.

1350 STARTED DRILLING AT SB38. IT WAS 4 INCHES OF CONCRETE. HIT THE SANDSTONE AT 7'.

SAMPLES WERE COLLECT AT 4 TO 6 FT BGS AND 6 TO 7 FT BGS. SAMPLE TIME 1420

1425. STARTED DRILLING AT SB39. CONCRETE WAS 5 INCHES DEEP.

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AFTER GOING THRU THE CONCRETE, CHRIS SWITCH TO SB40.

1440. START DRILLING AT SB40. CONCRETE WAS 5 INCHES DEEP. HIT SANDSTONE AT 6'.

SAMPLES COLLECT BETWEEN 3 TO 5 FT BGS AND 5 TO 6 FT BGS. SAMPLE TIME 1450

1455. DRILLER WENT BACK TO DRILL SB39. HIT SANDSTONE @ 8' 10"

SAMPLES COLLECTED AT 4 TO 6 FT BGS AND 7' TO 8' BGS. SAMPLE TIME 1508

1515. HEADED BACK TO THE TRAILER TO PACK TO SAMPLES

COLLECTED 6 SAMPLES FROM 3 SOIL BORINGS. CALLED BRIAN (EMPIRICAL), SEND TRIP BLANK TOMORRO

1700. FINISH PACKING ALL SAMPLES. HEADED TO FED EX. SENT OFF ONE COOLER.

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11/16/2011
0800 ON-SITE FLOYD/SMITH (TT) & WHITE (TTL)
OPERATIONS / H&S BRIEFING
FIRST AID KIT IN EACH VEHICLE
0840 AT SWMU 11 — ROAD CONES OUT AT ENTRANCE TO CONCRETE PAD

0920 START BORING # 33 — REFUSAL AT 7'6"
NO DEFLECTIONS ON PID

0945 START SAMPLE LOCATION # 35 — REFUSAL AT 6'10"
NO PID READINGS

0955 START # 34 — REFUSAL AT 8'
PID = 117 ppm @ ~~7~~ 5 FEET

1030 START # 45 — REFUSAL AT 6'6"
~~NO DEFLEC~~ PID = 20 ppm @ 2 FEET
1130 LUNCH
1230 START # 49 — REFUSAL AT 5'2"
NO DEFLECTIONS ON PID

1250 START # 50 — REFUSAL AT 6'6"
NO DEFLECTIONS ON PID
1325 START # 44 — " " 7'
PID = ND

1355 START # 48 — REFUSAL AT 6'
PID = ND

1430 START # 43 — REFUSAL AT 9'2"
PID ND

1510 START # 47 — REFUSAL AT 4'2"

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11/16/2011

1520 START #42 REFUSAL AT 3'8"
PID = NO DEFLECTIONS (ND)

1530 START SB 37 REFUSAL AT 4'
PID = ND

1600 DEPART SWMU 11 FOR TL TRAILER
PACK SAMPLES

1730 K. SMITH OFFSITE TO FEDEX WITH COC#s 0343 & 03
J. FLOYD CLEAN UP TRAILER
PACK SUPPLIES FOR TOMORROWS SAMPLES
UPDATE LOGBOOK /1
UPDATE T. KLIMEK

1915 J. FLOYD DEPART TL TRAILER

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11/17/2011

JOHN T. FLOYD
KENDRA SMITH
CHRIS WHITE (TTL)

0730 - MEET AT TT TRAILER
- OPERATIONS BRIEFING: COLLECT 3 REMAINING DPT SAMPLES ALONG RR TRACKS
- TAILGATE SAFETY: RAILROAD SAFETY
DO NOT COMMENCE WORK UNTIL RR DISPATCH IS NOTIFIED
- PACK SAMPLING GEAR

0820 CONTACTED MR. WORLEY AT (812) 854-1613 (RAILROAD DISPATCH). HE GAVE US CLEARANCE TO SAMPLE ALONG THE RAIL SPUR BESIDE CONCRETE PAD NORTH OF BLDG 224 ("BLOCKERS AND BRACERS" IS THE CRANE TERM FOR THIS AREA). WE WILL NOTIFY HIM WHEN WORK IS COMPLETE.

0830 WITH APPROVAL FROM TOM SORRELLS (BLDG 224 SUPERVISOR) SCRAP WOOD FROM ROLLOFF BOX CAN BE USED TO AID IN DRIVING OVER TRACKS, ~~REPLACE~~ PUT THE WOOD BACK IN THE ROLLOFF WHEN FINISHED

0840 - SCRAP LUMBER IN PLACE ALONGSIDE METAL RAIL
- TWO PARKING LOT RAILROAD TIES WERE MOVED TO GAIN ACCESS TO SAMPLE LOCATIONS (REPLACE WHEN FINISHED)

0845 TTL DPT TRUCK IS IN PLACE AT SB 36
CHECKED WITH 2 RAILROAD EMPLOYEES ON THE MAIN TRACK TO ENSURE MESSAGE HAD BEEN RELAYED FROM DISPATCH — CONFIRMED, SPUR WAS LOCKED OUT, HAD NOT BEEN USED FOR 5+ YEARS

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11/17/2011

0900 START # 36 REFUSAL AT 5'6"
PID = 17 ppm @ 2'6"
1ISBFD111711-01 FOR SAMPLE 0405

0920 START # 41 REFUSAL AT 5'6"
PID = 11 ppm @ 2'6"

0935 START # 46 REFUSAL AT 6'
PID = NO DEFLECTIONS

SAMPLE 0305 - MS/MSD

1000 MEASURING THE POINTS @ SWMU 11. ALL MEASUREMENTS ARE ON THE FIGURE. DISTANCE FROM EACH POINT TO ANOTHER POINT.

1130 CHRIS AND KENDRA FINISH WITH MEASUREMENTS @ SWMU 11. STARTED COLLECTING ~~SAMPLES~~ SEDIMENT SAMPLES @ SD05 AND SD06.

SD05 - SAMPLES COLLECTED @ 1150
SD06 - SAMPLE COLLECTED @ 1200, ALSO A FIELD DUP WAS COLLECTED
1ISDFD-111711-01

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12/12/2011

0700: K. SMITH LEFT CINCINNATI TO DRIVE TO BLOOMINGTON, IN.

1030: K. SMITH ARRIVE AT INDIANA OXYGEN COMPANY TO PICK UP NITROGEN TANK.

1045: LEFT INDIANA OXYGEN COMPANY, MOB OUT TO CRANE.

PICK UP ~~2 CUBIC~~ TWO 40 CUBIC NITROGEN GAS TANK

1130: ARRIVE @ CRANE. STOP BY VISITOR CENTER TO PICK UP RAPID GATE PASS.

1200: ARRIVE @ TRAILER. PICK UP EQUIPMENT (PUMP, HORIBA, WATER LEVEL METER, ETC)

1230: MOB OUT TO SWMU 11

1245: ARRIVE @ SWMU 11 K. SMITH AND K. LOSEKAMP PUTTING THE EQUIPMENT TOGETHER TO DO GROUNDWATER SAMPLE @ 11MW1001

1400 START PURGING @ 11MW1001 TOOK READINGS EVERY 10 MINUTES.

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12/12/2011 CONTINUE

SAMPLES COLLECTED AT 11MW1001 @1600

1645. MOB BACK TO TRAILER

PUT SAMPLE (VOCs) IN REFRIGERATOR.

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12/13/2011

0710: ARRIVE ON SITE (K. SMITH)

0730: CALIBRATE THE HORIBA, GOT ALL EQUIPMENT NEED TO COMPLETE GROUND WATER SAMPLES.

0750: MOB TO SWMU 11.

0810: ARRIVE AT SWMU 11, TAKING WATER LEVELS AT EACH WELL:

WELL	WATER LEVEL
11MW04	32.41'
11MW02	5.01'
11MW03	8.86'
18CMW001	6.00'
11MW01	9.20'

~~TAL~~ SET UP AT WELL 11MW04. TRY TO GET PUMP TO WORK, WAS UNABLE TO.

TIM EVANS CAME TO FIX PUMP. FOUND OUT IT WAS THE AIR LINE. THE AIR LINE WAS LEAKING GAS. NEEDED A NEW FITTING.

1400: K. SMITH WENT INDIANA OXYGEN COMPANY TO PICK UP 4 MORE NITROGEN GAS TANKS. DROP TWO OFF.

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12/14/2011

0700: ARRIVE ON SITE/TRAILER - K. SMITH
- CALIBRATE EQUIPMENT
- MAKE SURE HAD ALL EQUIPMENT TO TAKE GROUND WATER SAMPLES
- TALK TO GEORGE ABOUT ORDERING ANOTHER HORIBA AND WATER LEVEL METER.

0745: MOB FROM TRAILER TO SWMU 11

0800: SET UP EQUIP. TO SAMPLE

0830: START PURGING @ 11MWT02.

1005: WELL STABILIZE @ 11MWT02

1010: COLLECT WATER SAMPLE. FIELD DUP WAS ALSO COLLECTED AT THIS LOCATION.
- 11MWT0101
- 11FD-121411-01

1020: BEGIN PUT EQUIPMENT UP, MOB BACK TO TRAILER TO DECON PUMP.

1045: K. SMITH GOT WATER TO DECON PUMP. HAD TROUBLE WITH TUBING IN FITTING.
- WAIT FOR NEW AIR LINE FOR PUMP

1130: LUNCH

1220: RETURN TRAILER. TIM EVANS SUGGESTED K. SMITH TO CHANGE OUT THE BLADDER.

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12/14/2011 CONTINUE

1315: CHANGING OF BLADDER COMPLETED. MOB TO SWMU 11.

1330: SET UP ON WELL MWT03.

1345: START PURGING @ MWT03

BEGIN RECORDING PARAMETERS EVERY 10 MINUTES.

1535: MWT03 STABILIZE

SAMPLE COLLECTED @ 1545

1615: MOB BACK TO TRAILER TO PUT SAMPLES IN THE REFRIGERATOR.

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12/15/2011

0700. K. SMITH ARRIVE @ THE TRAILER
GOT EQUIPMENT FOR SWMU 3

0715. K. SMITH AND UXO TECH. (FRED) MOB
OUT TO SWMU 3

0735. START DRILLING @ SWMU 3
DRILLERS WERE ALREADY @ THE SITE

1330. FINISH AT SWMU 3, DECON PUMP
1500. HEADED TO SWMU 11 – 11MWTC04

1530. STARTED PURGING @ 11MWTC04

WELL CONTINUE TO GO DRY DURING
THE PURGING PROCESS.

SAMPLE (VOCs) COLLECTED @ 1620

1700. MOB BACK TO TRAILER TO PUT SAMPLES
IN REFRIGERATER.

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SIGNATURE Kenosha Smith

DATE

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B 10

Work continued from Page SWMU 18

12/16/2011

0700: ARRIVE ON AT TRAILER (K. SMITH)

- DECON PUMP
- MOB OUT TO SWMU 18.

0835: START PURGING @ 18CGWT003
COLLECT SAMPLES @ 1005
(VOCs, METALS, DISSOLVED METALS)

1100: WENT BACK TO TRAILER TO CHANGE OUT BLADDER PUMP.

1325: START PURGING @ 18CGWT002
COLLECTED SAMPLES @ 1625
(VOCs, METALS, DISSOLVED METALS)

1700. MOB BACK TO TRAILER AND PUT SAMPLES IN REFRIGERATOR.

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12/17/2011

0745: R. SMITH ARRIVE @ TRAILER.

CHANGE OUT BLADDER PUMP

0900: ARRIVE @ SWMU 18

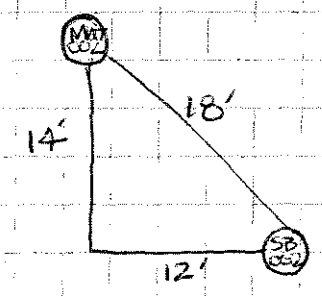
SET UP @ 18CMWT001

HAVING PROBLEMS WITH AIR LINE. WATER WAS COMING THROUGH THE AIR LINE.
TIM EVANS CAME OVER TO FIX THE PROBLEM

1030: START PURGING @ 18CMWT001
COLLECTED SAMPLES @ 1205
(VOCs, METALS, DISSOLVED METALS)

SWMU 11 WILL USED THE VOCs RESULTS FOR THIS WELL.

1300: MEASURED WELL 002 FROM SOIL BORING 002 AT SWMU 11.



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SIGNATURE Kevona Smith DATE

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1330. MOB TO TRAILER
MADE CHAIN OF CUSTODY'S, PACK UP ALL THE EQUIPMENT.
MADE SURE ALL THE LABELS WERE ON THE SAMPLES AND IN ZIPLOCK BAGS.

KEVIN & TIM WILL SHIP EQUIPMENT AND SAMPLES ON MONDAY

1430: MOB TO CINCINNATI

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TITLE SWMU 11 NSA Crane
Nov 4 2011

PROJECT NO. 112G02635
BOOK NO. 2689

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Weather clear, windy, 50s

Personnel: TH T. Evans, K. Loschkorp
K. Simpson

Micah: B. Barth

Simmons: W. Betts, A. Wormel
J. Cook

1320 Setup drilling (Gus Pech 100)
@ 11MW T001

<1330 Setup particulate samplers for dust monitoring>

1345 Begin HSA (4 1/4" ID w/ 2" SPT)

1354 Refusal @ ~8'. Switch to air rotary. Use 6" PVC temp casing

1420 Begin air rotary from ~8'

~~1500~~ 1430 @ 27'. Allow to sit to determine if water coming in

1500 Blow air in hole - water in borehole

1520 Advance to 29'

1525

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TITLE SWMU 11 NSA Crane
Nov 4, 2011

PROJECT NO. 112G02635
BOOK NO. 2689

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1550 Set well @ 11MWT001

2" PVC screen (20-slot) 18 - 28
#2 Sand (Global #5) 15.4 - 29.0 (3 bags)
Bentonite chips 12.2 - 15.4

1600 Mob rig to 11MWT002

1620-1625 Auger through concrete

1630 Advance borehole w/ 4 1/4" ID HSA / 2" SPT

1640 @ ~9' SPT (Refusal).

1645 Cleanup for day. Will set 6" ø steel casing in AM after drilling to 12-14'.

<1655 End monitoring/sampling for dust>

1700 Drillers off-site

1705 TH to site trailer then off-site

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SIGNATURE [signature] DATE 11/4/11
WITNESS DATE

TITLE SWMU 11 NSA Crane
SAT Nov 5, 2011

PROJECT NO. 112G02635
BOOK NO. 2689

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Weather am Clear cool (40s)
pm Clear cool (50s) windy

Personnel TT T. Evans, K. Lokeman, K. Simpson
Micah Ben Borth
Simmons W. Belts, A. Nomack
J. Cook

0730 TT @ site trailer

0805 @ SWMU 11

0810 Drillers @ site.
Review site-specific H_2S + setup dust monitors

<0815 11MWT001 WL = 16.5' bgs >

0820 Advance borehole @ 11MWT002 into rock. (8"Ø OD HSA)

0900 @ 14'. Prep to set 6" steel casing

0930 Set casing to 14'

<1020 Set rig up @ 11MWT003 >

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TITLE SWMU 11 NSA CRANE
SAT Nov 5, 2011

PROJECT NO. 112G02635
BOOK NO. 2689.

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1025 - Begin drilling @ 11MWT003 w/ HSA

- Tremie grout steel casing @ 11MWT002 (cement-bentonite grout)

<1100 KS, BB, JC go to set grout & install prot. casing in 18CMWT001, 18CMWT002, & 18CMWT003 @ SWMU 18 >

1115 11MWT003

Top of Rock @ ~10'. Switch to 6"Ø air rotary
Use 6" PVC temp casing
1150 @ 25'. Allow to set

1250 Return - wait for driller

1300 Blow air @ 11MWT003 - water in hole
Breakdown rods

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TITLE SWMU 11 NSA Crane
SAT NOV 5, 2011

PROJECT NO. 112G02635
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1330 Set well @ 11MWT003 (cont.)

2" PVC Screen (20-slot) 14.5-24.5
3 bags → #2 Sand (Global #5) 12.5-25.0
Bentonite (½ bag) 9.5-12.5

1340 Remob rig from hole.
Mob to 11MWT004

1400 Setup @ 11MWT004

1405 Begin 11MWT004
4¼" ID HSA 2" SPT

1415 @ 4'.

< 1420 Drillers stop - need to change air filters & possibly fuel filter on rig due to poor running of engine. >

1445 Continue drilling.

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DATE

TITLE SWMU 11 NSA Crane
SAT NOV 5, 2011

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< 1510 Check WL & TD @ 11MWT003
WL = 7.5' bgs
TD = 24.6' (soft) >

1520 - Drillers go to get additional
1550 auger

1555 Continue drilling

1602 Top of BR @ ~19'. Switch to 6" Ø Air rotary. Use 4" PVC temp casing

1630 Begin 6" Ø Air Rotary

1655 - @ 35'. Will allow to sit overnight
- Drillers off-site

< 1700 Stop air monitoring >

1705 TT to site trailer

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TITLE SWMU 11 NSA Crane
SUN NOV 6, 2011

PROJECT NO. 112G02635
BOOK NO. 2689

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Weather am cool (40s-50s) pm sunny windy
pm clear 50s

Personnel T+ T. Evans, K. Loscheamp
K. Simpson
Micah: B. Berth
Simmons: W. Betts, J. Cook
A. Womack

0730 T+ @ ~~site~~ trailer (KS + KL @ trailer already)
- Prep
- check air monitors

0815 @ site (behind B270)
- Conduct daily H2S (tap 12 eye safety)
- Prep to continue drilling @ 11MWT004

<0834 Begin air monitoring for silica dust

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SIGNATURE Tuttle DATE 11/6/11
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TITLE SWMU 11 NSA Crane
SUN NOV 6, 2011

PROJECT NO. 112G02635
BOOK NO. 2689

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0845 Drillers pull rods @ 11MWT004 to check water level in borehole

0855 - No standing wet in borehole but bottom 10' of rods are covered w/ wet mud.
Water level meter encountered wet mud @ ~23' bgs.
TD = 34.2' (soft)
- Will set well @ 23'-33'

0915 Set well
2" PVC screen (20-slot) 23-33'
#2 Sand (Global #5) 20.5-34 (3½ bags)
Bentonite 17.5-20.5 (½ bag)

0935 Demob from 11MWT004

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SIGNATURE Tuttle DATE 11/6/11
WITNESS DATE

TITLE SWMU 11 NSA Crane
Sun Nov 6, 2011

PROJECT NO. 112G02635
BOOK NO. 2689

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1010 Setup @ 11MW TOO2 to continue drilling from 14'

1025 Continue w/ 6" ø Air from 14'

1045 @ 25' - allow to sit

1120 WL = 24.3' bgs

1130-1135 Advance borehole 25-28'

1140 Set well
1200

2" PVC screen (20-slot) 17.0-27
#2 Sand 15.0-28.3
Bentonite 13.0-15.0

1205 Demob rig

1215-1245 Lunch

<1246 Stop air monitoring units >

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SIGNATURE
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DATE 11/6/11
DATE

TITLE SWMU 18 NSA Crane
Sun Nov 6, 2011

PROJECT NO. 112G02~~635~~ 1851
BOOK NO. 2689

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1300-1420 Drillers decon & mob to Subarea D

1425 mob to 18DMWT001

< SWMU 11

	WL (ft bgs)	TD (ft bgs)
11MWT004	21.0	34.2
11MWT002	24.6	27.1

>

<~1440 Restart air monitoring >

1455-1510 HSA to 5.7'
Switch to NX core

1527-1550 Core 5.7 - 12.5'

1555 WL = 6.7'

1600 Core bit lost in hole !!
Driller pulls augers & will relocate 2-ft SW & re-drill

1635 Backfill initial hole w/ bentonite plug

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SIGNATURE
DATE 11/6/1
DATE

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0700: KL onsite at trailer getting sampling equipment + supplies

0900: KL at Swmu 11 measuring out points 51351 - 51359

1100: Check with GPS.

1200: KL offsite

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TITLE Swmull

Tuesday 10/30/12

PROJECT NO. 112G02635

BOOK NO.

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0700: KC at trailer

0700: DPT driller at Main gate. KC to get him to site

0900: At Swmull for H+S meeting

1000: Begin drilling SB51-54. Slight PID hit at SB54. No odor or staining.

1545: Drilling complete. DPT offsite to trailer to pack and ship samples.

1730: Offsite to fex Ex

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DATE 1/1/12

TITLE Scamull

PROJECT NO. 112G02635

BOOK NO.

11/14/12

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1200: KC mobilizes to Bloomington

1630: KC arrives in Bloomington.

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DATE 11/14/12

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WITNESS

DATE

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TITLE Summu 11

PROJECT NO. 112G02635

BOOK NO.

11/15/12

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0700: IC at trailer gathering supplies / equip.

1000: Drillers arrive at gate.

1030: On site for HTS meeting.

1100: Fire dept on site for hotwork permit.

1130: Begin cutting concrete pad at 11MW106 to begin drilling.

1245: Pad cut out and tooling switched to HSA & Macrocore

1330: SPL.7 spoon to 8.5' with 9 1/4" ID HSA. Tom counted to collect soil. Switch tooling.

1415: Switch to Air. Drill to 13' and set 7" steel casing.

1600: Decon Augers and stage site for tomorrow

1730: Offsite.

Rig: IN plates SM143C
trailer: INplates TR131ACX

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11/16/12

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0715: TT at trailer

0735: TT at site to meet drillers. Take drillers to 3245 to get water for decon + grout.

0745: Call RR dispatch (812-854-1613) to get clearance for weekend work. I will call tomorrow to confirm.

0900: Set up on 11MW108 to drill through ~~second~~ ICC upper water zone.

0945: Hammer drill bit not working. Pull rods.

1100: Take drill bit apart and clean it.

1230: Drillers go get Lubricant for bit. 1259: Drillers return.

1330: Bit still not working. Call Steve Sikora to bring another bit.

1600: Steve arrives with new bit. Change tooling and clean site up for the evening.

1715: Offsite

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DATE 11/16/12

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0700: TT at site. Well 11MWT04 WL is 34.1 TD 35.0 BGS.

0735: Drillers arrives.

0815: Set up on 11 MWT 05.

0900: Down to 17.5 bedrock. Switch to Air tooling.

1030: Down to 46.5'. No sign of water. Let hole sit for 15 minutes.

1045: Down 50.0'. Let hole sit call Mr. Van Eyck.

1130: Pull rods and ~~add down~~ remove to well 11MWT06 in pad and begin drilling upper zone.

1430: Down 39'. Set 6" casing for upper water zone. Hit

1630: Secure site. Offsite.

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TITLE Scumo 11
11/18/12

PROJECT NO. 112G02635

BOOK NO. 1451

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0700: Tl Onsite. Check well 11MW105 for water. Water level at 35.11 and rising very slowly.

0745: Call Tom Brent to talk about well. He indicated to set a 20' screen from 30-50.

0830: Set well at 11MW105
Sand 28-50
Bentonite 26-28
Screen 30-50.

1030: Pull HSA from hole.

1130: Begin grout of 11MW105.

1245: Begin digging and mixing for pad.

1400: Pad complete.

1430: Move to 11MW106 and drill to 56'. Contact b/w Siltstone and Sandstone No dust. Let hole sit overnight

1730: Offsite

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DATE 11/18/12

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0645: TT at site. Check WL in 11MWT05.
WL= 30.00.

0700: Check for water through rod at 11MWT06. No water

0730: Meet with Tom Brent about weekend progress.

0830: Begin drilling 11MWT06 deeper.

1000: Down to 70'. Hit coal layer that may produce.

1030: Blow hole. Copious amounts of water. Pull rods.
Overdrill borehole to clean out cuttings. down 72.0'

1130: Set well screen 62-72 Sand 60-62 Bentonite 58-60.

1430: Grout well.

1530: Begin finishing pad.

1745: Pad complete Offsite.

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TITLE Swmu 11
11/20/12

PROJECT NO. 112G02635

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0800: TI at site. Begin development of 11MWT05.
0830 Dry
0845 restart
0850 Dry.

0930: Develop 11MWT06.

1230: Development complete. Secure and clean up site.

1430: Dispose of development water at Tom Building with a filer

1600: Offsite for sitt.

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Summ 11

TITLE 11/26/12

PROJECT NO.

BOOK NO.

Work continued from Page

KLA

1400: KL on site checking groundwater equipment.

1600: KL to Indianna Oxygen to get Nitrogen.

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Work continued to Page

SIGNATURE

DATE 11/26/12

DISCLOSED TO AND UNDERSTOOD BY

DATE

WITNESS

DATE

Work continued from Page

0730: KC at trailer getting supplies.

0800: Begin pumping 11MWTOS.

1145: Sample 11MWTOS. Take FD112712-01.

1245: Begin pumping 11MWTO6.

1545: Sample 11MWTO6.

1700: Offsite.

Work continued to Page

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SIGNATURE

DATE 11/27/12

DISCLOSED TO AND UNDERSTOOD BY | DATE | WITNESS | DATE

B 100 P ©

TITLE Scmw 11 11/28/12

PROJECT NO. 112602635

BOOK NO.

Work continued from Page

0730: KL onsite. Set up on 11MWT04. No water pumping. Only about a foot of water. The pump is filling up but not enough water to pump to surface.

0930: Set up on 11MWT01.

1130: Sample. Dispose of purge water at Toms Building.

1200: Meet Chris Rumer and set up on 18CMWT001. Begin pump

1545: Sample.

1700: Offsite

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Work continued to Page

SIGNATURE

DATE 11/28/12

DISCLOSED TO AND UNDERSTOOD BY

DATE

WITNESS

DATE

B 100 P ©

TITLE Scumo 11

11/29/12

PROJECT NO. 112G02635

BOOK NO.

Work continued from Page

0700: KC + CR at trailer.

0800: CR set up on 11MW103. KC at Crane gate to meet DPT driller.

0900: Driller at gate.

0945: Onsite at Scumo 11. Call Larry Worley 812-854-1613 with RR dispatch to close Main line near Scumo 11.

1030: Set up on 11SB61.

1230: Complete borings on tracks. Move to 11SB60. Call Larry to open Main Line again.

1345: DPT Complete at Scumo 11. Driller offsite.

1600: At trailer prepping sample to ship.

1700: offsite to FedEx.

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Work continued to Page

SIGNATURE

DATE 11/29/12

DISCLOSED TO AND UNDERSTOOD BY

DATE

WITNESS

DATE

TITLE Scum 11 11/30/12

PROJECT NO. 112602635

BOOK NO.

Work continued from Page

0730: TT at trailer. Driller at gate. Pass is in.

0830: At Scum 16 waiting for security to open gate.

1030: Drilling at Scum 16 complete. Head back to trailer to pack samples and supplies.

1400: ICL + CR offsite. Ship remaining Scum 11 samples and 16 samples w/ equipment.

Work continued to Page

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DATE 11/30/12

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B 100 P ©

Scumvil

TITLE

1-23-13 Wed.

PROJECT NO. 112G02635

BOOK NO.

Work continued from Page

0800: KL at Visitor's Center to meet driller.

0900: Driller at Visitors Center.

0900: KL + Driller (Nature Free Chase Env) onsite Safty brief.

1030: Begin 115366.

1230: Complete 115870.

1400: All locations complete and site restored.

1430: Driller offsite. KL to trailer to ship samples.

1700: KL offsite to ship samples for Scumvil.

Work continued to Page

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SIGNATURE KL

DATE 1/23/13

DISCLOSED TO AND UNDERSTOOD BY | DATE | WITNESS | DATE

B 100 P ©

CALIBRATION SHEETS

Tetra Tech NUS, Inc.

EQUIPMENT CALIBRATION LOG

PROJECT NAME : NSA-CRANE

INSTRUMENT NAME/MODEL: HORIBA-U51

SITE NAME: SWMU 11/18

MANUFACTURER: —

PROJECT No.: 112G02635/112G01851

SERIAL NUMBER: 76LFOOTC

Date of Calibration	Instrument I.D. Number	Person Performing Calibration	Instrument Settings		Instrument Readings		Calibration Standard (Lot No.)	Remarks and Comments
			Pre-calibration	Post-calibration	Pre-calibration	Post-calibration		
12/15/2011		K.SMITH	PH = ?	3.97	PH =	4.43		
			~~S.C. = 2910~~					
			S.C =	4.52	S.C =	4.43		
			TUR =	0.0	TUR =	0.00		
			DO =	9.15	DO =	9.00		
12/16/11		K.SMITH	PH =	3.97	PH =	~~4.70~~	3.98	
			S.C =	4.60	S.C =	4.70		
			TUR =	0.0	TUR =	0.0		
			DO =	13.93	DO =	16.39		
12/17/11		K SMITH	PH =	3.98	PH =	3.99		
			S.C =	4.[illegible]91	S.C =	4.71		
			TUR =	0.0	TUR =	0.1		
			DO =	17.72	DO =	13.33		

Tetra Tech NUS, Inc.

EQUIPMENT CALIBRATION LOG

PROJECT NAME: NSA-CRANE

INSTRUMENT NAME/MODEL: HORIBA/U-51

SITE NAME: SWMU 11

MANUFACTURER: [redacted]

PROJECT No.: [redacted]

SERIAL NUMBER: 76L-FOOTC

Date of Calibration	Instrument I.D. Number	Person Performing Calibration	Instrument Settings		Instrument Readings		Calibration Standard (Lot No.)	Remarks and Comments
			Pre-calibration	~~Post-~~ calibration	~~Pre-~~ calibration	Post-calibration		
12/13/2011		K. SMITH	pH =	4.00	pH =	4.00	9015	
			TUR =	3.1 NTU	TUR =	0.0		
			S.C =	4.67	S.C =	4.50		
			TEMP =	16.84°C	TEMP =			
			DO =	11.30	DO =	10.11		
12/14/2011			pH =	3.92	pH =	4.48		
			TUR =	15.6	TUR =	0.0		
			S.C =	4.40	S.C =	4.48		
			TEMP =	15.01	TEMP =	—		
			DO =	11.30	DO =	11.13		

Tetra Tech NUS, Inc.

EQUIPMENT CALIBRATION LOG

PROJECT NAME: NSA CRANE

SITE NAME: SWMU 11/28/32

PROJECT No.:

INSTRUMENT NAME/MODEL: MINI RAE 2000

MANUFACTURER: EAGLES ~~[illegible]~~ INSTRUMENT

SERIAL NUMBER: 110-006501

Date of Calibration	Instrument I.D. Number	Person Performing Calibration	Instrument Settings		Instrument Readings		Calibration Standard (Lot No.)	Remarks and Comments
			Pre-calibration	Post-calibration	Pre-calibration	Post-calibration		
11/15/11		K. SMITH		PRE-CALIBRATION			IAL-248-100-16	
			AIR =	0.0ppm	AIR =	0.0ppm		
			GAS =	100ppm	GAS =	100ppm		
11/16/11		K SMITH	AIR =	0.0ppm	AIR =	0.0ppm		
			GAS =	100ppm	GAS =	100ppm		
11/17/11		K. SMITH	AIR =	0.0ppm	AIR =	0.0ppm		
			GAS =	100ppm	GAS =	100ppm		
11/18/11		K. SMITH	AIR =	0.0ppm	AIR =	0.0		
			GAS =	100ppm	GAS =	100		

CHAIN OF CUSTODY FORMS

TETRA TECH NUS, INC

CHAIN OF CUSTODY
NUMBER: ED00000156-1

Project No:	Facility:	Project Manager:	Carrier:	Laboratory Name:
112G02635	**CRANE NSWC**	**Tony Klimek**	**Federal Express**	**Empirical Laboratories, LLC** **621 Mainstream Drive** **Nashville, TN 37228**
Task No:	Turn Around Time:	Field Ops Leader:	Carrier/Waybill No.	Point of Contact:
F27E	**Standard**	**George TenEyck**		**Brian Richard** **615- 345-1115**

Date	Sample ID #	Time	Analysis	Loc ID	Matrix	Description	Preservative	Container Count	Container Type	Container Reqs	Comments
04/26/2011	11SB010002	09:48	**SW-846 8260B**	11SB01	SO	VOCs	4°C/NaHSO4+MeOH Combo(2+1)	3	Glass - Clear	40 mL vial (pre-tared)	
04/26/2011	11SB010406	10:21	**SW-846 8260B**	11SB01	SO	VOCs	4°C/NaHSO4+MeOH Combo(2+1)	3	Glass - Clear	40 mL vial (pre-tared)	
04/26/2011	11SB020002	11:12	**SW-846 8260B**	11SB02	SO	VOCs	4°C/NaHSO4+MeOH Combo(2+1)	3	Glass - Clear	40 mL vial (pre-tared)	
04/26/2011	11SB020406	11:14	**SW-846 8260B**	11SB02	SO	VOCs	4°C/NaHSO4+MeOH Combo(2+1)	3	Glass - Clear	40 mL vial (pre-tared)	
04/26/2011	11SB030002	12:17	**SW-846 8260B**	11SB03	SO	VOCs	4°C/NaHSO4+MeOH Combo(2+1)	3	Glass - Clear	40 mL vial (pre-tared)	
04/26/2011	11SB030406	12:34	**SW-846 8260B**	11SB03	SO	VOCs	4°C/NaHSO4+MeOH Combo(2+1)	3	Glass - Clear	40 mL vial (pre-tared)	
04/26/2011	11SB040002	12:15	**SW-846 8260B**	11SB04	SO	VOCs	4°C/NaHSO4+MeOH Combo(2+1)	3	Glass - Clear	40 mL vial (pre-tared)	
04/26/2011	11SB040406	12:25	**SW-846 8260B**	11SB04	SO	VOCs	4°C/NaHSO4+MeOH Combo(2+1)	3	Glass - Clear	40 mL vial (pre-tared)	
04/26/2011	11SB250507	12:41	**SW-846 8260B**	11SB25	SO	VOCs	4°C/NaHSO4+MeOH Combo(2+1)	3	Glass - Clear	40 mL vial (pre-tared)	
04/26/2011	11SB260507	12:53	**SW-846 8260B**	11SB26	SO	VOCs	4°C/NaHSO4+MeOH Combo(2+1)	3	Glass - Clear	40 mL vial (pre-tared)	MS/MSD
04/26/2011	11SB270507	13:02	**SW-846 8260B**	11SB27	SO	VOCs	4°C/NaHSO4+MeOH Combo(2+1)	3	Glass - Clear	40 mL vial (pre-tared)	
04/26/2011	11SB280507	13:11	**SW-846 8260B**	11SB28	SO	VOCs	4°C/NaHSO4+MeOH Combo(2+1)	3	Glass - Clear	40 mL vial (pre-tared)	
04/26/2011	11SBFD042611-01		**SW-846 8260B**	QC	SO	VOCs	4°C/NaHSO4+MeOH Combo(2+1)	3	Glass - Clear	40 mL vial (pre-tared)	
04/26/2011	11SBFD042611-02		**SW-846 8260B**	QC	SO	VOCs	4°C/NaHSO4+MeOH Combo(2+1)	3	Glass - Clear	40 mL vial (pre-tared)	

1. Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Kevin Losekamp	04/26/2011	09:49	**Federal Express**	04/26/2011	17:30
2. Relinquished By:	Date:	Time:	Received By:	Date:	Time:
3. Relinquished By:	Date:	Time:	Received By:	Date:	Time:

Comments:

TETRA TECH NUS, INC

CHAIN OF CUSTODY
NUMBER: ED00000156-2

Project No:	Facility:	Project Manager:	Carrier:	Laboratory Name:
112G02635	**CRANE NSWC**	**Tony Klimek**	**Federal Express**	**Empirical Laboratories, LLC** **621 Mainstream Drive** **Nashville, TN 37228**
Task No:	Turn Around Time:	Field Ops Leader:	Carrier/Waybill No.	Point of Contact:
F27E	**Standard**	**George TenEyck**		**Brian Richard** **615- 345-1115**

Date	Sample ID #	Time	Analysis	Loc ID	Matrix	Description	Preservative	Container Count	Container Type	Container Reqs	Comments
04/27/2011	11RB042711-01	12:44	**SW-846 8081B/8082A**	QC	AQ	Pesticides/PCBs	4°C	2	Glass - Amber	1L	Hand Auger
04/27/2011	11RB042711-01	12:44	**SW-846 8270C/8270C-Low**	QC	AQ	SVOCs (including Low Level PAHs)	4°C	2	Glass - Amber	1L	Hand Auger
04/27/2011	11RB042711-02	13:01	**SW-846 8270C/8270C-Low**	QC	AQ	SVOCs (including Low Level PAHs)	4°C	2	Glass - Amber	1L	DPT
04/27/2011	11RB042711-02	13:01	**SW-846 8081B/8082A**	QC	AQ	Pesticides/PCBs	4°C	2	Glass - Amber	1L	DPT

1. Relinquished By: **Kevin Losekamp**	Date: 04/27/2011	Time: 09:56	Received By: **Federal Express**	Date: 04/27/2011	Time: 18:00
2. Relinquished By:	Date:	Time:	Received By:	Date:	Time:
3. Relinquished By:	Date:	Time:	Received By:	Date:	Time:

Comments:

TETRA TECH NUS, INC

CHAIN OF CUSTODY
NUMBER: ED00000156-3

Project No:	Facility:	Project Manager:	Carrier:	Laboratory Name:
112G02635	**CRANE NSWC**	**Tony Klimek**	**Federal Express**	**Cape Fear Analytical, LLC** **3306 Kitty Hawk Rd** **Wilmington, NC 28405**
Task No:	Turn Around Time:	Field Ops Leader:	Carrier/Waybill No.	Point of Contact:
F27E	**Standard**	**George TenEyck**	**871793192406**	**Chris Cornwell** **910-795-0421**

Date	Sample ID #	Time	Analysis	Loc ID	Matrix	Description	Preservative	Container Count	Container Type	Container Reqs	Comments
04/26/2011	11SB020002	11:12	**SW-846 8290A**	11SB02	SO	Dioxins/Furans	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS090002	10:55	**SW-846 8290A**	11SB09	SO	Dioxins/Furans	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS110002	14:40	**SW-846 8290A**	11SB11	SO	Dioxins/Furans	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS140002	15:00	**SW-846 8290A**	11SB14	SO	Dioxins/Furans	4°C	1	Glass - Clear	8 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS180002	14:20	**SW-846 8290A**	11SB18	SO	Dioxins/Furans	4°C	1	Glass - Clear	8 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS190002	15:30	**SW-846 8290A**	11SB19	SO	Dioxins/Furans	4°C	1	Glass - Clear	8 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS200002	15:45	**SW-846 8290A**	11SB20	SO	Dioxins/Furans	4°C	1	Glass - Clear	8 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS210002	16:30	**SW-846 8290A**	11SB21	SO	Dioxins/Furans	4°C	1	Glass - Clear	8 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS220002	16:25	**SW-846 8290A**	11SB22	SO	Dioxins/Furans	4°C	1	Glass - Clear	8 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS230002	16:20	**SW-846 8290A**	11SB23	SO	Dioxins/Furans	4°C	1	Glass - Clear	8 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS240002	16:10	**SW-846 8290A**	11SB24	SO	Dioxins/Furans	4°C	1	Glass - Clear	8 oz. wide-mouth w/Teflon cap	
04/26/2011	11SSFD042611-03	00:00	**SW-846 8290A**	QC	SO	Dioxins/Furans	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SSFD042611-04	00:00	**SW-846 8290A**	QC	SO	Dioxins/Furans	4°C	1	Glass - Clear	8 oz. wide-mouth w/Teflon cap	
04/27/2011	11RB042711-01	12:44	**SW-846 8290A**	QC	AQ	Dioxins/Furans	4°C	2	Glass - Amber	1L	Hand Auger
04/27/2011	11RB042711-02	13:01	**SW-846 8290A**	QC	AQ	Dioxins/Furans	4°C	2	Glass - Amber	1L	DPT
04/28/2011	11SD020006	14:00	**SW-846 8290A**	11SD02	SD	Dioxins/Furans	4°C	3	Glass - Clear	8 oz. wide-mouth w/Teflon cap	MS/MSD
04/28/2011	11SD020612	14:23	**SW-846 8290A**	11SD02	SD	Dioxins/Furans	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/28/2011	11SDFD042811-01		**SW-846 8290A**	QC	SD	Dioxins/Furans	4°C	1	Glass - Clear	8 oz. wide-mouth w/Teflon cap	

1. Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Kevin Losekamp	04/28/2011	15:46	**Federal Express**	04/28/2011	16:46

2. Relinquished By:	Date:	Time:	Received By:	Date:	Time:

3. Relinquished By:	Date:	Time:	Received By:	Date:	Time:

Comments:
Temperature Blank is add to the cooler.

TETRA TECH NUS, INC

CHAIN OF CUSTODY
NUMBER: ED00000156-4

Project No:	Facility:	Project Manager:	Carrier:	Laboratory Name:
112G02635	**CRANE NSWC**	**Tony Klimek**	**Federal Express**	**Empirical Laboratories, LLC** **621 Mainstream Drive** **Nashville, TN 37228**
Task No:	Turn Around Time:	Field Ops Leader:	Carrier/Waybill No.	Point of Contact:
F27E	**Standard**	**George TenEyck**	**871793192428**	**Brian Richard** **615- 345-1115**

Date	Sample ID #	Time	Analysis	Loc ID	Matrix	Description	Preservative	Container Count	Container Type	Container Reqs	Comments
04/26/2011	11SB260507	12:53	**SW-846 8270C/8270C-Low**	11SB26	SO	SVOCs (including Low Level PAHs)	4°C	3	Glass - Clear	4 oz. wide-mouth w/Teflon cap	Run MS/MSD
04/27/2011	11RB042711-01	12:44	**SW-846 9012A**	QC	AQ	Cyanide	4°C/NAOH	1	Plastic - PE	250ml	Hand Auger
04/27/2011	11RB042711-01	12:44	**SW-846 6010C**	QC	AQ	Metals (including Mercury)	4°C	1	Plastic - PE	500ml	Hand Auger
04/27/2011	11RB042711-02	13:01	**SW-846 6010C**	QC	AQ	Metals (including Mercury)	4°C	1	Plastic - PE	500ml	DPT
04/27/2011	11RB042711-02	13:01	**SW-846 8260B**	QC	AQ	VOCs	4°C	3	Glass - Clear	40ml vials	DPT
04/27/2011	11RB042711-02	13:01	**SW-846 9012A**	QC	AQ	Cyanide	4°C/NAOH	1	Plastic - PE	250ml	DPT

1. Relinquished By:	Date:	Time:	Received By:	Date:	Time:
George Ten Eyck	04/27/2011	18:05	**Federal Express**	04/27/2011	18:55
2. Relinquished By:	Date:	Time:	Received By:	Date:	Time:
3. Relinquished By:	Date:	Time:	Received By:	Date:	Time:

Comments:
Two encore were sample for 11SB26. Unable to put on chain of custody, Comments:
collected a day before as well.

TETRA TECH NUS, INC

CHAIN OF CUSTODY
NUMBER: ED00000156-5

Project No:	Facility:	Project Manager:	Carrier:	Laboratory Name:
112G02635	**CRANE NSWC**	**Tony Klimek**	**Federal Express**	**Empirical Laboratories, LLC** **621 Mainstream Drive** **Nashville, TN 37228**
Task No:	Turn Around Time:	Field Ops Leader:	Carrier/Waybill No.	Point of Contact:
F27E	**Standard**	**George TenEyck**	**871793192358**	**Brian Richard** **615- 345-1115**

Date	Sample ID #	Time	Analysis	Loc ID	Matrix	Description	Preservative	Container Count	Container Type	Container Reqs	Comments
04/26/2011	11SB010002	09:48	**SW-846 8270C/8270C-Low**	11SB01	SO	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SB010002	09:48	**SW-846 8081B/8082A**	11SB01	SO	Pesticides/PCBs	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SB010002	09:48	**SW-846 6010C/9012A**	11SB01	SO	Metals (including Mercury)/Cyanide	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SB010406	10:21	**SW-846 8270C/8270C-Low**	11SB01	SO	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SB010406	10:21	**SW-846 8081B/8082A**	11SB01	SO	Pesticides/PCBs	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SB010406	10:21	**SW-846 6010C/9012A**	11SB01	SO	Metals (including Mercury)/Cyanide	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SB020002	11:12	**SW-846 8270C/8270C-Low**	11SB02	SO	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SB020002	11:12	**SW-846 8081B/8082A**	11SB02	SO	Pesticides/PCBs	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SB020002	11:12	**SW-846 6010C/9012A**	11SB02	SO	Metals (including Mercury)/Cyanide	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SB020406	11:14	**SW-846 8270C/8270C-Low**	11SB02	SO	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SB020406	11:14	**SW-846 8081B/8082A**	11SB02	SO	Pesticides/PCBs	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SB020406	11:14	**SW-846 6010C/9012A**	11SB02	SO	Metals (including Mercury)/Cyanide	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SB030002	12:17	**SW-846 8270C/8270C-Low**	11SB03	SO	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SB030002	12:17	**SW-846 8081B/8082A**	11SB03	SO	Pesticides/PCBs	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SB030002	12:17	**SW-846 6010C/9012A**	11SB03	SO	Metals (including Mercury)/Cyanide	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SB030406	12:29	**SW-846 8270C/8270C-Low**	11SB03	SO	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SB030406	12:29	**SW-846 6010C/9012A**	11SB03	SO	Metals (including Mercury)/Cyanide	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SB030406	12:34	**SW-846 8081B/8082A**	11SB03	SO	Pesticides/PCBs	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SB040002	12:15	**SW-846 8270C/8270C-Low**	11SB04	SO	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SB040002	12:15	**SW-846 8081B/8082A**	11SB04	SO	Pesticides/PCBs	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SB040002	12:15	**SW-846 6010C/9012A**	11SB04	SO	Metals (including Mercury)/Cyanide	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SB040406	12:25	**SW-846 8270C/8270C-Low**	11SB04	SO	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	

04/26/2011	11SB040406	12:25	**SW-846 8081B/8082A**	11SB04	SO	Pesticides/PCBs	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SB040406	12:25	**SW-846 6010C/9012A**	11SB04	SO	Metals (including Mercury)/Cyanide	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SB250507	12:41	**SW-846 8270C/8270C-Low**	11SB25	SO	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SB270507	13:02	**SW-846 8270C/8270C-Low**	11SB27	SO	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SB280507	13:11	**SW-846 8270C/8270C-Low**	11SB28	SO	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SBFD042611-01		**SW-846 8081B/8082A**	QC	SO	Pesticides/PCBs	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SBFD042611-01		**SW-846 8270C/8270C-Low**	QC	SO	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SBFD042611-01	00:00	**SW-846 6010C/9012A**	QC	SO	Metals (including Mercury)/Cyanide	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SBFD042611-02		**SW-846 8081B/8082A**	QC	SO	Pesticides/PCBs	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SBFD042611-02		**SW-846 8270C/8270C-Low**	QC	SO	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SBFD042611-02	00:00	**SW-846 6010C/9012A**	QC	SO	Metals (including Mercury)/Cyanide	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS050002	11:15	**SW-846 8270C/8270C-Low**	11SB05	SO	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS050002	11:15	**SW-846 8081B/8082A**	11SB05	SO	Pesticides/PCBs	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS050002	11:15	**SW-846 6010C/9012A**	11SB05	SO	Metals (including Mercury)/Cyanide	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS060002	11:10	**SW-846 8270C/8270C-Low**	11SB06	SO	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS060002	11:10	**SW-846 8081B/8082A**	11SB06	SO	Pesticides/PCBs	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS060002	11:10	**SW-846 6010C/9012A**	11SB06	SO	Metals (including Mercury)/Cyanide	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS070002	11:05	**SW-846 8270C/8270C-Low**	11SB07	SO	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS070002	11:05	**SW-846 8081B/8082A**	11SB07	SO	Pesticides/PCBs	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS070002	11:05	**SW-846 6010C/9012A**	11SB07	SO	Metals (including Mercury)/Cyanide	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS080002	11:00	**SW-846 8270C/8270C-Low**	11SB08	SO	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS080002	11:00	**SW-846 8081B/8082A**	11SB08	SO	Pesticides/PCBs	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS080002	11:00	**SW-846 6010C/9012A**	11SB08	SO	Metals (including Mercury)/Cyanide	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS090002	10:55	**SW-846 8270C/8270C-Low**	11SB09	SO	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS090002	10:55	**SW-846 8081B/8082A**	11SB09	SO	Pesticides/PCBs	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS090002	10:55	**SW-846 6010C/9012A**	11SB09	SO	Metals (including Mercury)/Cyanide	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS100002	10:45	**SW-846 8270C/8270C-Low**	11SB10	SO	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS100002	10:45	**SW-846 8081B/8082A**	11SB10	SO	Pesticides/PCBs	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS100002	10:45	**SW-846 6010C/9012A**	11SB10	SO	Metals (including Mercury)/Cyanide	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS110002	14:40	**SW-846 8270C/8270C-Low**	11SB11	SO	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS110002	14:40	**SW-846 8081B/8082A**	11SB11	SO	Pesticides/PCBs	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS110002	14:40	**SW-846 6010C/9012A**	11SB11	SO	Metals (including Mercury)/Cyanide	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS120002	14:30	**SW-846 8270C/8270C-Low**	11SB12	SO	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS120002	14:30	**SW-846 8081B/8082A**	11SB12	SO	Pesticides/PCBs	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS120002	14:30	**SW-846 6010C/9012A**	11SB12	SO	Metals (including Mercury)/Cyanide	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS130002	14:55	**SW-846 8270C/8270C-Low**	11SB13	SO	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS130002	14:55	**SW-846 8081B/8082A**	11SB13	SO	Pesticides/PCBs	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS130002	14:55	**SW-846 6010C/9012A**	11SB13	SO	Metals (including Mercury)/Cyanide	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS140002	15:00	**SW-846 8270C/8270C-Low**	11SB14	SO	SVOCs (including Low Level PAHs)	4°C	3	Glass - Clear	4 oz. wide-mouth w/Teflon cap	MS/MSD
04/26/2011	11SS140002	15:00	**SW-846 8081B/8082A**	11SB14	SO	Pesticides/PCBs	4°C	3	Glass - Clear	4 oz. wide-mouth w/Teflon cap	MS/MSD

04/26/2011	11SS140002	15:00	**SW-846 6010C/9012A**	11SB14	SO	Metals (including Mercury)/Cyanide	4°C	3	Glass - Clear	4 oz. wide-mouth w/Teflon cap	MS/MSD
04/26/2011	11SS150002	15:10	**SW-846 8270C/8270C-Low**	11SB15	SO	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS150002	15:10	**SW-846 8081B/8082A**	11SB15	SO	Pesticides/PCBs	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS150002	15:10	**SW-846 6010C/9012A**	11SB15	SO	Metals (including Mercury)/Cyanide	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS160002	15:15	**SW-846 8270C/8270C-Low**	11SB16	SO	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS160002	15:15	**SW-846 8081B/8082A**	11SB16	SO	Pesticides/PCBs	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS160002	15:15	**SW-846 6010C/9012A**	11SB16	SO	Metals (including Mercury)/Cyanide	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS170002	14:10	**SW-846 8270C/8270C-Low**	11SB17	SO	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS170002	14:10	**SW-846 8081B/8082A**	11SB17	SO	Pesticides/PCBs	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS170002	14:10	**SW-846 6010C/9012A**	11SB17	SO	Metals (including Mercury)/Cyanide	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS180002	14:20	**SW-846 8270C/8270C-Low**	11SB18	SO	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS180002	14:20	**SW-846 8081B/8082A**	11SB18	SO	Pesticides/PCBs	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SS180002	14:20	**SW-846 6010C/9012A**	11SB18	SO	Metals (including Mercury)/Cyanide	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SSFD042611-03		**SW-846 8270C/8270C-Low**	QC	SO	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SSFD042611-03		**SW-846 8081B/8082A**	QC	SO	Pesticides/PCBs	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/26/2011	11SSFD042611-03	00:00	**SW-846 6010C/9012A**	QC	SO	Metals (including Mercury)/Cyanide	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/27/2011	11SS290002	13:22	**SW-846 8270C/8270C-Low**	11SB29	SO	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/27/2011	11SS290002	13:22	**SW-846 8081B/8082A**	11SB29	SO	Pesticides/PCBs	4°C	3	Glass - Clear	4 oz. wide-mouth w/Teflon cap	MS/MSD
04/27/2011	11SS290002	13:22	**SW-846 6010C/9012A**	11SB29	SO	Metals (including Mercury)/Cyanide	4°C	3	Glass - Clear	4 oz. wide-mouth w/Teflon cap	MS/MSD
04/27/2011	11SS300002	13:51	**SW-846 8270C/8270C-Low**	11SB30	SO	SVOCs (including Low Level PAHs)	4°C	3	Glass - Clear	4 oz. wide-mouth w/Teflon cap	MS/MSD
04/27/2011	11SS300002	13:51	**SW-846 8081B/8082A**	11SB30	SO	Pesticides/PCBs	4°C	3	Glass - Clear	4 oz. wide-mouth w/Teflon cap	MS/MSD
04/27/2011	11SS300002	13:51	**SW-846 6010C/9012A**	11SB30	SO	Metals (including Mercury)/Cyanide	4°C	3	Glass - Clear	4 oz. wide-mouth w/Teflon cap	MS/MSD
04/27/2011	11SS310002	13:44	**SW-846 8270C/8270C-Low**	11SB31	SO	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/27/2011	11SS310002	13:44	**SW-846 8081B/8082A**	11SB31	SO	Pesticides/PCBs	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/27/2011	11SS310002	13:44	**SW-846 6010C/9012A**	11SB31	SO	Metals (including Mercury)/Cyanide	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/27/2011	11SS320002	13:39	**SW-846 8270C/8270C-Low**	11SB32	SO	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/27/2011	11SS320002	13:39	**SW-846 8081B/8082A**	11SB32	SO	Pesticides/PCBs	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/27/2011	11SS320002	13:39	**SW-846 6010C/9012A**	11SB32	SO	Metals (including Mercury)/Cyanide	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/27/2011	11SSFD042711-01		**SW-846 8081B/8082A**	QC	SO	Pesticides/PCBs	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/27/2011	11SSFD042711-01		**SW-846 8270C/8270C-Low**	QC	SO	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/27/2011	11SSFD042711-01	00:00	**SW-846 6010C/9012A**	QC	SO	Metals (including Mercury)/Cyanide	4°C	2	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/28/2011	11SD010006	08:15	**SW-846 8270C/8270C-Low**	11SD01	SD	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/28/2011	11SD010006	08:15	**SW-846 8081B/8082A**	11SD01	SD	Pesticides/PCBs	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/28/2011	11SD010006	08:15	**SW-846 6010C/9012A/Lloyd Kahn**	11SD01	SD	Metals (including Mercury)/Cyanide/TOC	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/28/2011	11SD010612	16:45	**SW-846 8270C/8270C-Low**	11SD01	SD	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/28/2011	11SD010612	16:45	**SW-846 8081B/8082A**	11SD01	SD	Pesticides/PCBs	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/28/2011	11SD010612	16:45	**SW-846 6010C/9012A/Lloyd Kahn**	11SD01	SD	Metals (including Mercury)/Cyanide/TOC	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/28/2011	11SD020006	14:00	**SW-846 8270C/8270C-Low**	11SD02	SD	SVOCs (including Low Level PAHs)	4°C	3	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/28/2011	11SD020006	14:00	**SW-846 8081B/8082A**	11SD02	SD	Pesticides/PCBs	4°C	3	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/28/2011	11SD020006	14:00	**SW-846 6010C/9012A/Lloyd Kahn**	11SD02	SD	Metals (including Mercury)/Cyanide/TOC	4°C	3	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/28/2011	11SD020612	14:23	**SW-846 8270C/8270C-Low**	11SD02	SD	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	

04/28/2011	11SD020612	14:23	**SW-846 8081B/8082A**	11SD02	SD	Pesticides/PCBs	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/28/2011	11SD020612	14:23	**SW-846 6010C/9012A/Lloyd Kahn**	11SD02	SD	Metals (including Mercury)/Cyanide/TOC	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/28/2011	11SD030006	16:54	**SW-846 8270C/8270C-Low**	11SD03	SD	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/28/2011	11SD030006	16:54	**SW-846 8081B/8082A**	11SD03	SD	Pesticides/PCBs	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/28/2011	11SD030006	16:54	**SW-846 6010C/9012A/Lloyd Kahn**	11SD03	SD	Metals (including Mercury)/Cyanide/TOC	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/28/2011	11SD030612	16:56	**SW-846 8270C/8270C-Low**	11SD03	SD	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/28/2011	11SD030612	16:56	**SW-846 8081B/8082A**	11SD03	SD	Pesticides/PCBs	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/28/2011	11SD030612	16:56	**SW-846 6010C/9012A/Lloyd Kahn**	11SD03	SD	Metals (including Mercury)/Cyanide/TOC	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/28/2011	11SD040006	17:01	**SW-846 8270C/8270C-Low**	11SD04	SD	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/28/2011	11SD040006	17:01	**SW-846 8081B/8082A**	11SD04	SD	Pesticides/PCBs	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/28/2011	11SD040006	17:01	**SW-846 6010C/9012A/Lloyd Kahn**	11SD04	SD	Metals (including Mercury)/Cyanide/TOC	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/28/2011	11SD040612	17:04	**SW-846 8270C/8270C-Low**	11SD04	SD	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/28/2011	11SD040612	17:04	**SW-846 8081B/8082A**	11SD04	SD	Pesticides/PCBs	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/28/2011	11SD040612	17:04	**SW-846 6010C/9012A/Lloyd Kahn**	11SD04	SD	Metals (including Mercury)/Cyanide/TOC	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/28/2011	11SDFD042811-01		**SW-846 8081B/8082A**	QC	SD	Pesticides/PCBs	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/28/2011	11SDFD042811-01		**SW-846 8270C/8270C-Low**	QC	SD	SVOCs (including Low Level PAHs)	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	
04/28/2011	11SDFD042811-01	00:00	**SW-846 6010C/9012A/Lloyd Kahn**	QC	SD	Metals (including Mercury)/Cyanide/TOC	4°C	1	Glass - Clear	4 oz. wide-mouth w/Teflon cap	

1. Relinquished By: **Kevin Losekamp**	Date: 04/29/2011	Time: 13:13	Received By: **Federal Express**	Date: 04/29/2011	Time: 14:13
2. Relinquished By:	Date:	Time:	Received By:	Date:	Time:
3. Relinquished By:	Date:	Time:	Received By:	Date:	Time:

Comments:
Tempature Blank and Trip Blank is in the cooler

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER 0331 | PAGE 1 OF 1

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
112G02635	NSA CRANE	TONY KLIMEK	513-557-5057	EMPIRICAL LABORATORIES, LLC
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
Kenna Smith		JOHN F.	502-693-1477	1021 MAINSTREAM DRIVE
		CARRIER/WAYBILL NUMBER		CITY, STATE
		8770 6392-4982		NASHVILLE, TN 37228

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): EN CORE, P
PRESERVATIVE USED: 4C, 4C

DATE YEAR 2011	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	VOCS	PERCENT SOLIDS							COMMENTS
11/15	1420	11SB38-0406	SB38	4	6	SO	G	4	X	X							
11/15	1420	11SB38-0607	SB38	6	7	SO	G	4	X	X							
11/15	1450	11SB40-0205	SB40	3	5	SO	G	4	X	X							
11/15	1450	11SB40-0506	SB40	5	6	SO	G	4	X	X							
11/15	1508	11SB39-0406	SB39	4	6	SO	G	4	X	X							
11/15	1508	11SB39-0708	SB39	7	8	SO	G	4	X	X							
11/15	1300	11TB-111511-01	—	—	—	QC	G	3	X								

1. RELINQUISHED BY	DATE	TIME	1. RECEIVED BY	DATE	TIME
Kenna Smith	11/15/2011	1711			
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER 0344 | PAGE 2 OF 2

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
112G02625	SWMU11	TONY KLIMEK	(513) 557-5057	EMPIRICAL / BRIAN RICHARD
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
		JOHN T. FLOYD	(502) 693-1417	621 MAINSTREAM
		CARRIER/WAYBILL NUMBER		CITY, STATE
		FEDEX / 9770 6393 4993		NASHVILLE, TN 37228

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): P (EN CORE)

PRESERVATIVE USED: ICE (4°C) 4°C

TYPE OF ANALYSIS: PERCENT SOLIDS / VOCs

DATE YEAR 2011	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	PERCENT SOLIDS	VOCs							COMMENTS
11/16	1410	11SB48 0305	SB48	03	05	SO	G	2*	X	X							
	1410	11SB48 0506	SB48	05	06				X	X							
	1230	11SB49 0204	SB49	02	04				X	X							
	1230	11SB49 0405	SB49	04	05				X	X							
	1250	11SB50 0305	SB50	03	05				X	X							
	1250	11SB50 0506	SB50	05	06				X	X							
	1515	11SB47 0103	SB47	01	03				X	X							
	1515	11SB47 0304	SB47	03	04				X	X							
	1600	11SB37 0103	SB37	01	03				X	X							
	1600	11SB37 0304	SB37	03	04				X	X							
	1530	11SB42 0102	SB42	01	02				X	X							
	1530	11SB42 0203	SB42	02	03				X	X							
	0900	11SBTB11/16/11-01	TRIP BLANK			QC				X							

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	11/16/2011	1721	1. RECEIVED BY		
2. RELINQUISHED BY	11/16/2011	1721	2. RECEIVED BY		
3. RELINQUISHED BY			3. RECEIVED BY		

COMMENTS * CONTAINERS INCLUDE ONE (1) FOIL POUCH W/ 3 ENCORES INSIDE AND ONE (1) 100mL PLASTIC VIAL FOR % MOISTURE

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER NI 0343 | PAGE 1 OF 2

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
112G02635	SWMU 11	TONY KLIMEK	(513) 557 5057	EMPIRICAL / BRIAN RICHARD
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
		JOHN T. FLOYD	(502) 693-1417	621 MAINSTREAM
		CARRIER/WAYBILL NUMBER		CITY, STATE
		FEDEX / 8770 6393 4993		NASHVILLE, TN 37228

STANDARD TAT ☐
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): P ZIPLOCK

PRESERVATIVE USED: ICE (4°C)

TYPE OF ANALYSIS: PERCENT SOLIDS; VOCs

DATE YEAR 2011	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	PERCENT SOLIDS	VOCs							COMMENTS
11/16	0950	11SB330406	SB33	04	06	SO	G	2*	X	X							
	0930	11SB330607	SB33	06	07				X	X							
	1030	11SB340406	SB34	04	06				X	X							
	1030	11SB340708	SB34	07	08				X	X							
	1000	11SB350305	SB35	03	05				X	X							
	0950	11SB350506	SB35	05	06				X	X							
	1450	11SB430406	SB43	04	06				X	X							
	1450	11SB430809	SB43	08	09				X	X							
	1330	11SB440406	SB44	04	06				X	X							
	1330	11SB440607	SB44	06	07				X	X							
	1100	11SB450204	SB45	02	04				X	X							
	1100	11SB450506	SB45	05	06				X	X							

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY	11/16/2011	1721	1. RECEIVED BY		
2. RELINQUISHED BY	11/16/2011	1721	2. RECEIVED BY		
3. RELINQUISHED BY			3. RECEIVED BY		

COMMENTS * CONTAINERS INCLUDE ONE (1) FOIL POUCH W/ 3 ENCORES INSIDE AND ONE (1) 100 mL PLASTIC VIAL FOR % MOISTURE

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER N2 0373 | PAGE 1 OF 1

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
112G12635	NSA CLANE SWMU 11	TONY KLIMEK	(513) 557-5057	EMPIRICAL LAB
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
[illegible]		TANT FLOYD	(502) 693-1417	621 MAINSTREAM DRIVE
		CARRIER/WAYBILL NUMBER		CITY, STATE
		FEDEX / 8770 6393 4879		NASHVILLE, TN 37228

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): P
PRESERVATIVE USED: 4C 4C

DATE YEAR 2011	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	VOCs EPA	PERCENT SOLIDS	COMMENTS
11/17	0910	11SB360204	SB36	2	4	SO	G	4	X	X	
11/17	0910	11SB360405	SB36	4	5	SO	G	4	X	X	11SB FD 111711-01
11/17	0920	11SB410204	SB41	2	4	SO	G	4	X	X	
11/17	0920	11SB410405	SB41	4	5	SO	G	4	X	X	
11/17	0950	11SB460305	SB46	3	5	SO	G	4	X	X	
11/17	0950	11SB460506	SB46	5	6	SO	G	12	X	X	MS/MSD
11/17	1422	11SB-RB-111711-01	—	—	—	QC	-	3	X		
11/17	0800	11SB-TB-111711-01	—	—	—	QC	-	3	X		TRIP BLANK
11/17	0000	11SB-FD111711-01	—	—	—	SO	G	4	X	X	FIELDUP

1. RELINQUISHED BY	DATE	TIME	1. RECEIVED BY	DATE	TIME
[illegible]	11/17/11	1732			
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER 0372 | PAGE 1 OF 1

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
112G02635	NSA CRANE SWMU 11	TONY KLIMEK	(513) 557-5057	CAPE FEAR
SAMPLERS (SIGNATURE)		**FIELD OPERATIONS LEADER**	**PHONE NUMBER**	**ADDRESS**
Kenna Floyd		JOHN F. FLOYD	(502) 693-1417	3306 KITTY HAWK
		CARRIER/WAYBILL NUMBER		**CITY, STATE**
		FEDEX / 8770 6393 4880		WILMINGTON NC 28405

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): G
PRESERVATIVE USED: 4°C

DATE YEAR 2011	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS: DIOXINS/FURANS								COMMENTS
11/17	1150	11SD050006	SD05	0	6"	SD	G	1	X								
11/17	1200	11SD060006	SD06	0	6"	SD	G	1	X								
11/17	0000	11SDFD-111711-01	—	—	—	SD	G	1	X								FIELD DUP

1. RELINQUISHED BY	DATE	TIME	1. RECEIVED BY	DATE	TIME
Kenna Floyd	11/17/11	1748			
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

TETRA TECH NUS, INC.

CHAIN OF CUSTODY

NUMBER N2 0390

PAGE 1 OF 1

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
112G02635	NSA CRANE - SWMU 1	TONY KLIMCK	513-557-	EMPIRICAL LABS
SAMPLERS (SIGNATURE)		**FIELD OPERATIONS LEADER**	**PHONE NUMBER**	**ADDRESS**
Kevin Smith		GEORGE TENEYCK	513-557-5043	6021 MAINSTREAM DR. STE 270
		CARRIER/WAYBILL NUMBER		**CITY, STATE**
		872171670473		NASHVILLE TN 37228

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): G
PRESERVATIVE USED: HCL

DATE YEAR 2011	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS: VOCs								COMMENTS
12/12	1600	11MWT0101	MWT01	—	—	GW	G	3	X								
12/14	1010	11MWT0201	MWT02	—	—	GW	G	3	X		11FD-121411-01						
12/14	1545	11MWT0301	MWT03	—	—	GW	G	3	X								
12/15	1645	11MWT0401	MWT04	—	—	GW	G	3	X								
12/14	0000	11FD-121411-01	—	—	—	GW	G	3	X								FIELD DUP

1. RELINQUISHED BY	DATE	TIME	1. RECEIVED BY	DATE	TIME
Kevin Smith					
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER NB 2338 | PAGE 1 OF 1

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
112G02635	NSA Crane	Tony Klimeck	513-333-4815	Empirical / Brian Richards
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
		Kevin Loseckamp	513-333-3680	1021 Mainstream Dr Suite 270
		CARRIER/WAYBILL NUMBER		CITY, STATE
		8011 1642 8195		Nashville TN 37228

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): G
PRESERVATIVE USED: HCL

DATE YEAR 2012	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS: VOCs								COMMENTS
11/27	1130	11MWT0102	MWT 01	-		GW	G	9	x								MS/MSD
11/29	1340	11MWT0202	MWT 02	-	-	|	|	3	x							
11/29	1030	11MWT0302	MWT 03	-	-	|	|	3	x							
		~~11MWT0402~~	MWT 04			|	|	3								No Sample
11/28	1535	18CMWT00102	CMWT 01	-	-	|	|	3	x							
11/27	1145	11MWT0501	MWT 05	-		|	|	3	x							
11/27	1545	11MWT0601	MWT 06	-	-	↓	|	3	x								
11/27	[illegible]	11FD112712-01	-	-	-	QC	QC	3	x								11MWT0501
11/29	1600	11RB112912-02	RB 02	-	-	QC	G	3	x								Pump

1. RELINQUISHED BY	DATE	TIME	1. RECEIVED BY	DATE	TIME
Kevin Loseckamp	11/29/12	1800			
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER N2 2329 | PAGE 1 OF 2

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
112G02635	NSA CRANE	TONY Klimek	513-333-4815	Brian Richards / Empirical
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
		Kevin Loselkamp	513-333-3680	621 Mainstream Dr Suite 270
		CARRIER/WAYBILL NUMBER		CITY, STATE
		8013 8269 1020		Nashville, TN 37228

STANDARD TAT ☐
RUSH TAT ☒
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☒ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): G
PRESERVATIVE USED: Ice

DATE YEAR 2012	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	VOCs	Percent Moisture								COMMENTS
10/30	1130	115B51-0204	SB51	2	4	SO	G	42	31	1								7 Day turn
	1135	115B51-0506	⊥	5	6			2	1	1								
	1140	115B-FD103012-01	QC	–	–			2	1	1								
	1200	115B52-0204	SB52	2	4			6	3	3								MS/MSD
	1205	115B52-0506	⊥	5	6			2	1	1								
	1225	115B53-0204	SB53	2	4			2	1	1								
	1230	115B53-0506	⊥	5	6			2	1	1								
	1245	115B54-0204	SB54	2	4			2	1	1								
	1250	115B54-0405	⊥	4	5			2	1	1								
	1310	115B55-0406	SB55	4	6			2	1	1								
	1315	115B55-0607	⊥	6	7			2	1	1								
	1330	115B56-0406	SB56	4	6			2	1	1								
↓	1335	115B56-0708	⊥	7	8	↓	↓	2	1	1								

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY: Kevin Loselkamp	10/30/12	1630	1. RECEIVED BY		
2. RELINQUISHED BY			2. RECEIVED BY		
3. RELINQUISHED BY			3. RECEIVED BY		

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER NB 2330 | PAGE 2 OF 2

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
NSA CRANE	112G02635	TONY Klimek	513-333-4815	Blain Richards / Empirical
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
		Kevin Coslkamp	513-333-3680	621 Mainstream Dr Suite 270
		CARRIER/WAYBILL NUMBER		CITY, STATE
		8013 8269 1020		Nashville TN 37228

STANDARD TAT ☐
RUSH TAT ☒
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☒ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): P, G, G
PRESERVATIVE USED: HCl

DATE YEAR 2012	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS: VOCs	Percent Moisture	VOCs						COMMENTS
10/30	1345	11SB57-0406	SB57	4	6	SO	G	2	1	1							7 Day turn
	1350	11SB57-0607	↓	6	7												
	1405	11SB58-0305	SB58	3	5												
	1410	11SB58-0506	↓	5	6												
	1430	11SB59-0304	SB59	2	4												
		~~11SB59~~	↓														
	1600	11TB103012-01	QC	–	–	QC	QC	2			2						Trip Blank
↓	1630	11RB103012-01	QC	–	–	QC	QC	2			2						

1. RELINQUISHED BY	DATE	TIME	1. RECEIVED BY	DATE	TIME
Kevin Coslkamp	10/30/12	1630			
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER N2 2337 | PAGE ___ OF 2

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
112G02635	NSA Crane	Tony Klimek	513-733-4815	Brian Richards / Empirical
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
[illegible]		Kevin Lockamp	513-733-3680	6021 Mountcastle Dr Ste 270
		CARRIER/WAYBILL NUMBER		CITY, STATE
		8011 1642 8195		Nashville TN 37228

STANDARD TAT ☐
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☒ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): G G
PRESERVATIVE USED: ice ice

DATE YEAR 2012	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS: VOCs	TYPE OF ANALYSIS: % Moisture								COMMENTS
11/29	1145	11SB60-0204	SB60	2	4	SO	G	2	X	X								7day Turn
	1150	11SB60-0405	1	4	5			2										
	1000	11SB61-0910	SB61	9	10			2										
	1015	11SB61-1011	1	10	11			2										
	1030	11SB62-0911	SB62	9	11			2										
	1035	11SB62-1112	1	11	12			2										
	1045	11SB63-0911	SB63	9	11			2										
	1050	11SB63-1112	1	11	12			2										
	1100	11SB64-0911	SB64	9	11			2										
	1110	11SB64-1112	1	11	12			2										
	1130	11SB65-0911	SB65	9	11			2										
	1135	11SB65-1112	1	11	12			6										MS/MSD
		11SBFD112912-01	01			SO		2										11SB60-0204

1. RELINQUISHED BY	DATE	TIME	1. RECEIVED BY	DATE	TIME
Kevin Lockamp	11/29/12	1700			
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER № 2340 | PAGE 2 OF 2

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
112G02635	NSA Crane	Tony Klimek	513-333-8815	Brian Richards / Empirical
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
		Kevin Loseke	513-333-3680	621 Mainstream Dr Suite 270
		CARRIER/WAYBILL NUMBER		CITY, STATE
		8011 1642 8195		Nashville TN 37228

STANDARD TAT ☐
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): G
PRESERVATIVE USED: HCL
TYPE OF ANALYSIS: VOC

DATE YEAR 2012	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	VOC								COMMENTS
11/29	1500	11RB112912-01	RB 01	—	—	QC	G	3	X								DPT Shoe
11/29	1500	11TB112912-01	TB 01	—	—	QC	G	2	X								Trip Blank

1. RELINQUISHED BY	DATE	TIME	1. RECEIVED BY	DATE	TIME
Kevin Loseke	11/29/12	1500			
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER NB 2327 | PAGE 1 OF 1

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
112G02635	NSA Crane	Jen Buel	412-921-7160	Brian Richard / Empirical
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER: Kevin Losekamp	PHONE NUMBER: 513-333-3680	ADDRESS: 621 Mainstream Dr Suite 270
		CARRIER/WAYBILL NUMBER		CITY, STATE: Nashville TN 37228

STANDARD TAT ☐
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☒ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): P, G, G
PRESERVATIVE USED: ice, ice, ice, MeOH

DATE YEAR 2013	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS: VOCs	% Moisture	Incl.						COMMENTS
1/23	1205	115B66-1315	115B 66	13	15	SO	G	6	X	X							MS/MSD
	1210	115B66-1516	↓	15	16			2									
	1230	115B67-1416	115B 67	14	16			2									
	1235	115B67-1617	↓	16	17			2									
	1250	115B68-1315	115B 68	13	15			4			✓						
	1255	115B68-1516	↓	15	16			4			✓						
	1305	115B69-1416	115B 69	14	16			4			✓						
	1310	115B69-1617	↓	16	17			4			✓						
	1330	115B70-1315	115B 70	13	15			4			✓						
	1340	115B70-1516	↓	15	16			4			✓						
	xxxx	11FD012313-01	QC	-	-	QC	G	2	X	↓							
	1600	11RB012313-01	QC	-	-	QC	G	3	X								
↓	1600	11TB012313-01	QC	-	-	QC	G	2	X								

1. RELINQUISHED BY	DATE	TIME	1. RECEIVED BY	DATE	TIME
Kevin Losekamp	1/23	1700			
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

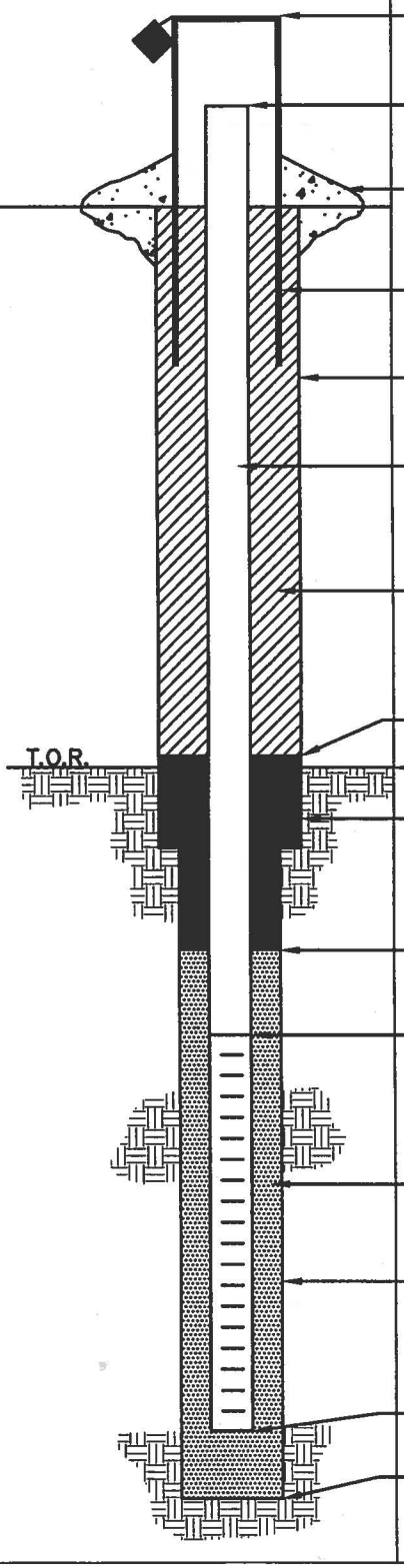
MONITORING WELL CONSTRUCTION DIAGRAMS

WELL NO.: 11MW001

Tetra Tech NUS, Inc.

BEDROCK MONITORING WELL SHEET WELL INSTALLED IN BEDROCK

PROJECT: SWMU 11	LOCATION: 11MW001	DRILLER: Richard Simmons
PROJECT NO.: 112G02635	BORING: 11MW01	DRILLING METHOD: 4 1/4" HSA + AR
DATE BEGUN: 11-3	DATE COMPLETED: 11-4	
FIELD GEOLOGIST: Kevin Cosekani P		DEVELOPMENT METHOD: Surge / pump
GROUND ELEVATION: 687.84	DATUM: NAVD 88	



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 691.29 36" AG

ELEVATION/HEIGHT TOP OF RISER: 690.94 34" AG

TYPE OF SURFACE SEAL: Concrete Pad

I.D. OF SURFACE CASING: 6" Steel

DIAMETER OF HOLE: 6"

RISER PIPE I.D.: 2"

TYPE OF RISER PIPE: PVC

TYPE OF BACKFILL: Grout

ELEVATION/DEPTH TOP OF SEAL: 674.84 13'

ELEVATION/DEPTH TOP OF BEDROCK: 680.84 7'

TYPE OF SEAL: Bentonite Chips

ELEVATION/DEPTH TOP OF SAND: 671.84 16'

ELEVATION/DEPTH TOP OF SCREEN: 669.84 18'

TYPE OF SCREEN: PVC

SLOT SIZE x LENGTH: .20 x 10'

I.D. SCREEN: 2"

TYPE OF SAND PACK: NO. 10-20

DIAMETER OF HOLE IN BEDROCK: 6"

CORE/REAM: NA

ELEVATION/DEPTH BOTTOM SCREEN: 659.84 28'

ELEVATION/DEPTH BOTTOM OF SAND: 658.84 29'

ELEVATION/DEPTH BOTTOM OF HOLE: 658.84 29'

BACKFILL MATERIAL BELOW SAND: NA

ACAD: FORM_MWINBR.dwg 07/20/99 INL

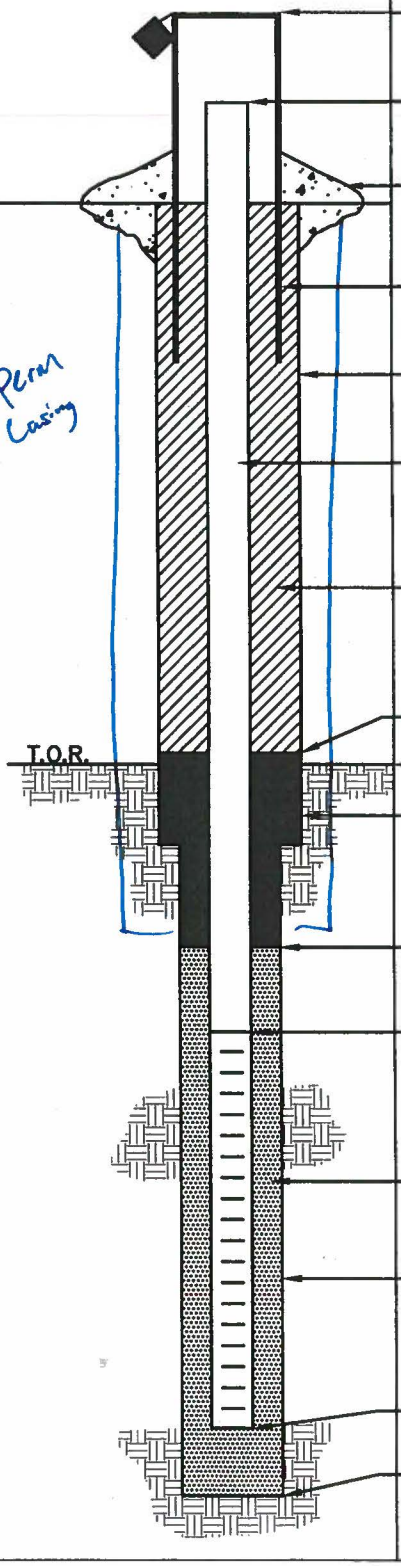
Flush Mount

WELL NO.: 11MW1002

Tetra Tech NUS, Inc.

BEDROCK
MONITORING WELL SHEET
WELL INSTALLED IN BEDROCK

PROJECT Swmu 11	LOCATION 11MW1 002	DRILLER Richard Simmons
PROJECT NO. 112602635	BORING 11MW1002	DRILLING METHOD 4¼ HSA + AR
DATE BEGUN 11-4-11	DATE COMPLETED 11-6-11	
FIELD GEOLOGIST Kevin Cosekamp		DEVELOPMENT METHOD Surge / pump
GROUND ELEVATION 685.00	DATUM NAVD 88	



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 685.00 NA

ELEVATION/HEIGHT TOP OF RISER: 684.73/26.8

TYPE OF SURFACE SEAL: Concrete Pad

I.D. OF SURFACE CASING: 6" Steel
I.D. of Perm Casing 6" Steel 1' – 14'

DIAMETER OF HOLE: 6"

RISER PIPE I.D.: 2"
TYPE OF RISER PIPE: PVC

TYPE OF BACKFILL: grout - cement

ELEVATION/DEPTH TOP OF SEAL: 672.0/13

ELEVATION/DEPTH TOP OF BEDROCK: 676.0/9'

TYPE OF SEAL: Bentonite

ELEVATION/DEPTH TOP OF SAND: 670.0/15

ELEVATION/DEPTH TOP OF SCREEN: 668.0/17
TYPE OF SCREEN: PVC
SLOT SIZE x LENGTH: 20 x 10'
I.D. SCREEN: 2"

TYPE OF SAND PACK: No. 10-20

DIAMETER OF HOLE IN BEDROCK: 6"
CORE/REAM: NA

ELEVATION/DEPTH BOTTOM SCREEN: 658.0/27
ELEVATION/DEPTH BOTTOM OF SAND: 657.0/28
ELEVATION/DEPTH BOTTOM OF HOLE: 657.0/28
BACKFILL MATERIAL BELOW SAND: NA

ACAD:FORM_MWINBR.dwg 07/20/99 INL

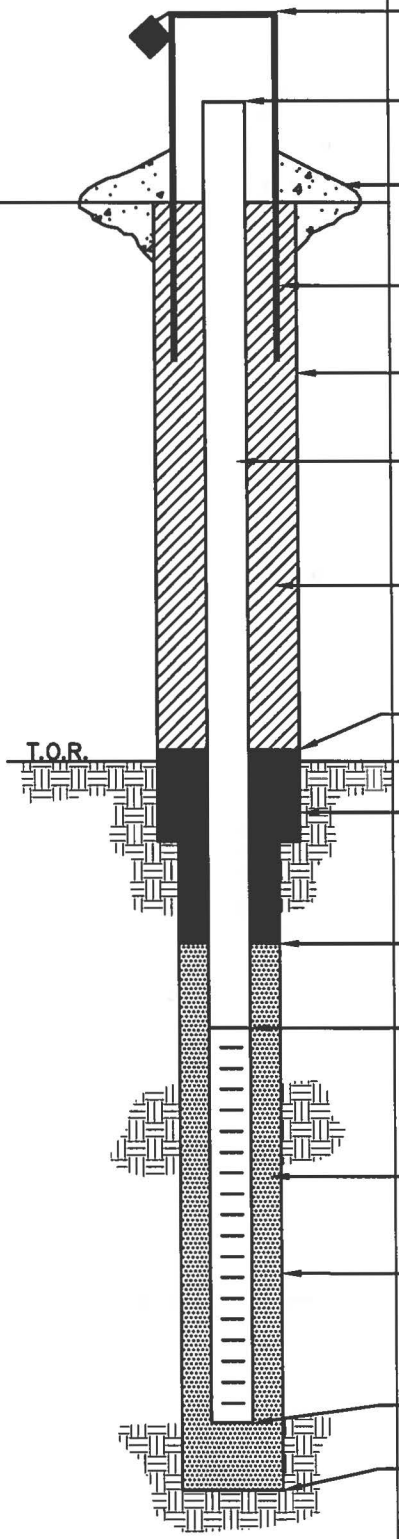
WELL NO.: 11MWT003

Tetra Tech NUS, Inc.

BEDROCK
MONITORING WELL SHEET
WELL INSTALLED IN BEDROCK

PROJECT 112G02635	LOCATION 11MWT003	DRILLER Richard Simmons
PROJECT NO. Summ 11	BORING 11MWT003	DRILLING METHOD 4 1/4" HSA + AR
DATE BEGUN 11-5	DATE COMPLETED 11-6	
FIELD GEOLOGIST Kevin Lockamp		DEVELOPMENT METHOD Surge/pump
GROUND ELEVATION 685.23	DATUM NAVD88	

ACAD: FORM_MWINBR.dwg 07/20/99 INL



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 686.27/36" AG

ELEVATION/HEIGHT TOP OF RISER: 685.99/34" AG

TYPE OF SURFACE SEAL: Concrete Pad

I.D. OF SURFACE CASING: 6" steel

DIAMETER OF HOLE: 6"

RISER PIPE I.D.: 2"

TYPE OF RISER PIPE: PVC

TYPE OF BACKFILL: Grout

ELEVATION/DEPTH TOP OF SEAL: 673.73/9.5

ELEVATION/DEPTH TOP OF BEDROCK: 673.23/10'

TYPE OF SEAL: Bentonite chips

ELEVATION/DEPTH TOP OF SAND: 670.73/12.5

ELEVATION/DEPTH TOP OF SCREEN: 668.73/14.5

TYPE OF SCREEN: PVC

SLOT SIZE x LENGTH: .20 x 10'

I.D. SCREEN: 2"

TYPE OF SAND PACK: No. 10-20

DIAMETER OF HOLE IN BEDROCK: 6"

CORE/REAM: NA

ELEVATION/DEPTH BOTTOM SCREEN: 658.73/24.5

ELEVATION/DEPTH BOTTOM OF SAND: 658.23/25.0

ELEVATION/DEPTH BOTTOM OF HOLE: 658.23/25.0

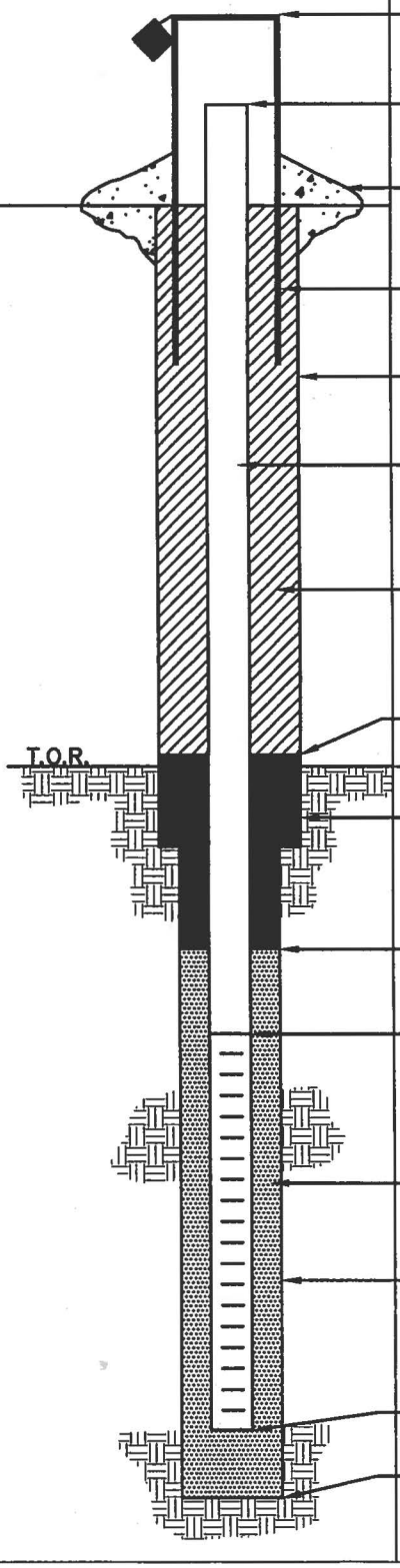
BACKFILL MATERIAL BELOW SAND: NA

WELL NO.: 11MW004

Tetra Tech NUS, Inc.

BEDROCK MONITORING WELL SHEET WELL INSTALLED IN BEDROCK

PROJECT Sumo 11	LOCATION 11MW004	DRILLER Richard Simmons
PROJECT NO. 112G02635	BORING 11MW004	DRILLING METHOD 4 1/4 HSA + AR
DATE BEGUN 11-5-11	DATE COMPLETED 11-6-11	
FIELD GEOLOGIST Kevin Losekamp		DEVELOPMENT METHOD Surge / pump
GROUND ELEVATION 685.95	DATUM NAVD 88	



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 688.79 / 2.6' A

ELEVATION/HEIGHT TOP OF RISER: 688.51 / 3.4' AG

TYPE OF SURFACE SEAL: Concrete Pad

I.D. OF SURFACE CASING: 6" Steel

DIAMETER OF HOLE: 6"

RISER PIPE I.D.: 2"

TYPE OF RISER PIPE: PVC

TYPE OF BACKFILL: Grout

ELEVATION/DEPTH TOP OF SEAL: 668.45 / 17.5'

ELEVATION/DEPTH TOP OF BEDROCK: 666.95 / 19'

TYPE OF SEAL: Bentonite

ELEVATION/DEPTH TOP OF SAND: 665.45 / 20.5

ELEVATION/DEPTH TOP OF SCREEN: 662.95 / 23

TYPE OF SCREEN: PVC

SLOT SIZE x LENGTH: 20 x 10'

I.D. SCREEN: 2"

TYPE OF SAND PACK: No 10-20

DIAMETER OF HOLE IN BEDROCK: 6"

CORE/REAM: NA

ELEVATION/DEPTH BOTTOM SCREEN: 652.95 / 33

ELEVATION/DEPTH BOTTOM OF SAND: 651.95 / 34

ELEVATION/DEPTH BOTTOM OF HOLE: 651.95 / 34

BACKFILL MATERIAL BELOW SAND: NA

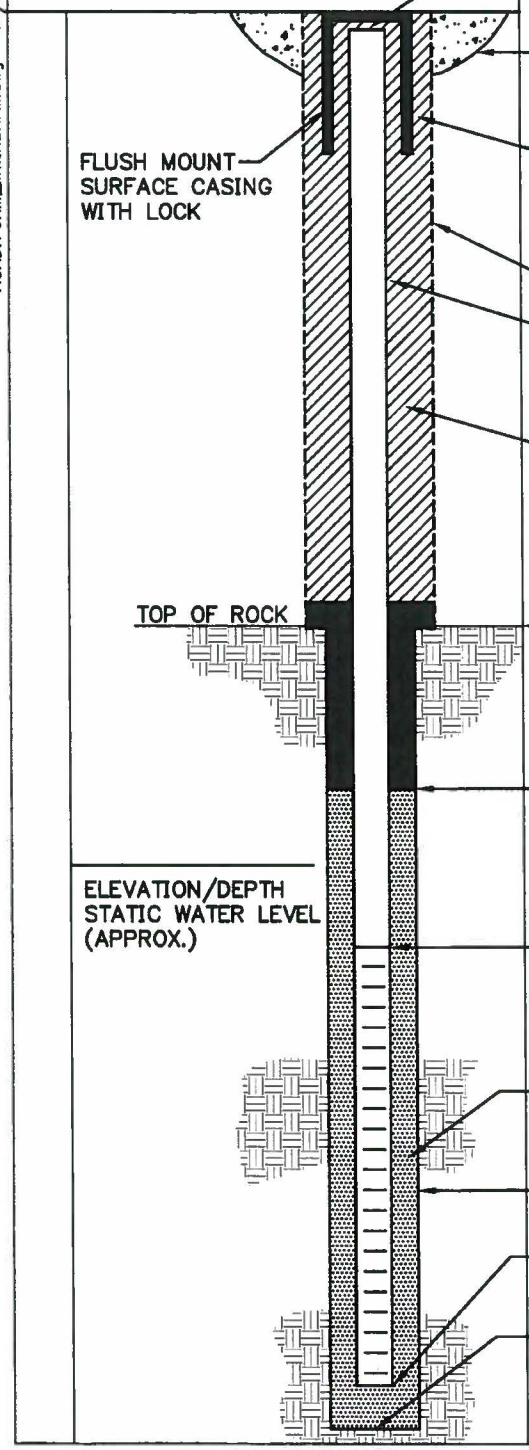
ACAD: FORM_MWINBR.dwg 07/20/99 INL

WELL NO.: 11MW105

Tetra Tech

BEDROCK
MONITORING WELL SHEET
WELL INSTALLED IN BEDROCK

PROJECT Scwmu 11	LOCATION ~~11MW105~~ NSA Gate	DRILLER Bernie Byers
PROJECT NO. 112G02635	BORING 11MW105	DRILLING METHOD Air Hammer
DATE BEGUN 11-17-12	DATE COMPLETED 11-18-12	
FIELD GEOLOGIST K. Loscekamp		DEVELOPMENT METHOD Surge + 12V sub
GROUND ELEVATION	DATUM	



ELEVATION TOP OF RISER: _____

TYPE OF SURFACE SEAL: 2'x2'x6" Concrete flush mount pad

TYPE OF PROTECTIVE CASING: 12" vault Steel

I.D. OF PROTECTIVE CASING: 12" Steel

DIAMETER OF HOLE: 6"

TYPE OF RISER PIPE: 2 PVC

RISER PIPE I.D.: 2"

TYPE OF BACKFILL/SEAL: Bentonite / portland slurry grout

ELEVATION/DEPTH TOP OF BEDROCK: /17.5

ELEVATION/DEPTH TOP OF SAND: /28

ELEVATION/DEPTH TOP OF SCREEN: /30

TYPE OF SCREEN: PVC

SLOT SIZE x LENGTH: .020 x 20'

TYPE OF SAND PACK: 20/40 Silica Sand

DIAMETER OF HOLE IN BEDROCK: 6"

CORE/REAM: _____

ELEVATION / DEPTH BOTTOM OF SCREEN: /50

ELEVATION / DEPTH BOTTOM OF SAND: /50

ELEVATION/DEPTH BOTTOM OF HOLE: /50

BACKFILL MATERIAL BELOW SAND: NA

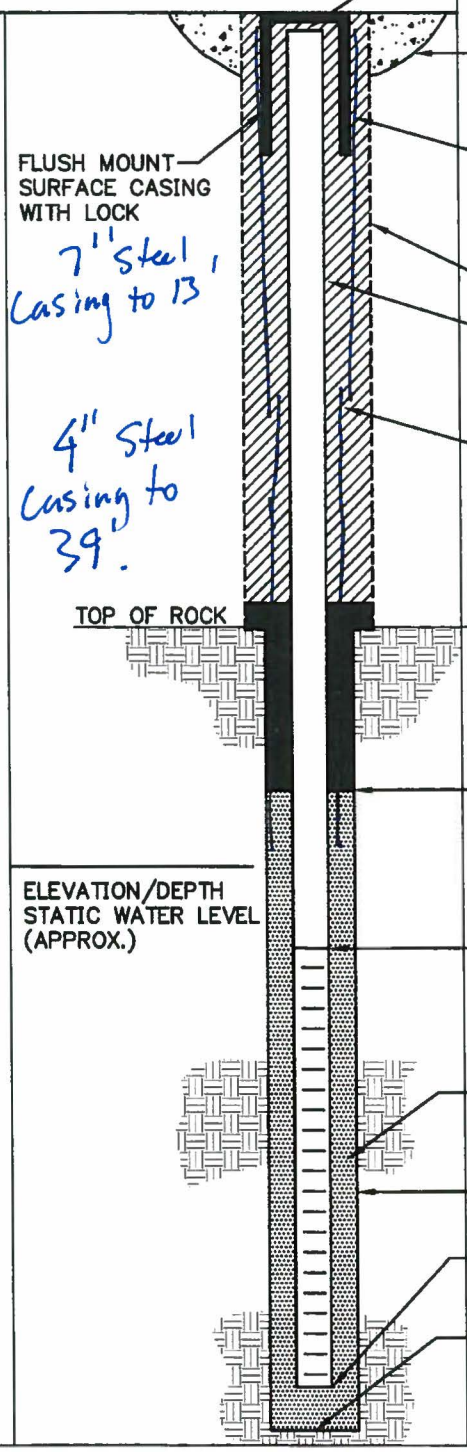
ACAD:FORM_MWINBRFM.dwg 07/20/99 INL

WELL NO.: 11MWT06

Tetra Tech

BEDROCK
MONITORING WELL SHEET
WELL INSTALLED IN BEDROCK

PROJECT: SWMU 11	LOCATION: NSA Crane	DRILLER: Bernie Byers
PROJECT NO.: 112G02635	BORING: 11MWT06	DRILLING METHOD: Air Hammer
DATE BEGUN: 11/15/12	DATE COMPLETED: 11/19/12	DEVELOPMENT METHOD: Surge + 12v pump
FIELD GEOLOGIST: K. Losekamp		
GROUND ELEVATION:	DATUM:	



ELEVATION TOP OF RISER: _____

TYPE OF SURFACE SEAL: 2x2x6" Concrete Pad

TYPE OF PROTECTIVE CASING: 12" Steel vault

I.D. OF PROTECTIVE CASING: 12"

DIAMETER OF HOLE: 12"

TYPE OF RISER PIPE: PVC

RISER PIPE I.D.: 2"

TYPE OF BACKFILL/SEAL: grout / bentonite Portland slurry

ELEVATION/DEPTH TOP OF BEDROCK: /8.5

ELEVATION/DEPTH TOP OF SAND: /58

ELEVATION/DEPTH TOP OF SCREEN: /62

TYPE OF SCREEN: PVC

SLOT SIZE x LENGTH: .020 X 10'

TYPE OF SAND PACK: 20x40 Silica

DIAMETER OF HOLE IN BEDROCK: 4"

CORE/REAM: —

ELEVATION / DEPTH BOTTOM OF SCREEN: /72

ELEVATION / DEPTH BOTTOM OF SAND: /72

ELEVATION/DEPTH BOTTOM OF HOLE: /72

BACKFILL MATERIAL BELOW SAND: NA

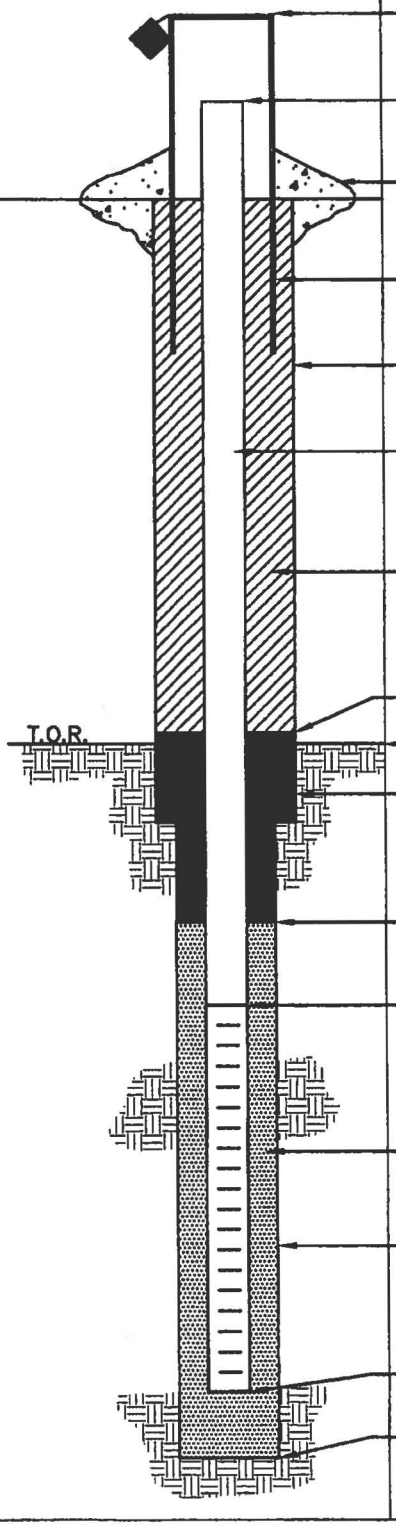
ACAD:FORM_MWINBRFM.dwg 07/20/99 INL

WELL NO.: 18CMWT001

Tetra Tech NUS, Inc.

BEDROCK MONITORING WELL SHEET WELL INSTALLED IN BEDROCK

PROJECT	NSA Crane - SWMU 18	LOCATION	Subarea C	DRILLER	Micah Group / Ben Borth IN # 2359 WD
PROJECT NO.	112G01851	BORING	18CMWT001	DRILLING METHOD	HSA / Air Rotary
DATE BEGUN	11-3-11	DATE COMPLETED	11-4-11		
FIELD GEOLOGIST	T. Evans			DEVELOPMENT METHOD	SURGE/PUMP
GROUND ELEVATION	683.61	DATUM	NAVD 88		



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 686.55 / 2.9

ELEVATION/HEIGHT TOP OF RISER: 686.25 / 2.6

TYPE OF SURFACE SEAL: Concrete Pad (4' x 4' x 6") w/ 4" Bollards

I.D. OF SURFACE CASING: 6"

DIAMETER OF HOLE: 8"

RISER PIPE I.D.: 2"

TYPE OF RISER PIPE: Sch 40 PVC

TYPE OF BACKFILL: Cement - Bentonite Grout

ELEVATION/DEPTH TOP OF SEAL: 669.3 / 14.3

ELEVATION/DEPTH TOP OF BEDROCK: 676.9 / 6.7

TYPE OF SEAL: Bentonite

ELEVATION/DEPTH TOP OF SAND: 663.3 / 20.3

ELEVATION/DEPTH TOP OF SCREEN: 659.3 / 24.3

TYPE OF SCREEN: Sch 40 PVC

SLOT SIZE x LENGTH: 0.020" X 10'

I.D. SCREEN: 2"

TYPE OF SAND PACK: #2 Sand (US Sieve 10-20)

DIAMETER OF HOLE IN BEDROCK: 5.5"

CORE/REAM: N/A

ELEVATION/DEPTH BOTTOM SCREEN: 649.3 / 34.3

ELEVATION/DEPTH BOTTOM OF SAND: 649.1 / 34.5

ELEVATION/DEPTH BOTTOM OF HOLE: 648.6 / 35.0

BACKFILL MATERIAL BELOW SAND: Natural

ACAD:FORM_MWINBR.dwg 07/20/99 INL

APPENDIX E

DATA QUALITY REVIEW

APPENDIX E

DATA QUALITY REVIEW
RCRA FACILITY INVESTIGATION (RFI): SWMU 11 – OLD STORAGE BUILDING 225
NAVAL SUPPORT ACTIVITY CRANE
CRANE, INDIANA

A description of the data review processes used to determine whether analytical laboratory data were of acceptable technical quality for use in decision making is presented in this data quality review (DQR). The review began with data verification and validation. Verification is a process used to ensure that contractual requirements were satisfied. Validation is a comparison of data quality indicators (DQIs) against prescribed acceptance criteria to assess analytical method performance. The DQIs include measures to assess the bias and precision of the analytical calibrations and sample analyses. Together, verification and validation are the first steps in evaluating the DQIs of precision, accuracy, representativeness, completeness, comparability, and sensitivity (PARCCS). The data review process culminates with a data usability assessment during which the final usability of the data is established relative to the intended data use.

1.0 DATA VALIDATION PROCESS

All of the results from analytical laboratory samples collected during the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) at SWMU 11 were validated according to several specifications. Assignment of data qualification flags conformed to rules established in the United States Environmental Protection Agency (USEPA) guidance documents “Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review” (USEPA, October 1999), “CLP National Functional Guidelines for Inorganic Data Review” (USEPA, October 2004), “CLP National Functional Guidelines for Chlorinated Dioxin/Furan Data Validation” (USEPA, September 2005), and the Department of Defense (DoD) guidance document “Quality Systems Manual (QSM) for Environmental Laboratories”, Version 4.1 (DoD, April 2009), to the greatest extent practicable for non-contract laboratory program (non-CLP) data. Numerical criteria used in conjunction with these rules were specified in the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Sampling and Analysis Plan (SAP) for Solid Waste Management Unit (SWMU) 11 – Old Storage Building 225 (SWMU 11) (Tetra Tech, March 2011).

If no qualifier is assigned to a result that has been validated, the data user is assured that no analytical performance deficiencies were identified during validation. The qualification flags used are defined below:

U – Indicates that the chemical was not detected at the numerical detection limit noted. Non-detected results are reported with a “U” qualifier when received from the laboratory. Additionally, a “U” qualifier is added to a result (reported by the laboratory) if the detected concentration is determined to be attributable to contamination introduced during field sampling or laboratory analysis.

J – Indicates that the chemical was detected. However, the associated numerical result is only an approximate representation of the amount that is actually present in the sample. The laboratory reported concentration is considered to be an estimate of the true concentration.

UJ – Indicates that the chemical was not detected. The detection limit provided (sample-specific quantitation limit) is considered to be estimated.

R – Indicates that the chemical may or may not be present. The analytical result reported by the laboratory is considered to be unreliable and unusable. The “R” qualifier is applied in cases of gross technical deficiencies (i.e., holding times missed by a factor of two times the specified time limit, severe calibration non-compliances, and extremely low QC recoveries).

UR – Indicates that the chemical may or may not be present. The non-detected analytical result reported by the laboratory is considered to be unreliable and unusable. The “UR” qualifier is applied in cases of gross technical deficiencies (i.e., holding times missed by a factor of two times the specified time limit, severe calibration non-compliances, and extremely low QC recoveries).

The preceding data qualifiers may be categorized as indicative of major or minor problems. Major problems are defined as issues that result in the rejection of data and qualification with “UR” or “R” data validation qualifiers. Rejected data are considered invalid and are not used for decision making purposes unless used in a qualitative way and the use is justified and documented. Less severe deficiencies, associated with “U”, “J”, and “UJ” data validation qualifiers, are defined as issues resulting in the estimation of data. Estimated analytical results are considered to be suitable for decision making purposes unless the data use requirements are very stringent and the qualifier indicates a deficiency that is incompatible with the intended data use. Also, a “U” qualifier does not necessarily indicate that a data deficiency exists because all non-detect values are flagged with the “U” qualifier regardless of whether a quality deficiency has been detected.

Samples were analyzed for this project by Empirical Laboratories, LLC located in Nashville, Tennessee and reported by the laboratory in 14 Sample Delivery Groups (SDGs). In April 2011, 24 surface soil, 8 subsurface soil, and 8 sediment samples were collected and analyzed for one or more of the following analytical groups: volatile organic compounds (VOCs); semivolatile organic compounds (SVOCs),

including low level polycyclic aromatic hydrocarbons (PAHs); organochlorine pesticides; polychlorinated biphenyls (PCBs); metals; cyanide; total organic carbon (TOC); and Appendix IX list dioxins/furans (which were subcontracted to Cape Fear Analytical [CFA] located in Cape Fear, North Carolina). In November 2011, one surface soil and 36 subsurface soil samples were collected as step-out samples and analyzed for VOCs due to unbounded exceedances of risk-based screening criteria for VOCs in some of the original samples and two sediment samples were collected as step-out samples and analyzed for dioxins/furans due to unbounded exceedances of risk-based screening criteria for dioxins/furans in some of the original samples. In December 2011, four groundwater samples were collected from monitoring wells and analyzed for VOCs due to exceedances of risk-based screening criteria for VOCs in overlying subsurface soil samples. In October 2012, November 2012, and January 2013, an additional 39 subsurface soil samples were collected as step-out samples and analyzed for VOCs to further delineate the VOC contamination identified in the previous subsurface soil samples. In November 2012, an additional round of groundwater samples were collected from the four existing and two new monitoring wells, and the samples were analyzed for VOCs to determine the extent of VOC groundwater contamination.

A complete list of analytical groups that were sampled and analyzed for each of the samples as identified in the SAP and additional step-out samples and groundwater samples are identified in Table E-1.

For quality assurance/quality control (QA/QC) purposes, a minimum of one field duplicate per 10 field samples for each environmental matrix (surface soil, subsurface soil, sediment, and groundwater) were planned to be collected and analyzed for VOCs, SVOCs, including low level PAHs, pesticides, PCBs, metals, cyanide, and/or dioxins/furans; a minimum of one equipment rinsate blank per 20 field samples for each environmental matrix were planned to be collected and analyzed for VOCs, SVOCs, including low level PAHs, pesticides, PCBs, metals, cyanide, and dioxins/furans; and a trip blank sample per cooler with VOC samples were planned to be collected and analyzed for VOCs only.

During the April 2011 sampling event, three field duplicate surface soil samples, two field duplicate subsurface soil samples, one field duplicate sediment sample, and two equipment rinsate blanks were collected and analyzed for one or more of the following: VOCs, SVOCs, including PAHs, pesticides, PCBs, metals, cyanide, TOC, and dioxins/furans. No trip blank samples were collected and analyzed for VOCs. During the November 2011 step-out sampling event, one field duplicate subsurface soil sample, three trip blanks, and one equipment rinsate blank were collected and analyzed for VOCs. During the December 2011 groundwater sampling event, one field duplicate groundwater sample, no equipment rinsate blanks, and no trip blanks were collected and analyzed for VOCs. During the October 2012 through January 2013 subsurface soil sampling events, three field duplicates, three trip blanks, and three equipment rinsate blanks were collected and analyzed for VOCs. During the November 2012

groundwater sampling event, one field duplicate groundwater sample, one equipment rinsate blank, and no trip blanks were collected and analyzed for VOCs. The types of QA/QC samples and the quantities that were collected were consistent with the planned quantities as identified in the SAP (including step-out samples and permanent groundwater monitoring wells in replacement of temporary monitoring wells), except for the lack of trip blanks for VOCs during the April 2011 soil sampling, December 2011 groundwater sampling, and November 2012 groundwater sampling events and equipment rinsate blanks during the December 2011 groundwater sampling event for VOCs.

Two data points from the April 2011 sampling event were rejected during validation. No data points were rejected from the other sampling events. Two acetone results (from surface soil sample 11SS030002 and from subsurface soil sample 11SB030406) were rejected due to unacceptable continuing calibration verification (CCV) relative retention factors (RRFs). Any impacts to the project based on the results of the data evaluation are discussed in the remainder of this review. Please note that data users should be aware that any qualified data, even if it is considered usable, may be less accurate or less precise than non-qualified data.

2.0 DATA VALIDATION OUTPUTS

After laboratory data were validated, a list was developed of non-conformities requiring data qualifier flags that were used to alert the data user to inaccurate or imprecise data. For situations in which several QC criteria were out of specification, the Tetra Tech data validator made professional judgments and/or comments on the validity of the overall data package. The reviewer then prepared a technical memorandum presenting qualification of the data, if necessary, and the rationale for making such qualifications. Tetra Tech data validators incorporated data qualifiers into the electronic database and submitted the information to the Tetra Tech data management group.

Data validation summary narrative reports addressing the RFI sampling events were generated in support of this project, as identified in the following table. The data validation summary narrative reports are included in Appendix F of this RFI Report. Pertinent quality estimates are summarized in a more quantitative format in the following sections.

DATA VALIDATION REPORTS

SDG	Fraction(s)	Name	Date	Number of Samples	Type
April 2011 Data					
CTOF27E_001	VOCs, SVOCs, PAHs, Pesticides, PCBs	J. Kalinyak	7/11/11	3	Aqueous
CTOF27E_001A	Metals, Cyanide	M. Carson	7/11/11	2	Aqueous
CTOF27E_002	VOCs, SVOCs, PAHs, Pesticides, PCBs	E. Sedlmyer	7/19/11	43	Soil, Sediment, Aqueous
CTOF27E_002A	Metals, Cyanide, TOC	M. Allen	7/13/11	39	Soil, Sediment
2337	Dioxins/Furans	E. Sedlmyer	7/13/11	18	Soil, Sediment, Aqueous
November 2011 Data					
1111139	VOCs	A. Cognetti	1/25/12	7	Soil, Aqueous
1111158	VOCs	A. Cognetti	1/27/12	13	Soil, Aqueous
1111172	VOCs	A. Cognetti	1/25/12	9	Soil, Aqueous
1111172 (DF)	Dioxins/Furans	J. Kalinyak	2/29/12	3	Sediment
December 2011 Data					
1112142	VOCs	J. Kalinyak	1/30/12	5	Aqueous
October 2012 Data					
1210288	VOCs	J. Kalinyak	12/20/12	20	Soil, Aqueous
November 2012 Data					
1211239	VOCs	M. Allen	1/21/13	15	Soil, Aqueous
1211240	VOCs	M. Allen	1/21/13	8	Aqueous
January 2013 Data					
1301150	VOCs	E. Sedlmyer	2/22/13	13	Soil, Aqueous

3.0 GENERAL DATA QUALITY REVIEW

The DQR provided herein is designed to provide an overall quantitative measure of analytical performance that is not provided by data validation. The analytical performance quantitative evaluations are frequently analyte-specific and reflect deficiencies such as biases associated with the quantitation of

particular analytes in a particular sample matrix. The data user must be aware that different chemicals in the same analytical group (e.g., benzene and toluene) may exhibit different degrees of quality.

3.3.1 Completeness

Completeness is a measure of the number of valid samples or measurements that are available relative to the number of samples or measurements that were intended to be generated. For this project, completeness was measured on two different bases: samples collected and laboratory measurements.

- Sample collection completeness was a measure of the number of usable samples collected as compared to those intended to be collected.

- Laboratory measurement completeness was a measure of the amount of usable, valid laboratory measurements for each target analyte in each analytical group obtained per matrix as compared to those intended to be measured.

Usable, valid samples (or results) were those judged, after data assessment, to represent the sampling populations and to have not been disqualified for use through data validation or additional data review. Completeness was determined using the following equation:

$$\%C = \frac{V}{T} \times 100$$

where	%C	=	percent completeness
	V	=	number of samples (or results) determined to be valid
	T	=	total number of planned samples (or results)

The total sample collection completeness evaluations for each analytical group for each matrix from each sampling event are the values used to evaluate sample collection completeness against a completeness goal of 95 percent. A specific completeness goal was not established in the SAP; however, a goal of 95 percent is appropriate for this project. Completeness evaluations for each analytical group for each matrix from each sampling event studied at SWMU 11 are tabulated in Table E-2. The percent completeness calculations also include QA/QC field duplicate samples collected to aid in the evaluation of data usability. Discussions pertaining to sample collection and laboratory measurement percent completeness deficiencies (i.e., percent completeness values less than 95 percent) are discussed in the following paragraphs.

Every planned sample was collected and analyzed for the analytical groups as identified in the plans, except as identified in Table E-1 and E-2 and described below:

- Planned groundwater samples TW01-TW03 were not collected in April 2011 because groundwater was not present above bedrock at these locations. Instead, permanent groundwater monitoring wells MW01-MW04 were installed in December 2011 and sampled for VOCs due to exceedances of risk-based screening criteria for VOCs in subsurface soil samples collected in April 2011.
- The location of a field duplicate from subsurface soil for VOC analysis was planned for collection from soil boring location 11SB33 but was changed to 11SB36 in the field because the photoionization detector (PID) screening did not have a reading at 11SB33.
- Two subsurface soil samples were planned for collection from soil boring location 11SB59; however, only one subsurface soil sample was collected due to refusal at 4 feet bgs.
- Groundwater was not collected from monitoring well 11MWT04 in November 2012 due to insufficient water to pump to the surface.
- Planned analysis of SVOCs and low level PAHs for subsurface soil sample 11SB250507 were not analyzed due to a mistake by the laboratory.
- Two data points for acetone were rejected as a result of unacceptable CCV RRFs.

The above identified deviations from sample collection and laboratory analysis completeness were evaluated by the Tetra Tech Project Chemist to determine if those deviations compromise the ability to meet project quality objectives (PQOs). There were no sample collection completeness deficiencies identified because the sample collection completeness was greater than the goal of 95 percent for all sample matrices and all analytical groups in each sampling event, as identified in Table E-2. Similarly, there were no laboratory completeness deficiencies identified because the overall laboratory measurement percent completeness (averaging across all RFI sampling events) was greater than the goal of 95 percent.

3.3.2 Sensitivity

At the start of the project, some LODs were known to be insufficiently low to support quantification of some target analytes at the project screening levels (PSLs). In those cases it was recognized that a non-detect value could represent a concentration greater than the PSL. These analytes were identified on Worksheet #15 of the SAP for SWMU 11 (Tetra Tech, 2011). For the sensitivity analysis portion of the data usability analysis, the actual LODs that were achieved during analysis were compared to updated PSLs to determine which chemicals contained LODs that were greater than PSLs. Tables E-3.1 to E-3.4 present the range of nondetected values for analytes that had at least one non-detect value greater than

a PSL for surface soil, subsurface soil, sediment, or groundwater, respectively. The sensitivity tables are divided in up to four sections. The section on the far left of the tables lists summary statistics for non-detected results. The second section from the left evaluates the sensitivity of human health (HH) PSLs by listing the:

- HH PSLs for each analyte that had a non-detected result,
- number of non-detected results exceeding the corresponding HH PSL,
- percentage of non-detected results exceeding the HH PSL,
- percentage of non-detected results exceeding the HH PSL for the entire data including positively detected results.

The third and fourth sections of the table from the left, if applicable, list the same type of information as the second section from the left except the third and fourth sections from the left evaluate ecological (eco) PSLs and background (BKG) values, respectively. The BKG sections include a comparison of non-detect values to the applicable soil 95 percent upper tolerance limits (UTLs) representing 95 percent coverage of the population as presented in the Final Base-Wide Background Soil Investigation Report (Tetra Tech, 2001). In cases for which the reported non-detect value exceeds a PSL or UTL, there is some uncertainty with a direct comparison of the reported analyte concentration to the criteria because it is not known whether the analyte concentration truly exceeds the criterion.

Sensitivity was evaluated by the Tetra Tech Project Chemist to determine if reporting limits identified in Worksheet #15 of the SAP were achieved and to describe any limitations to the use of the data due to poor sensitivity. The planned reporting limits were achieved. Analytes that were unable to be reported down to the PSL for every sample are identified in Tables E-3.1 to E-3.5. Many of the specific VOC and SVOC analytes that were identified as having LODs greater than PSLs were not present at a detectable level in any medium indicating a lesser likelihood that they may be present at the site at concentrations that are below the reporting limit, but above the PSL. However, some analytes with LODs greater than PSLs were detected in one or more project samples at concentrations greater than the applicable PSL in that matrix, indicating a higher potential that they may be present below the reporting limit and above the PSL in samples that were reported as non-detected.

Table E-3.5 presents a summary of the analytes that contained a non-detect result that exceeded a human health or ecological PSL within each medium. The majority of target analytes listed in the table were already identified in the SAP as having risk-based PSLs that are below the technically achievable detection limits. There are no limitations to the use of the data identified due to poor sensitivity.

3.3.3 Accuracy

Accuracy in the laboratory was measured through the comparison of a spiked sample or a Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) result to a known or calculated value, and is expressed as a percent recovery (%R). Accuracy was also assessed by monitoring the analytical recovery of select surrogate compounds added to samples that are analyzed by organic chromatographic methods and the analytical recovery of calibration standards for all analyses, also expressed as a %R. LCSs/LCSDs were used to assess the accuracy of laboratory operations with minimal sample matrix effects. Matrix spike/matrix spike duplicate (MS/MSD) and surrogate compound analyses measure the combined effects on accuracy of the sample matrix, sample preparation, and sample measurement. LCS and MS analyses were performed at a minimum frequency of one per 20 associated samples of like matrix. Laboratory accuracy was assessed by comparing calculated %R values to accuracy control limits specified by the laboratory using the appropriate USEPA SW-846 Method and the DoD QSM acceptance limits.

Percent recovery is calculated using the following equation:

$$\%R = \frac{Ss - So}{S} \times 100$$

where %R = percent recovery
Ss = result of spiked sample
So = result of non-spiked sample
S = concentration of spiked amount.

According to the data validation summary narrative reports in Appendix F, and as summarized in Table E-4 (data validation qualifier code “E”), 42 positive results were qualified as estimated (J) and 1 non-detected result was qualified as estimated (UJ) due to LCS/LCSD %Rs that exceeded the project accuracy QC limits for the following target analytes: vinyl chloride, N-nitrosodiphenylamine, and 6 PAHs. For this project, 43 of the 10,455 data points (0.41%) required qualification due to LCS/LCSD deviations.

According to the data validation summary narrative reports in Appendix F, and as summarized in Table E-4 (data validation qualifier code “D”), 39 positive results were qualified as estimated (J) and 63 non-detected results were qualified as estimated (UJ) due to MS and MSD %Rs that exceeded the project accuracy QC limits for four metals and cyanide in surface soil and sediment and 22 VOCs and one SVOC in subsurface soil.. For this project, 102 of the 10,455 data points (0.98%) required qualification due to MS/MSD deviations.

A number of results were qualified as estimated (J or UJ) due to initial calibration (ICAL) linear range exceedances; continuing calibration verification (CCV), interference check standard (ICS), internal standard (IS), or surrogate %R non-compliance, as described in the data validation summary narrative reports located in Appendix F and as summarized in Table E-4. ICAL linear range exceedances (data validation qualifier code “L”) were noted and results were qualified for one or more samples for 1,2,3,4,6,7,8,9-OCDD and tetrachloroethene; CCV or other calibration non-compliances (data validation qualifier code “C”) were noted and results were qualified for one or more samples for 22 VOCs, 17 SVOCs, 1 PCBs; 6 pesticides, and 2 metals; ICS non-compliances (data validation qualifier code “K”) were noted and results were qualified for one or more samples for cadmium, lead, and zinc; IS non-compliances (data validation qualifier code “N”) were not noted and results were not qualified; and surrogate non-compliances (data validation qualifier code “R”) were noted and results were qualified for one or more samples for 6 pesticides, affecting the detected and non-detected results reported for all associated samples.

ICAL linear range exceedances and CCV, ICS, IS, and/or surrogate %R non-compliances affected non-detected and positive results reported for a number of samples. Qualified results were not rejected because the non-compliances were not gross exceedances (i.e., < 10 %R), and are therefore considered usable data. For this project, 4 of the 10,455 data points (0.04%) required qualification due to ICAL linear range exceedances; 756 of the 10,455 data points (7.2%) required qualification due to CCV or other calibration non-compliances; 7 of the 10,455 data points (0.07%) required qualification due to ICS non-compliances; 0 of the 10,455 data points (0.00%) required qualification due to IS non-compliances; and 85 of the 10,455 data points (0.81%) required qualification due to surrogate non-compliances.

Accuracy is also evaluated for potential bias due to contaminants that are introduced into samples either in the field or in the laboratory. This bias is monitored through the use of trip blanks, field blanks, equipment rinsate blanks, and/or laboratory method blanks. Detectable concentrations of the VOCs 2-butanone, acetone, and methylene chloride; and the dioxins/furans 2,3,7,8-TCDD and Total TCDFs were identified in one or more of the blanks at levels that caused sample results to be qualified as undetected (U) at an elevated value. For this project, 30 of the 10,455 data points (0.29%) required qualification due to laboratory blank contamination (data validation qualifier code “A”) and 2 of the 10,455 data points (0.02%) required qualification due to blank contamination in trip blanks or equipment rinsate blanks (data validation qualifier code “B”).

Positive results detected below the Limits of Quantitation (LOQs) or below the estimated minimum detection limit (EMDL) for dioxins/furans were reported as estimated (J) to indicate greater uncertainty with regard to the accuracy of the reported values near the detection limit. For this project, 451 of the 10,455 data points (4.3%) required qualification due to concentrations below an LOQ (data validation

qualifier code “P”) and 4 of the 10,455 data points (0.04%) required qualification due to concentrations below an EMDL (data validation qualifier code “W”).

Per the SAP, accuracy was evaluated by the Tetra Tech Project Chemist to determine if actual results compromise the ability to meet the PQOs. Based on the evaluation of field and laboratory contamination, instrument calibration variability, and analyte recoveries for surrogates, MS samples, and LCS samples, the overall accuracy goals were met for this project. Biased (estimated) results due to non-compliance with project accuracy QC limits have been identified through the data validation process and are considered usable data.

3.3.4 Precision

Precision is a measure of the degree to which two or more measurements are in agreement and describes the reproducibility of measurements of the same parameter for samples analyzed under similar conditions.

Precision between two values for chemical parameters is expressed as a Relative Percent Difference (RPD), which is defined as the ratio of the difference to the mean for the two values being evaluated. RPDs, typically expressed as percentages, are used to evaluate both field duplicate and laboratory duplicate precision and are calculated as follows:

$$RPD = \frac{|V1 - V2|}{(V1 + V2)/2} \times 100$$

where RPD = relative percent difference

V1, V2 = two results obtained by analyzing duplicate samples

The precision estimates obtained from field duplicate samples encompass the combined uncertainty associated with sample collection, homogenization, splitting, handling, laboratory and field storage (as applicable), preparation for analysis, and analysis. In contrast, precision estimates obtained from analyzing laboratory duplicate samples incorporate only homogenization, subsampling, preparation for analysis, laboratory storage (if applicable), and analysis uncertainties.

A total of 13 field duplicate samples were collected and analyzed as indicated on Table E-1 and E-4. Field duplicates for surface soil included 1 for VOCs, 2 for dioxins/furans, 3 for SVOCs, low level PAHs, pesticides, PCBs, metals, and cyanide. Field duplicates for subsurface soil included 5 for VOCs and 1 for SVOCs, low level PAHs, pesticides, PCBs, metals, and cyanide. Field duplicates for sediment included 2

for dioxins/furans and 1 for SVOCs, low level PAHs, pesticides, PCBs, metals, cyanide. Two field duplicates were analyzed for VOCs in groundwater.

According to the data validation summary narrative reports, and as identified in Table E-4 (data validation qualifier code “G”), some results were qualified as estimated (J or UJ) due to field duplicate imprecision greater than 50 RPD for soil and sediment samples and 30 RPD for aqueous samples. Due to field duplicate imprecision, one VOC was qualified in groundwater samples, several PAHs, dioxins/furans, and eight metals were qualified in sediment samples, and five VOCs, several PAHs, dioxins/furans, and five metals were qualified in soil samples. For this project, 132 of the 10,455 data points (1.3%) required qualification due to field duplicate deviations. Table E-5 presents a comparison of results from original samples and their corresponding field duplicate.

According to the data validation summary narrative reports, and as identified in the database of results in Appendix F and Table E-4 (data validation qualifier code “F”), some results were qualified as estimated (J or UJ) due to laboratory duplicate imprecision greater than 50 RPD for soil and sediment samples and 30 RPD for aqueous samples, including the following target analytes: the metals cadmium, manganese, mercury, and vanadium. For this project, 77 of the 10,455 data points (0.74%) required qualification due to laboratory duplicate deviations.

MS/MSD RPD results were generally within 50 RPD for all soil and sediment samples and 30 RPD for all aqueous samples (or two times the laboratory reporting limit for non-metals and four times the laboratory reporting limit for metals). No action was taken due to MS/MSD RPD deviations.

Per the SAP, precision was evaluated by the Tetra Tech Project Chemist to determine if actual results compromise the ability to meet the PQOs. There are no limitations to the use of the data due to poor precision.

3.3.5 Comparability

Comparability is defined as the confidence with which one data set can be compared with another (e.g., among sampling points and among sampling events). Comparability was achieved by using standardized sampling and analysis methods, as well as standardized data reporting formats. Comparability of laboratory measurements was achieved primarily through the use and documentation of standard sampling and analytical methods. Results were reported in units that ensured comparability with current state and federal standards and guidelines. Comparability of laboratory measurements was assessed primarily through the use of QC samples and through adherence to the SAP.

3.3.6 Representativeness

Representativeness is an expression of the degree to which data accurately and precisely depict the actual characteristics of a population or environmental condition existing at the site. By complying with the SAP, and through the use of standardized sampling, sample handling, sample analysis, and data reporting procedures, the sampling program was designed so that the final data would be accurate representations of actual site conditions. The DQR found the data collected to be representative of the targeted populations.

One significant parameter that ensures representativeness is the analysis of samples within recommended holding times. According to the data validation summary narrative reports, and as identified in the database of results in Appendix F and Table E-4 (data validation qualifier code "H"), some results in soil and sediment were qualified as estimated (J or UJ) due to holding time exceedances, including the following target analytes: the pesticides dieldrin, endosulfan I, endosulfan II, endrin, endrin aldehyde, gamma-chlordane, and methoxychlor, for samples that required re-extraction and re-analysis due to QA/QC deviations identified during the original analyses; and dioxins/furans target analyte 2,3,7,8-TCDF for one sample due to the laboratory not analyzing it on a confirmation column in a timely manner. For this project, 130 of the 10,455 data points (1.2%) required qualification due to holding time exceedances.

Holding time exceedances that caused data to be qualified were limited to eight positive results for endrin or gamma-chlordane in re-extracted and re-analyzed samples, and estimated detection limits for a number of pesticides (and one 2,3,7,8-TCDF result) that were not positively identified.

4.0 DATA USABILITY

The data collected during the SWMU 11 RFI were determined to be of sufficient quality to be used for determining the nature and extent of chemical contaminants identified at the site and evaluating potential human health and ecological risks. However, the following data usability findings should be considered by project data users:

- Data validation was performed in accordance with the SAP for all organics, dioxins/furans, and inorganics (metals and cyanide) following the USEPA CLP Functional Guidelines described in the preceding paragraphs, and in conjunction with the DoD QSM Version 4.1 and method specific criteria presented in the SAP. Some results were flagged with the qualifiers J, U, or UJ because the data were outside QC acceptance criteria as explained in the data validation summary reports in Appendix F.

- QC samples collected across all RFI field events included 14 field duplicate samples, 10 MS/MSD samples, 7 equipment rinsate blanks, and 7 trip blanks. Some QC samples were not collected as planned during the December 2011 and November 2012 field events, however, the minimum frequencies for QC samples in the remaining RFI field events were met or exceeded.

- Laboratory conditions were identified that caused a rejection (R or UR) of 2 out of the 10,457 total data points from all RFI sampling events (yielding valid data for 10,455 of the 10,457 total data points. Two acetone results from the April 2011 sampling event were qualified as rejected due to unacceptable continuing calibration verification (CCV) relative retention factors (RRFs). The DQR concluded that 99.98% of the data points are considered usable, which exceeds the 95% completeness goal.

- Field duplicate precision measurements exceeded the acceptance criteria of 50 relative percent difference (RPD) for soil and sediment samples and 30 percent of RPD for aqueous samples (or two times the laboratory reporting limit for non-metals and four times the laboratory reporting limit for metals) for one or more analytes in 7 of the 14 field duplicate data sets. These data were qualified as estimated (J or UJ) and are considered usable.

- A number of accuracy measurements exceeded the acceptance criteria for initial calibration (ICAL) linear range, CCV, interference check standard (ICS), internal standard (IS), surrogate percent recoveries (%Rs), matrix spike (MS)/MS duplicates %Rs, and laboratory control sample/LCS duplicates %R for detected and non-detected analytes. These data were qualified as estimated (J or UJ) and are considered usable.

- Holding time exceedances that caused data to be qualified were limited to eight positive results for endrin or gamma-chlordane in re-extracted and re-analyzed samples, and estimated detection limits for a number of pesticides (and one 2,3,7,8-tetrachlorodibenzo-p-dioxin [TCDD] result) that were not positively identified.

- For all detected target analytes in surface and subsurface soil, sediment, and groundwater, the Limits of Quantitation (LOQs) were sufficiently sensitive (below the corresponding PSLs for human health direct contact and/or ecological exposure as originally identified in Worksheet #15 of the SAP and as revised according to current risk-based criteria as identified in Table E-3) to meet the project quality objectives (PQOs), with the exceptions noted in the DQR. Any positive detection between the LOQ and the laboratory detection limit (DL) were qualified as estimated (J) and are considered usable.

Table E-1
List of Samples for Collection and Planned Analyses
NSA Crane SWMU 11 RFI Report

SAP - Location ID	SAP - Sample ID	Matrix/ Depth (ft)	Actual Sample ID	VOCs	SVOCs	PAHs	Pest	PCBs	D/F	Met	CN	pH	TOC	Notes
Originally Planned Samples (SAP)														
11SB01	11SS01SO0002	Soil 0 - 2	11SS01SO0002	PC	PC	PC	PC	PC		PC	PC			D
11SB01	11SB01SOXXXX	Soil >2	11SB01SO0406	PC	PC	PC	PC	PC		PC	PC			D
11SB02	11SS02SO0002	Soil 0 - 2	11SS02SO0002	PC	PC	PC	PC	PC	PC	PC	PC			
11SB02	11SB02SOXXXX	Soil >2	11SB02SO0406	PC	PC	PC	PC	PC		PC	PC			
11SB03	11SS03SO0002	Soil 0 - 2	11SS03SO0002	PC	PC	PC	PC	PC		PC	PC			
11SB03	11SB03SOXXXX	Soil >2	11SB03SO0406	PC	PC	PC	PC	PC		PC	PC			
11SB04	11SS04SO0002	Soil 0 - 2	11SS04SO0002	PC	PC	PC	PC	PC		PC	PC			
11SB04	11SB04SOXXXX	Soil >2	11SB04SO0406	PC	PC	PC	PC	PC		PC	PC			
11SB05	11SS05SO0002	Soil 0 - 2	11SS05SO0002		PC	PC	PC	PC		PC	PC			
11SB06	11SS06SO0002	Soil 0 - 2	11SS06SO0002		PC	PC	PC	PC		PC	PC			
11SB07	11SS07SO0002	Soil 0 - 2	11SS07SO0002		PC	PC	PC	PC		PC	PC			
11SB08	11SS08SO0002	Soil 0 - 2	11SS08SO0002		PC	PC	PC	PC		PC	PC			
11SB09	11SS09SO0002	Soil 0 - 2	11SS09SO0002		PC	PC	PC	PC	PC	PC	PC			
11SB10	11SS10SO0002	Soil 0 - 2	11SS10SO0002		PC	PC	PC	PC		PC	PC			
11SB11	11SS11SO0002	Soil 0 - 2	11SS11SO0002		PC	PC	PC	PC	PC	PC	PC			D
11SB12	11SS12SO0002	Soil 0 - 2	11SS12SO0002		PC	PC	PC	PC		PC	PC			
11SB13	11SS13SO0002	Soil 0 - 2	11SS13SO0002		PC	PC	PC	PC		PC	PC			
11SB14	11SS14SO0002	Soil 0 - 2	11SS14SO0002		PC	PC	PC	PC	PC	PC	PC			
11SB15	11SS15SO0002	Soil 0 - 2	11SS15SO0002		PC	PC	PC	PC		PC	PC			
11SB16	11SS16SO0002	Soil 0 - 2	11SS16SO0002		PC	PC	PC	PC		PC	PC			
11SB17	11SS17SO0002	Soil 0 - 2	11SS17SO0002		PC	PC	PC	PC		PC	PC			
11SB18	11SS18SO0002	Soil 0 - 2	11SS18SO0002		PC	PC	PC	PC	PC	PC	PC			
11SB19	11SS19SO0002	Soil 0 - 2	11SS19SO0002						PC					
11SB20	11SS20SO0002	Soil 0 - 2	11SS20SO0002						PC					
11SB21	11SS21SO0002	Soil 0 - 2	11SS21SO0002						PC					D
11SB22	11SS22SO0002	Soil 0 - 2	11SS22SO0002						PC					
11SB23	11SS23SO0002	Soil 0 - 2	11SS23SO0002						PC					
11SB24	11SS24SO0002	Soil 0 - 2	11SS24SO0002						PC					
11SB25	11SB25SOXXXX	Soil >2	11SB25SO0507	PC	P	P								
11SB26	11SB26SOXXXX	Soil >2	11SB26SO0507	PC	PC	PC								
11SB27	11SB27SOXXXX	Soil >2	11SB27SO0507	PC	PC	PC								
11SB28	11SB28SOXXXX	Soil >2	11SB28SO0507	PC	PC	PC								
11SB29	11SS29SO0002	Soil 0 - 2	11SS29SO0002		PC	PC	PC	PC		PC	PC			
11SB30	11SS30SO0002	Soil 0 - 2	11SS30SO0002		PC	PC	PC	PC		PC	PC			
11SB31	11SS31SO0002	Soil 0 - 2	11SS31SO0002		PC	PC	PC	PC		PC	PC			D
11SB32	11SS32SO0002	Soil 0 - 2	11SS32SO0002		PC	PC	PC	PC		PC	PC			
11SD01	11SD010006	Sed 0-0.5	11SD010006		PC	PC	PC	PC		PC	PC		PC	
11SD01	11SD010612	Sed 0.5-1.0	11SD010612		PC	PC	PC	PC		PC	PC		PC	
11SD02	11SD020006-01	Sed 0-0.5	11SD020006		PC	PC	PC	PC	PC	PC	PC		PC	D

Table E-1
List of Samples for Collection and Planned Analyses
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SAP - Location ID	SAP - Sample ID	Matrix/ Depth (ft)	Actual Sample ID	VOCs	SVOCs	PAHs	Pest	PCBs	D/F	Met	CN	pH	TOC	Notes
11SD02	11SD020612	Sed 0.5-1.0	11SD020612		PC	PC	PC	PC	PC	PC	PC		PC	
11SD03	11SD030006-01	Sed 0-0.5	11SD030006		PC	PC	PC	PC		PC	PC		PC	
11SD03	11SD030612	Sed 0.5-1.0	11SD030612		PC	PC	PC	PC		PC	PC		PC	
11SD04	11SD040006-01	Sed 0-0.5	11SD040006		PC	PC	PC	PC		PC	PC		PC	
11SD04	11SD040612	Sed 0.5-1.0	11SD040612		PC	PC	PC	PC		PC	PC		PC	
11TW01	11GW0101	GW <20	11GW01-01	P	P	P	P	P						P
11TW02	11GW0201	GW <20	11GW02-01	P	P	P	P	P						
11TW03	11GW0301	GW <20	11GW03-01	P	P	P	P	P						
Additional Step-Out Soil Samples for VOCs (Technical Memorandum)														
11SB33	11SB33SO0406	Soil 4 - 6	11SB33SO0406	PC										P
11SB33	11SB33SO0607	Soil 6 - 7	11SB33SO0607	PC										
11SB34	11SB34SO0406	Soil 4 - 6	11SB34SO0406	PC										
11SB34	11SB34SO0708	Soil 7 - 8	11SB34SO0708	PC										
11SB35	11SB35SO0305	Soil 3 - 5	11SB35SO0305	PC										
11SB35	11SB35SO0506	Soil 5 - 6	11SB35SO0506	PC										
11SB36	11SB36SO0204	Soil 2 - 4	11SB36SO0204	PC										
11SB36	11SB36SO0405	Soil 4 - 5	11SB36SO0405	PC										C
11SB37	11SB37SO0103	Soil 1 - 3	11SB37SO0103	PC										
11SB37	11SB37SO0304	Soil 3 - 4	11SB37SO0304	PC										
11SB38	11SB38SO0406	Soil 4 - 6	11SB38SO0406	PC										
11SB38	11SB38SO0607	Soil 6 - 7	11SB38SO0607	PC										
11SB39	11SB39SO0406	Soil 4 - 6	11SB39SO0406	PC										
11SB39	11SB39SO0809	Soil 8 - 9	11SB39SO0607	PC										
11SB40	11SB40SO0305	Soil 3 - 5	11SB40SO0305	PC										
11SB40	11SB40SO0506	Soil 5 - 6	11SB40SO0506	PC										
11SB41	11SB41SO0204	Soil 2 - 4	11SB41SO0204	PC										
11SB41	11SB41SO0405	Soil 4 - 5	11SB41SO0405	PC										
11SB42	11SB42SO0102	Soil 1 - 2	11SB42SO0102	PC										
11SB42	11SB42SO0203	Soil 2 - 3	11SB42SO0203	PC										
11SB43	11SB43SO0406	Soil 4 - 6	11SB43SO0406	PC										
11SB43	11SB43SO0809	Soil 8 - 9	11SB43SO0809	PC										
11SB44	11SB44SO0406	Soil 4 - 6	11SB44SO0305	PC										
11SB44	11SB44SO0607	Soil 6 - 7	11SB44SO0607	PC										
11SB45	11SB45SO0204	Soil 2 - 4	11SB45SO0204	PC										
11SB45	11SB45SO0506	Soil 5 - 6	11SB45SO0506	PC										
11SB46	11SB46SO0305	Soil 3 - 5	11SB46SO0305	PC										
11SB46	11SB46SO0506	Soil 5 - 6	11SB46SO0506	PC										
11SB47	11SB47SO0103	Soil 1 - 3	11SB47SO0103	PC										
11SB47	11SB47SO0304	Soil 3 - 4	11SB47SO0304	PC										
11SB48	11SB48SO0305	Soil 3 - 5	11SB48SO0305	PC										

Table E-1
List of Samples for Collection and Planned Analyses
NSA Crane SWMU 11 RFI Report

SAP - Location ID	SAP - Sample ID	Matrix/ Depth (ft)	Actual Sample ID	VOCs	SVOCs	PAHs	Pest	PCBs	D/F	Met	CN	pH	TOC	Notes
11SB48	11SB48SO0506	Soil 5 - 6	11SB48SO0506	PC										
11SB49	11SB49SO0204	Soil 2 - 4	11SB49SO0204	PC										
11SB49	11SB49SO0405	Soil 4 - 5	11SB49SO0405	PC										
11SB50	11SB50SO0305	Soil 3 - 5	11SB50SO0305	PC										
11SB50	11SB50SO0506	Soil 5 - 6	11SB50SO0506	PC										
Additional Step-Out Soil Samples for VOCs (Field Task Modification)														
11SB51	11SB51-XXXX	Soil >2	11SB51-0204	PC										D
11SB51	11SB51-YYYY	Soil >2	11SB51-0506	PC										
11SB52	11SB52-XXXX	Soil >2	11SB52-0204	PC										
11SB52	11SB52-YYYY	Soil >2	11SB52-0506	PC										
11SB53	11SB53-XXXX	Soil >2	11SB53-0204	PC										
11SB53	11SB53-YYYY	Soil >2	11SB53-0506	PC										
11SB54	11SB54-XXXX	Soil >2	11SB54-0204	PC										
11SB54	11SB54-YYYY	Soil >2	11SB54-0405	PC										
11SB55	11SB55-XXXX	Soil >2	11SB55-0406	PC										
11SB55	11SB55-YYYY	Soil >2	11SB55-0607	PC										
11SB56	11SB56-XXXX	Soil >2	11SB56-0406	PC										
11SB56	11SB56-YYYY	Soil >2	11SB56-0708	PC										
11SB57	11SB57-XXXX	Soil >2	11SB57-0406	PC										
11SB57	11SB57-YYYY	Soil >2	11SB57-0607	PC										
11SB58	11SB58-XXXX	Soil >2	11SB58-0305	PC										
11SB58	11SB58-YYYY	Soil >2	11SB58-0506	PC										
11SB59	11SB59-XXXX	Soil >2	11SB59-0204	PC										
11SB59	11SB59-YYYY	Soil >2	Refusal at 4 ft	P										
11SB60	11SB60-XXXX	Soil >2	11SB60-0204	PC										D
11SB60	11SB60-YYYY	Soil >2	11SB60-0405	PC										
11SB61	11SB61-XXXX	Soil >2	11SB61-0810	PC										
11SB61	11SB61-YYYY	Soil >2	11SB61-1011	PC										
11SB62	11SB62-XXXX	Soil >2	11SB62-0911	PC										
11SB62	11SB62-YYYY	Soil >2	11SB62-1112	PC										
11SB63	11SB63-XXXX	Soil >2	11SB63-0911	PC										
11SB63	11SB63-YYYY	Soil >2	11SB63-1112	PC										
11SB64	11SB64-XXXX	Soil >2	11SB64-1112	PC										
11SB64	11SB64-YYYY	Soil >2	11SB64-0911	PC										
11SB65	11SB65-XXXX	Soil >2	11SB65-0911	PC										
11SB65	11SB65-YYYY	Soil >2	11SB65-1112	PC										

Table E-1
List of Samples for Collection and Planned Analyses
NSA Crane SWMU 11 RFI Report

SAP - Location ID	SAP - Sample ID	Matrix/ Depth (ft)	Actual Sample ID	VOCs	SVOCs	PAHs	Pest	PCBs	D/F	Met	CN	pH	TOC	Notes
11SB66	11SB66-XXXX	Soil >2	11SB66-1315	PC										
11SB66	11SB66-YYYY	Soil >2	11SB66-1516	PC										D
11SB67	11SB67-XXXX	Soil >2	11SB67-1416	PC										
11SB67	11SB67-YYYY	Soil >2	11SB67-1617	PC										
11SB68	11SB68-XXXX	Soil >2	11SB68-1315	PC										
11SB68	11SB68-YYYY	Soil >2	11SB68-1516	PC										
11SB69	11SB69-XXXX	Soil >2	11SB69-1416	PC										
11SB69	11SB69-YYYY	Soil >2	11SB69-1617	PC										
11SB70	11SB70-XXXX	Soil >2	11SB70-1315	PC										
11SB70	11SB70-YYYY	Soil >2	11SB70-1516	PC										
Additional Step-Out Sediment Samples for Dioxins/Furans (Technical Memorandum)														
11SD05	11SD050006-01	Sed 0-0.5	11SD050006						PC					D
11SD06	11SD060006-01	Sed 0-0.5	11SD060006						PC					
Groundwater Samples for VOCs (Technical Memorandum)														
11MW01	11MW0101	GW >20	11MWT0101	PC										
11MW02	11MW0201	GW >20	11MWT0201	PC										D
11MW03	11MW0301	GW >20	11MWT0301	PC										
11MW04	11MW0401	GW >20	11MWT0401	PC										
Groundwater Samples for VOCs (Field Task Modification)														
11MWT01	11MWT0102	Upper water bearing zone	11MWT0102	PC										
11MWT02	11MWT0202	Upper water bearing zone	11MWT0202	PC										
11MWT03	11MWT0302	Upper water bearing zone	11MWT0302	PC										
11MWT04	11MWT0402	Upper water bearing zone	Insufficient water	P										
18CMWT001	18CMWT00102	Upper water bearing zone	18CMWT00102	PC										
11MWT05	11MWT0501	Upper water bearing zone	11MWT0501	PC										D
11MWT06	11MWT0601	Middle water bearing zone	11MWT0601	PC										

Codes - P = Planned; C = Collected; D = Field Duplicate Collected

Notes:

PC	= Planned and Collected
C	= Collected, but not planned
P	= Planned, but not Collected

Table E-2
Completeness Assessment
NSA Crane SWMU 11 RFI Report

Analytical Fraction	Sample Collection Completeness: Planned Environmental Samples	Environmental Samples Collected	Environmental Sample Collection Percent Completeness	Laboratory Measurement Completeness: Environmental Samples Analyzed	Valid Analytical Results	Laboratory Measurement Collection Percent Completeness
April 2011 Sampling Event						
Surface Soil						
VOCs - 48 Analytes	5	5	NA	5	239	99.6
SVOCs - 48 Analytes	25	25	100	25	1,200	100
Low Level PAHs - 17 Analytes	25	25	100	25	425	100
Pesticides - 21 Analytes	25	25	100	25	525	100
PCBs - 7 Analytes	25	25	100	25	175	100
Dioxins/Furans - 25 Analytes	13	13	100	13	325	100
TAL Metals and Cyanide - 24 Analytes	25	25	100	25	600	100
Subsurface Soil						
VOCs - 48 Analytes	9	9	100	9	431	99.8
SVOCs - 48 Analytes	9	9	100	8	384	89
Low Level PAHs - 17 Analytes	9	9	100	8	136	89
Pesticides - 21 Analytes	5	5	100	5	105	100
PCBs - 7 Analytes	5	5	100	5	35	100
Dioxins/Furans - 25 Analytes	0	0	NA	0	0	NA
TAL Metals and Cyanide - 24 Analytes	5	5	100	5	120	100
Sediment						
VOCs - 48 Analytes	0	0	NA	0	0	NA
SVOCs - 48 Analytes	9	9	100	9	432	100
Low Level PAHs - 17 Analytes	9	9	100	9	153	100
Pesticides - 21 Analytes	9	9	100	9	189	100
PCBs - 7 Analytes	9	9	100	9	63	100
Dioxins/Furans - 25 Analytes	3	3	100	3	75	100
TAL Metals and Cyanide - 24 Analytes	9	9	100	9	216	100
Groundwater						
VOCs - 48 Analytes	3	0	NA	0	0	NA
SVOCs - 48 Analytes	3	0	NA	0	0	NA
Low Level PAHs - 17 Analytes	3	0	NA	0	0	NA
Pesticides - 21 Analytes	3	0	NA	0	0	NA
PCBs - 7 Analytes	3	0	NA	0	0	NA
Dioxins/Furans - 25 Analytes	0	0	NA	0	0	NA
TAL Metals and Cyanide - 24 Analytes	3	0	NA	0	0	NA
November and December 2011 Sampling Events						
Surface Soil						
VOCs - 50 Analytes	1	1	100	1	50	100
Subsurface Soil						
VOCs - 50 Analytes	37	37	100	37	1,850	100
Sediment						
Dioxins/Furans - 25 Analytes	3	3	100	3	75	100
Groundwater						
VOCs - 50 Analytes	5	5	100	5	250	100

Table E-2
Completeness Assessment
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	Sample Collection Completeness			Laboratory Measurement Completeness		
Analytical Fraction	**Planned Environmental Samples**	**Environmental Samples Collected**	**Environmental Sample Collection Percent Completeness**	**Environmental Samples Analyzed**	**Valid Analytical Results**	**Laboratory Measurement Collection Percent Completeness**
October 2012, November 2012, and January 2013 Sampling Events						
Subsurface Soil						
VOCs - 50 Analytes	43	42	98	42	2,100	100
Groundwater						
VOCs - 50 Analytes	8	7	88	7	350	100

The totals above include associated field duplicate samples as indentified in Table E-1.
The totals above do not include equipment rinsate blanks or trip blanks.

Table E-3.1
Sensitivity Evaluation of the Limit of Detection - Surface Soil
NSA Crane SWMU 11 RFI Report

fraction	parameter	units	Number of Non-Detected Results	Total Number of Analyses	Range of Non-Detected Values	HH PSL	Number of Non-Detected Results Exceeding HH PSL	% of Non-Detected Results Exceeding HH PSL	% of Non-Detected Results Exceeding HH PSL for Entire Data Set	Eco PSL	Number of Non-Detected Results Exceeding Eco PSL	% of Non-Detected Results Exceeding Eco PSL	% of Non-Detected Results Exceeding Eco PSL for Entire Data Set	BKG	Number of Non-Detected Results Exceeding BKG	% of Non-Detected Results Exceeding BKG	% of Non-Detected Results Exceeding BKG for Entire Data Set
DIOX	1,2,3,4,6,7,8,9-OCDF	NG/KG	3	11	6.03-6.36	15000				38.6				NA			
DIOX	1,2,3,4,6,7,8-HPCDF	NG/KG	3	11	3.02-3.19	450				38.6				NA			
DIOX	1,2,3,4,7,8,9-HPCDF	NG/KG	8	11	3.02-3.28	450				38.6				NA			
DIOX	1,2,3,4,7,8-HXCDD	NG/KG	6	11	3.02-3.21	45				0.199	6	100	55	NA			
DIOX	1,2,3,4,7,8-HXCDF	NG/KG	6	11	3.02-3.28	45				38.6				NA			
DIOX	1,2,3,6,7,8-HXCDD	NG/KG	4	11	3.12-3.19	45				0.199	4	100	36	NA			
DIOX	1,2,3,6,7,8-HXCDF	NG/KG	7	11	3.02-3.28	45				38.6				NA			
DIOX	1,2,3,7,8,9-HXCDD	NG/KG	4	11	3.12-3.19	45				0.199	4	100	36	NA			
DIOX	1,2,3,7,8,9-HXCDF	NG/KG	10	11	3.02-3.28	45				38.6				NA			
DIOX	1,2,3,7,8-PECDD	NG/KG	9	11	3.02-3.28	4.5				0.199	9	100	82	NA			
DIOX	1,2,3,7,8-PECDF	NG/KG	8	11	3.02-3.28	150				38.6				NA			
DIOX	2,3,4,6,7,8-HXCDF	NG/KG	7	11	3.02-3.28	45				38.6				NA			
DIOX	2,3,4,7,8-PECDF	NG/KG	8	11	3.02-3.28	15				38.6				NA			
DIOX	2,3,7,8-TCDD	NG/KG	9	11	0.603-0.653	4.5				0.199	9	100	82	NA			
DIOX	2,3,7,8-TCDF	NG/KG	11	11	0.369-0.673	45				38.6				NA			
DIOX	TOTAL HPCDF	NG/KG	4	11	3.02-3.28	NA				NA				NA			
DIOX	TOTAL HXCDD	NG/KG	1	11	3.12	NA				NA				NA			
DIOX	TOTAL HXCDF	NG/KG	4	11	3.02-3.19	NA				NA				NA			
DIOX	TOTAL PECDD	NG/KG	4	11	3.02-3.21	NA				NA				NA			
DIOX	TOTAL PECDF	NG/KG	7	11	3.02-3.28	NA				NA				NA			
DIOX	TOTAL TCDD	NG/KG	9	11	0.603-0.653	NA				NA				NA			
DIOX	TOTAL TCDF	NG/KG	10	11	0.369-8.4	NA				NA				NA			
M	ANTIMONY	MG/KG	22	22	0.923-1.04	3.1				0.27	22	100	100	5.6			
M	CADMIUM	MG/KG	20	22	0.232-0.261	7				0.36				3.6			
M	MERCURY	MG/KG	5	22	0.0296-0.0402	0.66				0.1				0.07			
M	SELENIUM	MG/KG	14	22	0.577-0.649	5.3				0.52	14	100	64	0.64	1	7	5
M	SILVER	MG/KG	22	22	0.231-0.261	12				4.2				0.11	22	100	100
M	SODIUM	MG/KG	16	22	348-389	NA				NA				23.7	16	100	73
M	THALLIUM	MG/KG	22	22	0.461-0.522	0.078	22	100	100	0.0569	22	100	100	0.27	22	100	100
MISC	CYANIDE	MG/KG	22	22	0.28-0.355	0.28	21	95	95	1.3				NA			
OS	1,1-BIPHENYL	UG/KG	22	22	189-222	170	22	100	100	NA				NA			
OS	2,2'-OXYBIS(1-CHLOROPROPANE)	UG/KG	22	22	189-222	2.2	22	100	100	19900				NA			
OS	2,4,5-TRICHLOROPHENOL	UG/KG	22	22	189-222	66000				14100				NA			
OS	2,4,6-TRICHLOROPHENOL	UG/KG	22	22	189-222	260				9940				NA			
OS	2,4-DICHLOROPHENOL	UG/KG	22	22	189-222	820				87500				NA			
OS	2,4-DIMETHYLPHENOL	UG/KG	22	22	754-888	6400				10	22	100	100	NA			
OS	2,4-DINITROPHENOL	UG/KG	22	22	1890-2220	670	22	100	100	60.9	22	100	100	NA			
OS	2,4-DINITROTOLUENE	UG/KG	22	22	189-222	5.6	22	100	100	1280				NA			
OS	2,6-DINITROTOLUENE	UG/KG	22	22	189-222	1.16	22	100	100	32.8	22	100	100	NA			
OS	2-CHLORONAPHTHALENE	UG/KG	22	22	189-222	57000				12.2	22	100	100	NA			
OS	2-CHLOROPHENOL	UG/KG	22	22	189-222	1140				243				NA			
OS	2-METHYLPHENOL	UG/KG	22	22	189-222	11600				40400				NA			
OS	2-NITROANILINE	UG/KG	22	22	754-888	1240				74100				NA			
OS	2-NITROPHENOL	UG/KG	22	22	189-222	NA				1600				NA			
OS	3,3'-DICHLOROBENZIDINE	UG/KG	22	22	189-222	14.2	22	100	100	646				NA			
OS	3-NITROANILINE	UG/KG	22	22	754-888	NA				3160				NA			
OS	4,6-DINITRO-2-METHYLPHENOL	UG/KG	22	22	1890-2220	40	22	100	100	144	22	100	100	NA			
OS	4-BROMOPHENYL PHENYL ETHER	UG/KG	22	22	189-222	NA				NA				NA			
OS	4-CHLORO-3-METHYLPHENOL	UG/KG	22	22	189-222	26000				7950				NA			
OS	4-CHLOROANILINE	UG/KG	22	22	189-222	2.6	22	100	100	1100				NA			
OS	4-CHLOROPHENYL PHENYL ETHER	UG/KG	22	22	189-222	NA				NA				NA			
OS	4-METHYLPHENOL	UG/KG	22	22	189-222	22000				163000				NA			
OS	4-NITROANILINE	UG/KG	22	22	754-888	28	22	100	100	21900				NA			
OS	4-NITROPHENOL	UG/KG	22	22	754-888	NA				5120				NA			
OS	ACETOPHENONE	UG/KG	22	22	189-222	9000				300000				NA			
OS	ATRAZINE	UG/KG	22	22	189-222	3.4	22	100	100	NA				NA			
OS	BENZALDEHYDE	UG/KG	22	22	189-222	6600				NA				NA			
OS	BIS(2-CHLOROETHOXY)METHANE	UG/KG	22	22	189-222	210	5	23	23	302				NA			
OS	BIS(2-CHLOROETHYL)ETHER	UG/KG	22	22	189-222	0.062	22	100	100	23700				NA			
OS	BIS(2-ETHYLHEXYL)PHTHALATE	UG/KG	22	22	189-222	22000				925				NA			

Table E-3.1
Sensitivity Evaluation of the Limit of Detection - Surface Soil
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fraction	parameter	units	Number of Non-Detected Results	Total Number of Analyses	Range of Non-Detected Values	HH PSL	Number of Non-Detected Results Exceeding HH PSL	% of Non-Detected Results Exceeding HH PSL	% of Non-Detected Results Exceeding HH PSL for Entire Data Set	Eco PSL	Number of Non-Detected Results Exceeding Eco PSL	% of Non-Detected Results Exceeding Eco PSL	% of Non-Detected Results Exceeding Eco PSL for Entire Data Set	BKG	Number of Non-Detected Results Exceeding BKG	% of Non-Detected Results Exceeding BKG	% of Non-Detected Results Exceeding BKG for Entire Data Set
OS	BUTYL BENZYL PHTHALATE	UG/KG	22	22	189-222	4000				239				NA			
OS	CAPROLACTAM	UG/KG	22	22	189-222	38000				NA				NA			
OS	CARBAZOLE	UG/KG	22	22	189-222	NA				NA				NA			
OS	DI-N-BUTYL PHTHALATE	UG/KG	22	22	189-222	34000				150	22	100	100	NA			
OS	DI-N-OCTYL PHTHALATE	UG/KG	22	22	189-222	61000				709000				NA			
OS	DIBENZOFURAN	UG/KG	22	22	189-222	2100				NA				NA			
OS	DIETHYL PHTHALATE	UG/KG	21	22	189-222	90000				24800				NA			
OS	DIMETHYL PHTHALATE	UG/KG	22	22	189-222	NA				734000				NA			
OS	HEXACHLOROBENZENE	UG/KG	22	22	189-222	10.6	22	100	100	199	14	64	64	NA			
OS	HEXACHLOROBUTADIENE	UG/KG	22	22	189-222	10	22	100	100	39.8	22	100	100	NA			
OS	HEXACHLOROCYCLOPENTADIENE	UG/KG	22	22	189-222	1400				755				NA			
OS	HEXACHLOROETHANE	UG/KG	22	22	189-222	9.6	22	100	100	596				NA			
OS	ISOPHORONE	UG/KG	22	22	189-222	440				139000				NA			
OS	N-NITROSO-DI-N-PROPYLAMINE	UG/KG	22	22	189-222	0.14	22	100	100	544				NA			
OS	N-NITROSODIPHENYLAMINE	UG/KG	22	22	189-222	1140				545				NA			
OS	NITROBENZENE	UG/KG	22	22	189-222	1.58	22	100	100	1310				NA			
OS	PENTACHLOROPHENOL	UG/KG	22	22	754-888	7.2	22	100	100	2100				NA			
OS	PHENOL	UG/KG	22	22	189-222	52000				120000				NA			
OV	1,1,1-TRICHLOROETHANE	UG/KG	4	4	2.45-2.98	1400				29800				NA			
OV	1,1,2,2-TETRACHLOROETHANE	UG/KG	4	4	2.45-2.98	0.52	4	100	100	127				NA			
OV	1,1,2-TRICHLOROETHANE	UG/KG	4	4	2.45-2.98	1.54	4	100	100	28600				NA			
OV	1,1,2-TRICHLOROTRIFLUOROETHANE	UG/KG	4	4	4.9-5.97	910000				NA				NA			
OV	1,1-DICHLOROETHANE	UG/KG	4	4	2.45-2.98	13.6				20100				NA			
OV	1,1-DICHLOROETHENE	UG/KG	4	4	2.45-2.98	50				8280				NA			
OV	1,2,4-TRICHLOROBENZENE	UG/KG	4	4	2.45-2.98	58				11100				NA			
OV	1,2-DIBROMO-3-CHLOROPROPANE	UG/KG	4	4	4.9-5.97	0.0028	4	100	100	35.2				NA			
OV	1,2-DIBROMOETHANE	UG/KG	4	4	2.45-2.98	0.036	4	100	100	1230				NA			
OV	1,2-DICHLOROBENZENE	UG/KG	3	4	2.45-2.98	5400				2960				NA			
OV	1,2-DICHLOROETHANE	UG/KG	4	4	2.45-2.98	0.84	4	100	100	21200				NA			
OV	1,2-DICHLOROPROPANE	UG/KG	4	4	2.45-2.98	2.6	3	75	75	32700				NA			
OV	1,3-DICHLOROBENZENE	UG/KG	4	4	2.45-2.98	NA				37700				NA			
OV	1,4-DICHLOROBENZENE	UG/KG	4	4	2.45-2.98	8				546				NA			
OV	2-BUTANONE	UG/KG	3	4	4.9-5.62	20000				89600				NA			
OV	2-HEXANONE	UG/KG	4	4	2.45-2.98	158				12600				NA			
OV	4-METHYL-2-PENTANONE	UG/KG	4	4	2.45-2.98	4500				443000				NA			
OV	ACETONE	UG/KG	1	4	9.8-10.1	48000				2500				NA			
OV	BENZENE	UG/KG	4	4	2.45-2.98	4				255				NA			
OV	BROMODICHLOROMETHANE	UG/KG	4	4	2.45-2.98	0.64	4	100	100	540				NA			
OV	BROMOFORM	UG/KG	4	4	2.45-2.98	42				15900				NA			
OV	BROMOMETHANE	UG/KG	4	4	4.9-5.97	35				235				NA			
OV	CARBON DISULFIDE	UG/KG	4	4	2.45-2.98	4200				94.1				NA			
OV	CARBON TETRACHLORIDE	UG/KG	4	4	2.45-2.98	3				2980				NA			
OV	CHLOROBENZENE	UG/KG	4	4	2.45-2.98	980				13100				NA			
OV	CHLORODIBROMOMETHANE	UG/KG	4	4	2.45-2.98	0.78	4	100	100	2050				NA			
OV	CHLOROETHANE	UG/KG	4	4	4.9-5.97	118000				650				NA			
OV	CHLOROFORM	UG/KG	4	4	2.45-2.98	1.06	4	100	100	1190				NA			
OV	CHLOROMETHANE	UG/KG	4	4	4.9-5.97	980				10400				NA			
OV	CIS-1,2-DICHLOROETHENE	UG/KG	2	4	2.81-2.98	164				783.7				NA			
OV	CIS-1,3-DICHLOROPROPENE	UG/KG	4	4	2.45-2.98	3				397.9				NA			
OV	CYCLOHEXANE	UG/KG	4	4	2.45-2.98	690				NA				NA			
OV	DICHLORODIFLUOROMETHANE	UG/KG	4	4	4.9-5.97	5700				39500				NA			
OV	ETHYLBENZENE	UG/KG	4	4	2.45-2.98	30				5160				NA			
OV	ISOPROPYLBENZENE	UG/KG	4	4	2.45-2.98	12800				NA				NA			
OV	METHYL ACETATE	UG/KG	4	4	4.9-5.97	64000				NA				NA			
OV	METHYL CYCLOHEXANE	UG/KG	4	4	2.45-2.98	NA				NA				NA			
OV	METHYL TERT-BUTYL ETHER	UG/KG	4	4	2.45-2.98	56				NA				NA			
OV	METHYLENE CHLORIDE	UG/KG	4	4	4.9-5.97	25				4050				NA			
OV	STYRENE	UG/KG	4	4	2.45-2.98	2200				4690				NA			
OV	TETRACHLOROETHENE	UG/KG	3	4	2.74-2.98	45				9920				NA			
OV	TOLUENE	UG/KG	4	4	2.45-2.98	11800				5450				NA			

Table E-3.1
Sensitivity Evaluation of the Limit of Detection - Surface Soil
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fraction	parameter	units	Number of Non-Detected Results	Total Number of Analyses	Range of Non-Detected Values	HH PSL	Number of Non-Detected Results Exceeding HH PSL	% of Non-Detected Results Exceeding HH PSL	% of Non-Detected Results Exceeding HH PSL for Entire Data Set	Eco PSL	Number of Non-Detected Results Exceeding Eco PSL	% of Non-Detected Results Exceeding Eco PSL	% of Non-Detected Results Exceeding Eco PSL for Entire Data Set	BKG	Number of Non-Detected Results Exceeding BKG	% of Non-Detected Results Exceeding BKG	% of Non-Detected Results Exceeding BKG for Entire Data Set
OV	TOTAL XYLENES	UG/KG	4	4	7.35-8.95	3800				10000				NA			
OV	TRANS-1,2-DICHLOROETHENE	UG/KG	4	4	2.45-2.98	500				784				NA			
OV	TRANS-1,3-DICHLOROPROPENE	UG/KG	4	4	2.45-2.98	3				397.9				NA			
OV	TRICHLOROETHENE	UG/KG	4	4	2.51-2.98	3.2				12400				NA			
OV	TRICHLOROFLUOROMETHANE	UG/KG	4	4	4.9-5.97	13800				16400				NA			
OV	VINYL CHLORIDE	UG/KG	4	4	2.45-2.98	0.106	4	100	100	646				NA			
PAH	2-METHYLNAPHTHALENE	UG/KG	19	22	3.77-4.43	2800				29000				NA			
PAH	ACENAPHTHENE	UG/KG	20	22	3.85-19.2	82000				29000				NA			
PAH	ACENAPHTHYLENE	UG/KG	15	22	3.85-4.43	82000				29000				NA			
PAH	ANTHRACENE	UG/KG	16	22	3.85-4.43	840000				29000				NA			
PAH	BENZO(A)ANTHRACENE	UG/KG	14	22	3.85-4.43	150				1100				NA			
PAH	BENZO(A)PYRENE	UG/KG	14	22	3.85-4.43	15				1100				NA			
PAH	BENZO(B)FLUORANTHENE	UG/KG	12	22	3.85-4.43	150				1100				NA			
PAH	BENZO(G,H,I)PERYLENE	UG/KG	13	22	3.85-4.43	170000				1100				NA			
PAH	BENZO(K)FLUORANTHENE	UG/KG	13	22	3.85-4.43	1500				1100				NA			
PAH	CHRYSENE	UG/KG	13	22	3.85-4.43	15000				1100				NA			
PAH	DIBENZO(A,H)ANTHRACENE	UG/KG	16	22	3.85-4.43	15				1100				NA			
PAH	FLUORANTHENE	UG/KG	12	22	3.85-4.43	230000				29000				NA			
PAH	FLUORENE	UG/KG	18	22	3.85-4.43	80000				29000				NA			
PAH	INDENO(1,2,3-CD)PYRENE	UG/KG	12	22	3.85-4.43	150				1100				NA			
PAH	NAPHTHALENE	UG/KG	17	22	3.85-4.43	9.4				29000				NA			
PAH	PHENANTHRENE	UG/KG	12	22	3.85-4.43	170000				29000				NA			
PAH	PYRENE	UG/KG	11	22	3.85-4.43	170000				1100				NA			
PCB	AROCLOR-1016	UG/KG	22	22	9.54-11.3	390				0.332	22	100	100	NA			
PCB	AROCLOR-1221	UG/KG	22	22	9.54-11.3	1.38	22	100	100	0.332	22	100	100	NA			
PCB	AROCLOR-1232	UG/KG	22	22	9.54-11.3	1.38	22	100	100	0.332	22	100	100	NA			
PCB	AROCLOR-1242	UG/KG	22	22	9.54-11.3	106				0.332	22	100	100	NA			
PCB	AROCLOR-1248	UG/KG	22	22	9.54-11.3	104				0.332	22	100	100	NA			
PCB	AROCLOR-1254	UG/KG	22	22	9.54-11.3	176				0.332	22	100	100	NA			
PCB	AROCLOR-1260	UG/KG	22	22	9.54-11.3	220				0.332	22	100	100	NA			
PEST	4,4'-DDD	UG/KG	22	22	0.39-0.462	128				21				NA			
PEST	4,4'-DDE	UG/KG	21	22	0.39-0.462	920				21				NA			
PEST	4,4'-DDT	UG/KG	22	22	0.39-0.462	1340				21				NA			
PEST	ALDRIN	UG/KG	22	22	0.39-0.462	13				3.32				NA			
PEST	ALPHA-BHC	UG/KG	20	22	0.39-0.431	0.72				99.4				NA			
PEST	ALPHA-CHLORDANE	UG/KG	22	22	0.39-0.462	36				224				NA			
PEST	BETA-BHC	UG/KG	20	22	0.39-0.462	2.6				3.98				NA			
PEST	DELTA-BHC	UG/KG	22	22	0.39-0.462	0.72				9940				NA			
PEST	DIELDRIN	UG/KG	22	22	0.383-0.462	1.22				4.9				NA			
PEST	ENDOSULFAN I	UG/KG	22	22	0.383-0.462	21000				119				NA			
PEST	ENDOSULFAN II	UG/KG	22	22	0.383-0.462	21000				119				NA			
PEST	ENDOSULFAN SULFATE	UG/KG	22	22	0.39-0.462	22000				35.8				NA			
PEST	ENDRIN	UG/KG	22	22	0.383-0.462	1360				10.1				NA			
PEST	ENDRIN ALDEHYDE	UG/KG	22	22	0.383-0.462	1360				10.5				NA			
PEST	ENDRIN KETONE	UG/KG	22	22	0.39-0.462	1360				10.5				NA			
PEST	GAMMA-BHC (LINDANE)	UG/KG	21	22	0.39-0.462	4.2				5				NA			
PEST	GAMMA-CHLORDANE	UG/KG	16	22	0.39-0.462	36				224				NA			
PEST	HEPTACHLOR	UG/KG	22	22	0.39-0.462	2.8				5.98				NA			
PEST	HEPTACHLOR EPOXIDE	UG/KG	22	22	0.39-0.462	1.36				152				NA			
PEST	METHOXYCHLOR	UG/KG	21	22	0.383-0.462	30000				19.9				NA			
PEST	TOXAPHENE	UG/KG	22	22	25.2-29.9	42				119				NA			

Table E-3.2
Sensitivity Evaluation of the Limit of Detection - Subsurface Soil
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fraction	parameter	units	Number of Non-Detected Results	Total Number of Analyses	Range of Non-Detected Values	HH PSL	Number of Non-Detected Results Exceeding HH PSL	% of Non-Detected Results Exceeding HH PSL	% of Non-Detected Results Exceeding HH PSL for Entire Data Set	BKG	Number of Non-Detected Results Exceeding BKG	% of Non-Detected Results Exceeding BKG	% of Non-Detected Results Exceeding BKG for Entire Data Set
M	ANTIMONY	MG/KG	4	4	0.895-2.62	3.1				11.3			
M	CADMIUM	MG/KG	4	4	0.224-0.654	7				0.64	1	25	25
M	MERCURY	MG/KG	2	4	0.0337-0.0439	0.66				0.14			
M	SELENIUM	MG/KG	3	4	0.559-0.623	5.3				0.88			
M	SILVER	MG/KG	4	4	0.224-0.654	12				0.1	4	100	100
M	SODIUM	MG/KG	4	4	336-981	NA				205	4	100	100
M	THALLIUM	MG/KG	4	4	0.448-1.31	0.078	4	100	100	0.25	4	100	100
MISC	CYANIDE	MG/KG	4	4	0.284-0.309	0.28	4	100	100	NA			
OS	1,1-BIPHENYL	UG/KG	7	7	186-226	170	7	100	100	NA			
OS	2,2'-OXYBIS(1-CHLOROPROPANE)	UG/KG	7	7	186-226	2.2	7	100	100	NA			
OS	2,4,5-TRICHLOROPHENOL	UG/KG	7	7	186-226	66000				NA			
OS	2,4,6-TRICHLOROPHENOL	UG/KG	7	7	186-226	260				NA			
OS	2,4-DICHLOROPHENOL	UG/KG	7	7	186-226	820				NA			
OS	2,4-DIMETHYLPHENOL	UG/KG	7	7	744-902	6400				NA			
OS	2,4-DINITROPHENOL	UG/KG	7	7	1860-2260	670	7	100	100	NA			
OS	2,4-DINITROTOLUENE	UG/KG	7	7	186-226	5.6	7	100	100	NA			
OS	2,6-DINITROTOLUENE	UG/KG	7	7	186-226	1.16	7	100	100	NA			
OS	2-CHLORONAPHTHALENE	UG/KG	7	7	186-226	57000				NA			
OS	2-CHLOROPHENOL	UG/KG	7	7	186-226	1140				NA			
OS	2-METHYLPHENOL	UG/KG	7	7	186-226	11600				NA			
OS	2-NITROANILINE	UG/KG	7	7	744-902	1240				NA			
OS	2-NITROPHENOL	UG/KG	7	7	186-226	NA				NA			
OS	3,3'-DICHLOROBENZIDINE	UG/KG	7	7	186-226	14.2	7	100	100	NA			
OS	3-NITROANILINE	UG/KG	7	7	744-902	NA				NA			
OS	4,6-DINITRO-2-METHYLPHENOL	UG/KG	7	7	1860-2260	40	7	100	100	NA			
OS	4-BROMOPHENYL PHENYL ETHER	UG/KG	7	7	186-226	NA				NA			
OS	4-CHLORO-3-METHYLPHENOL	UG/KG	7	7	186-226	26000				NA			
OS	4-CHLOROANILINE	UG/KG	7	7	186-226	2.6	7	100	100	NA			
OS	4-CHLOROPHENYL PHENYL ETHER	UG/KG	7	7	186-226	NA				NA			
OS	4-METHYLPHENOL	UG/KG	7	7	186-226	22000				NA			
OS	4-NITROANILINE	UG/KG	7	7	744-902	28	7	100	100	NA			
OS	4-NITROPHENOL	UG/KG	7	7	744-902	NA				NA			
OS	ACETOPHENONE	UG/KG	7	7	186-226	9000				NA			
OS	ATRAZINE	UG/KG	7	7	186-226	3.4	7	100	100	NA			
OS	BENZALDEHYDE	UG/KG	7	7	186-226	6600				NA			
OS	BIS(2-CHLOROETHOXY)METHANE	UG/KG	7	7	186-226	210	2	29	29	NA			
OS	BIS(2-CHLOROETHYL)ETHER	UG/KG	7	7	186-226	0.062	7	100	100	NA			
OS	BIS(2-ETHYLHEXYL)PHTHALATE	UG/KG	7	7	186-226	22000				NA			
OS	BUTYL BENZYL PHTHALATE	UG/KG	7	7	186-226	4000				NA			
OS	CAPROLACTAM	UG/KG	7	7	186-226	38000				NA			
OS	CARBAZOLE	UG/KG	7	7	186-226	NA				NA			
OS	DI-N-BUTYL PHTHALATE	UG/KG	7	7	186-226	34000				NA			
OS	DI-N-OCTYL PHTHALATE	UG/KG	7	7	186-226	61000				NA			
OS	DIBENZOFURAN	UG/KG	7	7	186-226	2100				NA			
OS	DIETHYL PHTHALATE	UG/KG	6	7	186-226	90000				NA			

Table E-3.2
Sensitivity Evaluation of the Limit of Detection - Subsurface Soil
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fraction	parameter	units	Number of Non-Detected Results	Total Number of Analyses	Range of Non-Detected Values	HH PSL	Number of Non-Detected Results Exceeding HH PSL	% of Non-Detected Results Exceeding HH PSL	% of Non-Detected Results Exceeding HH PSL for Entire Data Set	BKG	Number of Non-Detected Results Exceeding BKG	% of Non-Detected Results Exceeding BKG	% of Non-Detected Results Exceeding BKG for Entire Data Set
OS	DIMETHYL PHTHALATE	UG/KG	7	7	186-226	NA				NA			
OS	HEXACHLOROBENZENE	UG/KG	7	7	186-226	10.6	7	100	100	NA			
OS	HEXACHLOROBUTADIENE	UG/KG	7	7	186-226	10	7	100	100	NA			
OS	HEXACHLOROCYCLOPENTADIENE	UG/KG	7	7	186-226	1400				NA			
OS	HEXACHLOROETHANE	UG/KG	7	7	186-226	9.6	7	100	100	NA			
OS	ISOPHORONE	UG/KG	7	7	186-226	440				NA			
OS	N-NITROSO-DI-N-PROPYLAMINE	UG/KG	7	7	186-226	0.14	7	100	100	NA			
OS	N-NITROSODIPHENYLAMINE	UG/KG	7	7	186-226	1140				NA			
OS	NITROBENZENE	UG/KG	7	7	186-226	1.58	7	100	100	NA			
OS	PENTACHLOROPHENOL	UG/KG	7	7	744-902	7.2	7	100	100	NA			
OS	PHENOL	UG/KG	7	7	186-226	52000				NA			
OV	1,1,1-TRICHLOROETHANE	UG/KG	80	80	1.98-465	1400				NA			
OV	1,1,2,2-TETRACHLOROETHANE	UG/KG	80	80	1.98-465	0.52	80	100	100	NA			
OV	1,1,2-TRICHLOROETHANE	UG/KG	80	80	1.98-465	1.54	80	100	100	NA			
OV	1,1,2-TRICHLOROTRIFLUOROETHANE	UG/KG	80	80	3.96-929	910000				NA			
OV	1,1-DICHLOROETHANE	UG/KG	80	80	1.98-465	13.6	15	19	19	NA			
OV	1,1-DICHLOROETHENE	UG/KG	78	80	1.98-465	50	15	19	19	NA			
OV	1,2,3-TRICHLOROBENZENE	UG/KG	72	72	1.98-465	300	1	1	1	NA			
OV	1,2,4-TRICHLOROBENZENE	UG/KG	80	80	1.98-465	58	15	19	19	NA			
OV	1,2-DIBROMO-3-CHLOROPROPANE	UG/KG	80	80	3.96-929	0.0028	80	100	100	NA			
OV	1,2-DIBROMOETHANE	UG/KG	80	80	1.98-465	0.036	80	100	100	NA			
OV	1,2-DICHLOROBENZENE	UG/KG	46	80	1.98-465	5400				NA			
OV	1,2-DICHLOROETHANE	UG/KG	80	80	1.98-465	0.84	80	100	100	NA			
OV	1,2-DICHLOROPROPANE	UG/KG	80	80	1.98-465	2.6	35	44	44	NA			
OV	1,3-DICHLOROBENZENE	UG/KG	80	80	1.98-465	NA				NA			
OV	1,4-DICHLOROBENZENE	UG/KG	71	80	1.98-465	8	12	17	15	NA			
OV	2-BUTANONE	UG/KG	74	80	2.87-929	20000				NA			
OV	2-HEXANONE	UG/KG	80	80	2.17-465	158	7	9	9	NA			
OV	4-METHYL-2-PENTANONE	UG/KG	80	80	2.17-465	4500				NA			
OV	ACETONE	UG/KG	54	80	8.67-1860	48000				NA			
OV	BENZENE	UG/KG	76	80	1.98-465	4	14	18	18	NA			
OV	BROMOCHLOROMETHANE	UG/KG	72	72	1.98-465	410	1	1	1	NA			
OV	BROMODICHLOROMETHANE	UG/KG	80	80	1.98-465	0.64	80	100	100	NA			
OV	BROMOFORM	UG/KG	80	80	1.98-465	42	15	19	19	NA			
OV	BROMOMETHANE	UG/KG	80	80	3.96-929	35	15	19	19	NA			
OV	CARBON DISULFIDE	UG/KG	80	80	1.98-465	4200				NA			
OV	CARBON TETRACHLORIDE	UG/KG	80	80	1.98-465	3	21	26	26	NA			
OV	CHLOROBENZENE	UG/KG	63	80	2.17-465	980				NA			
OV	CHLORODIBROMOMETHANE	UG/KG	80	80	1.98-465	0.78	80	100	100	NA			
OV	CHLOROETHANE	UG/KG	80	80	3.96-929	118000				NA			
OV	CHLOROFORM	UG/KG	80	80	1.98-465	1.06	80	100	100	NA			
OV	CHLOROMETHANE	UG/KG	80	80	3.96-929	980				NA			
OV	CIS-1,2-DICHLOROETHENE	UG/KG	39	80	1.98-136	164				NA			
OV	CIS-1,3-DICHLOROPROPENE	UG/KG	80	80	1.98-465	3	21	26	26	NA			
OV	CYCLOHEXANE	UG/KG	80	80	1.98-465	690				NA			

Table E-3.2
Sensitivity Evaluation of the Limit of Detection - Subsurface Soil
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fraction	parameter	units	Number of Non-Detected Results	Total Number of Analyses	Range of Non-Detected Values	HH PSL	Number of Non-Detected Results Exceeding HH PSL	% of Non-Detected Results Exceeding HH PSL	% of Non-Detected Results Exceeding HH PSL for Entire Data Set	BKG	Number of Non-Detected Results Exceeding BKG	% of Non-Detected Results Exceeding BKG	% of Non-Detected Results Exceeding BKG for Entire Data Set
OV	DICHLORODIFLUOROMETHANE	UG/KG	80	80	3.96-929	5700				NA			
OV	ETHYLBENZENE	UG/KG	77	80	1.98-465	30	15	19	19	NA			
OV	ISOPROPYLBENZENE	UG/KG	79	80	1.98-465	12800				NA			
OV	METHYL ACETATE	UG/KG	80	80	3.96-929	64000				NA			
OV	METHYL CYCLOHEXANE	UG/KG	75	80	1.98-465	NA				NA			
OV	METHYL TERT-BUTYL ETHER	UG/KG	80	80	1.98-465	56	15	19	19	NA			
OV	METHYLENE CHLORIDE	UG/KG	74	80	3.96-272	25	11	15	14	NA			
OV	STYRENE	UG/KG	80	80	1.98-465	2200				NA			
OV	TETRACHLOROETHENE	UG/KG	46	80	1.98-136	45	7	15	9	NA			
OV	TOLUENE	UG/KG	74	80	1.98-465	11800				NA			
OV	TOTAL XYLENES	UG/KG	77	80	5.94-1390	3800				NA			
OV	TRANS-1,2-DICHLOROETHENE	UG/KG	72	80	1.98-465	500				NA			
OV	TRANS-1,3-DICHLOROPROPENE	UG/KG	80	80	1.98-465	3	21	26	26	NA			
OV	TRICHLOROETHENE	UG/KG	40	80	1.98-136	3.2	7	18	9	NA			
OV	TRICHLOROFLUOROMETHANE	UG/KG	80	80	3.96-929	13800				NA			
OV	VINYL CHLORIDE	UG/KG	59	80	1.98-465	0.106	59	100	74	NA			
PAH	2-METHYLNAPHTHALENE	UG/KG	7	7	3.71-4.5	2800				NA			
PAH	ACENAPHTHENE	UG/KG	7	7	3.71-4.5	82000				NA			
PAH	ACENAPHTHYLENE	UG/KG	7	7	3.71-4.5	82000				NA			
PAH	ANTHRACENE	UG/KG	7	7	3.71-4.5	840000				NA			
PAH	BENZO(A)ANTHRACENE	UG/KG	7	7	3.71-4.5	150				NA			
PAH	BENZO(A)PYRENE	UG/KG	7	7	3.71-4.5	15				NA			
PAH	BENZO(B)FLUORANTHENE	UG/KG	7	7	3.71-4.5	150				NA			
PAH	BENZO(G,H,I)PERYLENE	UG/KG	7	7	3.71-4.5	170000				NA			
PAH	BENZO(K)FLUORANTHENE	UG/KG	7	7	3.71-4.5	1500				NA			
PAH	CHRYSENE	UG/KG	7	7	3.71-4.5	15000				NA			
PAH	DIBENZO(A,H)ANTHRACENE	UG/KG	7	7	3.71-4.5	15				NA			
PAH	FLUORANTHENE	UG/KG	7	7	3.71-4.5	230000				NA			
PAH	FLUORENE	UG/KG	7	7	3.71-4.5	80000				NA			
PAH	INDENO(1,2,3-CD)PYRENE	UG/KG	7	7	3.71-4.5	150				NA			
PAH	NAPHTHALENE	UG/KG	7	7	3.71-4.5	9.4				NA			
PAH	PHENANTHRENE	UG/KG	7	7	3.71-4.5	170000				NA			
PAH	PYRENE	UG/KG	7	7	3.71-4.5	170000				NA			
PCB	AROCLOR-1016	UG/KG	4	4	9.24-10.7	390				NA			
PCB	AROCLOR-1221	UG/KG	4	4	9.24-10.7	1.38	4	100	100	NA			
PCB	AROCLOR-1232	UG/KG	4	4	9.24-10.7	1.38	4	100	100	NA			
PCB	AROCLOR-1242	UG/KG	4	4	9.24-10.7	106				NA			
PCB	AROCLOR-1248	UG/KG	4	4	9.24-10.7	104				NA			
PCB	AROCLOR-1254	UG/KG	4	4	9.24-10.7	176				NA			
PCB	AROCLOR-1260	UG/KG	4	4	9.24-10.7	220				NA			
PEST	4,4'-DDD	UG/KG	4	4	0.377-0.437	128				NA			
PEST	4,4'-DDE	UG/KG	4	4	0.377-0.437	920				NA			
PEST	4,4'-DDT	UG/KG	4	4	0.377-0.437	1340				NA			
PEST	ALDRIN	UG/KG	4	4	0.377-0.437	13				NA			
PEST	ALPHA-BHC	UG/KG	4	4	0.377-0.437	0.72				NA			

Table E-3.2
Sensitivity Evaluation of the Limit of Detection - Subsurface Soil
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fraction	parameter	units	Number of Non-Detected Results	Total Number of Analyses	Range of Non-Detected Values	HH PSL	Number of Non-Detected Results Exceeding HH PSL	% of Non-Detected Results Exceeding HH PSL	% of Non-Detected Results Exceeding HH PSL for Entire Data Set	BKG	Number of Non-Detected Results Exceeding BKG	% of Non-Detected Results Exceeding BKG	% of Non-Detected Results Exceeding BKG for Entire Data Set
PEST	ALPHA-CHLORDANE	UG/KG	4	4	0.377-0.437	36				NA			
PEST	BETA-BHC	UG/KG	3	4	0.377-0.437	2.6				NA			
PEST	DELTA-BHC	UG/KG	4	4	0.377-0.437	0.72				NA			
PEST	DIELDRIN	UG/KG	4	4	0.377-0.437	1.22				NA			
PEST	ENDOSULFAN I	UG/KG	4	4	0.377-0.437	21000				NA			
PEST	ENDOSULFAN II	UG/KG	4	4	0.377-0.437	21000				NA			
PEST	ENDOSULFAN SULFATE	UG/KG	4	4	0.377-0.437	22000				NA			
PEST	ENDRIN	UG/KG	4	4	0.377-0.437	1360				NA			
PEST	ENDRIN ALDEHYDE	UG/KG	4	4	0.377-0.437	1360				NA			
PEST	ENDRIN KETONE	UG/KG	4	4	0.377-0.437	1360				NA			
PEST	GAMMA-BHC (LINDANE)	UG/KG	4	4	0.377-0.437	4.2				NA			
PEST	GAMMA-CHLORDANE	UG/KG	3	4	0.377-0.437	36				NA			
PEST	HEPTACHLOR	UG/KG	4	4	0.377-0.437	2.8				NA			
PEST	HEPTACHLOR EPOXIDE	UG/KG	4	4	0.377-0.437	1.36				NA			
PEST	METHOXYCHLOR	UG/KG	4	4	0.377-0.437	30000				NA			
PEST	TOXAPHENE	UG/KG	4	4	24.4-28.3	42				NA			

Table E-3.3
Sensitivity Evaluation of the Limit of Detection - Sediment
NSA Crane SWMU 11 RFI Report

fraction	parameter	units	Number of Non-Detected Results	Total Number of Analyses	Range of Non-Detected Values	HH PSL	Number of Non-Detected Results Exceeding HH PSL	% of Non-Detected Results Exceeding HH PSL	% of Non-Detected Results Exceeding HH PSL for Entire Data Set	Eco PSL	Number of Non-Detected Results Exceeding Eco PSL	% of Non-Detected Results Exceeding Eco PSL	% of Non-Detected Results Exceeding Eco PSL for Entire Data Set	BKG	Number of Non-Detected Results Exceeding BKG	% of Non-Detected Results Exceeding BKG	% of Non-Detected Results Exceeding BKG for Entire Data Set
DIOX	1,2,3,4,7,8,9-HPCDF	NG/KG	1	4	3.26-3.32	450				0.013	1	100	25	NA			
DIOX	1,2,3,4,7,8-HXCDD	NG/KG	1	4	3.26-3.32	45				3.3				NA			
DIOX	1,2,3,4,7,8-HXCDF	NG/KG	2	4	3.12-3.32	45				0.013	2	100	50	NA			
DIOX	1,2,3,6,7,8-HXCDF	NG/KG	2	4	3.12-3.32	45				0.013	2	100	50	NA			
DIOX	1,2,3,7,8,9-HXCDD	NG/KG	1	4	3.26-3.32	45				3.3				NA			
DIOX	1,2,3,7,8,9-HXCDF	NG/KG	4	4	3.04-3.32	45				0.013	4	100	100	NA			
DIOX	1,2,3,7,8-PECDD	NG/KG	2	4	3.12-3.32	4.5				3.3				NA			
DIOX	1,2,3,7,8-PECDF	NG/KG	2	4	3.12-3.32	150				0.013	2	100	50	NA			
DIOX	2,3,4,6,7,8-HXCDF	NG/KG	2	4	3.12-3.32	45				0.013	2	100	50	NA			
DIOX	2,3,4,7,8-PECDF	NG/KG	2	4	3.12-3.32	15				0.013	2	100	50	NA			
DIOX	2,3,7,8-TCDD	NG/KG	2	4	0.65-0.663	4.5				0.12	2	100	50	NA			
DIOX	2,3,7,8-TCDF	NG/KG	4	4	0.576-0.754	45				38.6				NA			
DIOX	TOTAL PECDD	NG/KG	1	4	3.26-3.32	NA				NA				NA			
DIOX	TOTAL PECDF	NG/KG	1	4	3.26-3.32	NA				NA				NA			
DIOX	TOTAL TCDD	NG/KG	3	4	0.607-0.663	NA				NA				NA			
DIOX	TOTAL TCDF	NG/KG	2	4	0.663-2.1	NA				NA				NA			
M	ANTIMONY	MG/KG	7	8	0.929-1.15	3.1				0.27	7	100	88	5.6			
M	SELENIUM	MG/KG	2	8	0.607-3.42	39				0.52	2	100	25	0.64	1	50	13
M	SILVER	MG/KG	8	8	0.139-1.37	39				0.5	1	13	13	0.11	8	100	100
M	SODIUM	MG/KG	6	8	348-410	NA				NA				23.7	6	100	75
M	THALLIUM	MG/KG	4	8	0.278-2.73	0.078	4	100	50	0.0569	4	100	50	0.27	4	100	50
MISC	CYANIDE	MG/KG	4	8	0.298-0.383	2.2				0.0001	4	100	50	NA			
OS	1,1-BIPHENYL	UG/KG	8	8	185-1180	5100				NA				NA			
OS	2,2'-OXYBIS(1-CHLOROPROPANE)	UG/KG	8	8	185-1180	4600				19900				NA			
OS	2,4,5-TRICHLOROPHENOL	UG/KG	8	8	185-1180	610000				14100				NA			
OS	2,4,6-TRICHLOROPHENOL	UG/KG	8	8	185-1180	44000				208	5	63	63	NA			
OS	2,4-DICHLOROPHENOL	UG/KG	8	8	185-1180	18000				81.7	8	100	100	NA			
OS	2,4-DIMETHYLPHENOL	UG/KG	8	8	739-4730	120000				304	8	100	100	NA			
OS	2,4-DINITROPHENOL	UG/KG	8	8	1850-11800	12000				6.21	8	100	100	NA			
OS	2,4-DINITROTOLUENE	UG/KG	8	8	185-1180	1600				14.4	8	100	100	NA			
OS	2,6-DINITROTOLUENE	UG/KG	8	8	185-1180	330	2	25	25	39.8	8	100	100	NA			
OS	2-CHLORONAPHTHALENE	UG/KG	8	8	185-1180	630000				417	2	25	25	NA			
OS	2-CHLOROPHENOL	UG/KG	8	8	185-1180	39000				31.9	8	100	100	NA			
OS	2-METHYLPHENOL	UG/KG	8	8	185-1180	310000				55.4	8	100	100	NA			
OS	2-NITROANILINE	UG/KG	8	8	739-4730	61000				74100				NA			
OS	2-NITROPHENOL	UG/KG	8	8	185-1180	NA				1600				NA			
OS	3,3'-DICHLOROBENZIDINE	UG/KG	8	8	185-1180	1100	2	25	25	127	8	100	100	NA			
OS	3-NITROANILINE	UG/KG	8	8	739-4730	NA				3160	2	25	25	NA			
OS	4,6-DINITRO-2-METHYLPHENOL	UG/KG	8	8	1850-11800	490	8	100	100	104	8	100	100	NA			
OS	4-BROMOPHENYL PHENYL ETHER	UG/KG	8	8	185-1180	NA				1550				NA			
OS	4-CHLORO-3-METHYLPHENOL	UG/KG	8	8	185-1180	610000				388	2	25	25	NA			
OS	4-CHLOROANILINE	UG/KG	8	8	185-1180	2400				146	8	100	100	NA			
OS	4-CHLOROPHENYL PHENYL ETHER	UG/KG	8	8	185-1180	NA				NA				NA			
OS	4-METHYLPHENOL	UG/KG	8	8	185-1180	610000				20.2	8	100	100	NA			
OS	4-NITROANILINE	UG/KG	8	8	739-4730	24000				21900				NA			
OS	4-NITROPHENOL	UG/KG	8	8	739-4730	NA				13.3	8	100	100	NA			
OS	ACETOPHENONE	UG/KG	8	8	185-1180	780000				300000				NA			
OS	ATRAZINE	UG/KG	8	8	185-1180	2100				NA				NA			
OS	BENZALDEHYDE	UG/KG	8	8	185-1180	780000				NA				NA			
OS	BIS(2-CHLOROETHOXY)METHANE	UG/KG	8	8	185-1180	18000				302	2	25	25	NA			
OS	BIS(2-CHLOROETHYL)ETHER	UG/KG	8	8	185-1180	210	5	63	63	3520				NA			
OS	BIS(2-ETHYLHEXYL)PHTHALATE	UG/KG	8	8	185-1180	35000				182	8	100	100	NA			
OS	BUTYL BENZYL PHTHALATE	UG/KG	8	8	185-1180	260000				1970				NA			
OS	CAPROLACTAM	UG/KG	8	8	185-1180	3100000				NA				NA			
OS	CARBAZOLE	UG/KG	8	8	185-1180	NA				NA				NA			
OS	DI-N-BUTYL PHTHALATE	UG/KG	8	8	185-1180	610000				1114	2	25	25	NA			
OS	DI-N-OCTYL PHTHALATE	UG/KG	8	8	185-1180	61000				40600				NA			
OS	DIBENZOFURAN	UG/KG	8	8	185-1180	7800				449	2	25	25	NA			
OS	DIETHYL PHTHALATE	UG/KG	8	8	185-1180	4900000				295	2	25	25	NA			
OS	DIMETHYL PHTHALATE	UG/KG	8	8	185-1180	NA				734000				NA			

Table E-3.3
Sensitivity Evaluation of the Limit of Detection - Sediment
NSA Crane SWMU 11 RFI Report

fraction	parameter	units	Number of Non-Detected Results	Total Number of Analyses	Range of Non-Detected Values	HH PSL	Number of Non-Detected Results Exceeding HH PSL	% of Non-Detected Results Exceeding HH PSL	% of Non-Detected Results Exceeding HH PSL for Entire Data Set	Eco PSL	Number of Non-Detected Results Exceeding Eco PSL	% of Non-Detected Results Exceeding Eco PSL	% of Non-Detected Results Exceeding Eco PSL for Entire Data Set	BKG	Number of Non-Detected Results Exceeding BKG	% of Non-Detected Results Exceeding BKG	% of Non-Detected Results Exceeding BKG for Entire Data Set
OS	HEXACHLOROBENZENE	UG/KG	8	8	185-1180	300	2	25	25	20	8	100	100	NA			
OS	HEXACHLOROBUTADIENE	UG/KG	8	8	185-1180	6200				26.5	8	100	100	NA			
OS	HEXACHLOROCYCLOPENTADIENE	UG/KG	8	8	185-1180	37000				901	2	25	25	NA			
OS	HEXACHLOROETHANE	UG/KG	8	8	185-1180	12000				584	2	25	25	NA			
OS	ISOPHORONE	UG/KG	8	8	185-1180	510000				432	2	25	25	NA			
OS	N-NITROSO-DI-N-PROPYLAMINE	UG/KG	8	8	185-1180	69	8	100	100	544	2	25	25	NA			
OS	N-NITROSODIPHENYLAMINE	UG/KG	8	8	185-1180	99000				545	2	25	25	NA			
OS	NITROBENZENE	UG/KG	8	8	185-1180	4800				145	8	100	100	NA			
OS	PENTACHLOROPHENOL	UG/KG	8	8	739-4730	890	4	50	50	23000				NA			
OS	PHENOL	UG/KG	8	8	185-1180	1800000				120000				NA			
PAH	2-METHYLNAPHTHALENE	UG/KG	7	8	3.69-23.6	23000				20.2	2	29	25	NA			
PAH	ACENAPHTHENE	UG/KG	8	8	3.69-23.6	340000				6.71	2	25	25	NA			
PAH	ACENAPHTHYLENE	UG/KG	3	8	3.69-22.7	340000				5.87	1	33	13	NA			
PAH	ANTHRACENE	UG/KG	2	8	3.69-4.45	1700000				57.2				NA			
PAH	BENZO(A)ANTHRACENE	UG/KG	1	8	3.69	150				108				NA			
PAH	CHRYSENE	UG/KG	1	8	3.69	15000				166				NA			
PAH	DIBENZO(A,H)ANTHRACENE	UG/KG	3	8	3.69-22.7	15	1	33	13	33				NA			
PAH	FLUORENE	UG/KG	8	8	3.69-23.6	230000				77.4				NA			
PAH	NAPHTHALENE	UG/KG	5	8	3.69-23.6	3600				176				NA			
PCB	AROCLOR-1016	UG/KG	8	8	9.47-11.5	390				59.8				NA			
PCB	AROCLOR-1221	UG/KG	8	8	9.47-11.5	140				59.8				NA			
PCB	AROCLOR-1232	UG/KG	8	8	9.47-11.5	140				59.8				NA			
PCB	AROCLOR-1242	UG/KG	8	8	9.47-11.5	220				59.8				NA			
PCB	AROCLOR-1248	UG/KG	8	8	9.47-11.5	220				59.8				NA			
PCB	AROCLOR-1254	UG/KG	8	8	9.47-11.5	220				59.8				NA			
PCB	AROCLOR-1260	UG/KG	4	8	9.47-11.2	220				59.8				NA			
PEST	4,4'-DDD	UG/KG	6	8	0.386-0.457	2000				4.88				NA			
PEST	4,4'-DDE	UG/KG	7	8	0.386-0.47	1400				3.16				NA			
PEST	4,4'-DDT	UG/KG	7	8	0.386-0.47	1700				4.16				NA			
PEST	ALDRIN	UG/KG	8	8	0.386-0.47	29				2				NA			
PEST	ALPHA-BHC	UG/KG	2	8	0.418-0.422	77				6				NA			
PEST	ALPHA-CHLORDANE	UG/KG	8	8	0.386-0.47	1600				4.5				NA			
PEST	BETA-BHC	UG/KG	8	8	0.386-0.47	270				5				NA			
PEST	DELTA-BHC	UG/KG	8	8	0.386-0.47	77				71500				NA			
PEST	DIELDRIN	UG/KG	8	8	0.379-0.488	30				1.9				NA			
PEST	ENDOSULFAN I	UG/KG	8	8	0.379-0.488	37000				3.26				NA			
PEST	ENDOSULFAN II	UG/KG	8	8	0.379-0.488	37000				1.94				NA			
PEST	ENDOSULFAN SULFATE	UG/KG	8	8	0.386-0.47	37000				34.6				NA			
PEST	ENDRIN	UG/KG	6	8	0.379-0.459	1800				2.22				NA			
PEST	ENDRIN ALDEHYDE	UG/KG	8	8	0.379-0.488	1800				480				NA			
PEST	ENDRIN KETONE	UG/KG	8	8	0.386-0.47	1800				480				NA			
PEST	GAMMA-BHC (LINDANE)	UG/KG	8	8	0.386-0.47	520				2.37				NA			
PEST	GAMMA-CHLORDANE	UG/KG	4	8	0.386-0.457	1600				4.5				NA			
PEST	HEPTACHLOR	UG/KG	8	8	0.386-0.47	110				0.6				NA			
PEST	HEPTACHLOR EPOXIDE	UG/KG	8	8	0.386-0.47	53				2.47				NA			
PEST	METHOXYCHLOR	UG/KG	8	8	0.379-0.488	31000				13.6				NA			
PEST	TOXAPHENE	UG/KG	8	8	25-30.4	440				0.0077	8	100	100	NA			

Table E-3.4
Sensitivity Evaluation of the Limit of Detection - Groundwater
NSA Crane SWMU 11 RFI Report

fraction	parameter	units	Number of Non-Detected Results	Total Number of Analyses	Range of Non-Detected Values	HH PSL	Number of Non-Detected Results Exceeding HH PSL	% of Non-Detected Results Exceeding HH PSL	% of Non-Detected Results Exceeding HH PSL for Entire Data Set	BKG
OV	1,1,1-TRICHLOROETHANE	UG/L	10	10	0.5	200				NA
OV	1,1,2,2-TETRACHLOROETHANE	UG/L	10	10	0.5	0.066	10	100	100	NA
OV	1,1,2-TRICHLOROETHANE	UG/L	10	10	0.5	0.24	10	100	100	NA
OV	1,1,2-TRICHLOROTRIFLUOROETHANE	UG/L	10	10	1	150				NA
OV	1,1-DICHLOROETHANE	UG/L	10	10	0.5	2.4				NA
OV	1,1-DICHLOROETHENE	UG/L	10	10	0.5	7				NA
OV	1,2,3-TRICHLOROBENZENE	UG/L	10	10	0.5	0.52				NA
OV	1,2,4-TRICHLOROBENZENE	UG/L	10	10	0.5	0.99				NA
OV	1,2-DIBROMO-3-CHLOROPROPANE	UG/L	10	10	1	0.00032	10	100	100	NA
OV	1,2-DIBROMOETHANE	UG/L	10	10	0.5	0.0065	10	100	100	NA
OV	1,2-DICHLOROBENZENE	UG/L	9	10	0.5	28				NA
OV	1,2-DICHLOROETHANE	UG/L	10	10	0.5	0.15	10	100	100	NA
OV	1,2-DICHLOROPROPANE	UG/L	10	10	0.5	0.38	10	100	100	NA
OV	1,3-DICHLOROBENZENE	UG/L	10	10	0.5	NA				NA
OV	1,4-DICHLOROBENZENE	UG/L	10	10	0.5	0.42	10	100	100	NA
OV	2-BUTANONE	UG/L	10	10	5	490				NA
OV	2-HEXANONE	UG/L	10	10	2.5	3.4				NA
OV	4-METHYL-2-PENTANONE	UG/L	10	10	2.5	100				NA
OV	ACETONE	UG/L	7	10	5	1200				NA
OV	BENZENE	UG/L	8	10	0.5	0.39	8	100	80	NA
OV	BROMOCHLOROMETHANE	UG/L	10	10	0.5	8.3				NA
OV	BROMODICHLOROMETHANE	UG/L	10	10	0.5	0.12	10	100	100	NA
OV	BROMOFORM	UG/L	10	10	0.5	7.9				NA
OV	BROMOMETHANE	UG/L	10	10	1	0.7	10	100	100	NA
OV	CARBON DISULFIDE	UG/L	8	10	0.5	72				NA
OV	CARBON TETRACHLORIDE	UG/L	10	10	0.5	0.36	10	100	100	NA
OV	CHLOROBENZENE	UG/L	10	10	0.5	7.2				NA
OV	CHLORODIBROMOMETHANE	UG/L	10	10	0.5	0.15	10	100	100	NA
OV	CHLOROETHANE	UG/L	10	10	1	2100				NA
OV	CHLOROFORM	UG/L	6	10	0.5	0.19	6	100	60	NA
OV	CHLOROMETHANE	UG/L	10	10	0.5	19				NA
OV	CIS-1,2-DICHLOROETHENE	UG/L	7	10	0.5	2.8				NA
OV	CIS-1,3-DICHLOROPROPENE	UG/L	10	10	0.5	0.41	10	100	100	NA
OV	CYCLOHEXANE	UG/L	10	10	0.5	53				NA
OV	DICHLORODIFLUOROMETHANE	UG/L	10	10	1	0.74	10	100	100	NA
OV	ETHYLBENZENE	UG/L	8	10	0.5	1.3				NA
OV	ISOPROPYLBENZENE	UG/L	10	10	0.5	39				NA
OV	METHYL ACETATE	UG/L	10	10	1	1600				NA
OV	METHYL CYCLOHEXANE	UG/L	10	10	0.5	NA				NA
OV	METHYL TERT-BUTYL ETHER	UG/L	10	10	0.5	12				NA

Table E-3.4
Sensitivity Evaluation of the Limit of Detection - Groundwater
NSA Crane SWMU 11 RFI Report

fraction	parameter	units	Number of Non-Detected Results	Total Number of Analyses	Range of Non-Detected Values	HH PSL	Number of Non-Detected Results Exceeding HH PSL	% of Non-Detected Results Exceeding HH PSL	% of Non-Detected Results Exceeding HH PSL for Entire Data Set	BKG
OV	METHYLENE CHLORIDE	UG/L	10	10	1	5				NA
OV	STYRENE	UG/L	10	10	0.5	100				NA
OV	TETRACHLOROETHENE	UG/L	7	10	0.5	5				NA
OV	TOLUENE	UG/L	6	10	0.5	86				NA
OV	TOTAL XYLENES	UG/L	8	10	0.5	19				NA
OV	TRANS-1,2-DICHLOROETHENE	UG/L	9	10	0.5	8.6				NA
OV	TRANS-1,3-DICHLOROPROPENE	UG/L	10	10	0.5	4.1				NA
OV	TRICHLOROETHENE	UG/L	6	10	0.5	0.44	6	100	60	NA
OV	TRICHLOROFLUOROMETHANE	UG/L	10	10	1	18				NA
OV	VINYL CHLORIDE	UG/L	9	10	0.5	0.015	9	100	90	NA

Table E-3.5
Sensitivity Evaluation of the Limit of Detection - All Media Summary
NSA Crane SWMU 11 RFI Report

Fraction	Parameter	SS HH	SS Eco	SB HH	SD HH	SD Eco	GW HH
DIOX	1,2,3,4,7,8,9-HPCDF					X	
DIOX	1,2,3,4,7,8-HXCDF					X	
DIOX	1,2,3,6,7,8-HXCDF					X	
DIOX	1,2,3,7,8,9-HXCDF					X	
DIOX	1,2,3,7,8-PECDF					X	
DIOX	2,3,4,6,7,8-HXCDF					X	
DIOX	2,3,4,7,8-PECDF					X	
DIOX	1,2,3,4,7,8-HXCDD		X				
DIOX	1,2,3,6,7,8-HXCDD		X				
DIOX	1,2,3,7,8,9-HXCDD		X				
DIOX	1,2,3,7,8-PECDD		X				
DIOX	2,3,7,8-TCDD		X			X	
M	SELENIUM		X			X	
M	SILVER					X	
M	THALLIUM	X	X	X	X	X	
MISC	CYANIDE	X		X		X	
OS	1,1-BIPHENYL	X		X			
OS	2,2'-OXYBIS(1-CHLOROPROPANE)	X		X			
OS	2,4,6-TRICHLOROPHENOL					X	
OS	2,4-DICHLOROPHENOL					X	
OS	2,4-DIMETHYLPHENOL		X			X	
OS	2,4-DINITROPHENOL	X	X	X		X	
OS	2,4-DINITROTOLUENE	X		X		X	
OS	2,6-DINITROTOLUENE	X	X	X	X	X	
OS	3,3'-DICHLOROBENZIDINE	X		X	X	X	
OS	3-NITROANILINE					X	
OS	4,6-DINITRO-2-METHYLPHENOL	X	X	X	X	X	
OS	2-CHLORONAPHTHALENE		X			X	
OS	2-CHLOROPHENOL					X	
OS	2-METHYLPHENOL					X	
OS	4-CHLORO-3-METHYLPHENOL					X	
OS	4-CHLOROANILINE	X		X		X	
OS	4-METHYLPHENOL					X	
OS	4-NITROANILINE	X		X			
OS	4-NITROPHENOL					X	
OS	ATRAZINE	X		X			
OS	BIS(2-CHLOROETHOXY)METHANE	X		X		X	
OS	BIS(2-CHLOROETHYL)ETHER	X		X	X		
OS	BIS(2-ETHYLHEXYL)PHTHALATE					X	
OS	DIBENZOFURAN					X	
OS	DIETHYL PHTHALATE					X	
OS	DI-N-BUTYL PHTHALATE		X			X	
OS	HEXACHLOROBENZENE	X	X	X	X	X	
OS	HEXACHLOROBUTADIENE	X	X	X		X	
OS	HEXACHLOROCYCLOPENTADIENE					X	
OS	HEXACHLOROETHANE	X		X		X	
OS	ISOPHORONE					X	
OS	N-NITROSO-DI-N-PROPYLAMINE	X		X	X	X	
OS	N-NITROSODIPHENYLAMINE					X	
OS	NITROBENZENE	X		X		X	
OS	PENTACHLOROPHENOL	X		X	X		
OV	1,1,2,2-TETRACHLOROETHANE	X		X			X
OV	1,1,2-TRICHLOROETHANE	X		X			X
OV	1,1-DICHLOROETHANE			X			
OV	1,1-DICHLOROETHENE			X			
OV	1,2,3-TRICHLOROBENZENE			X			
OV	1,2,4-TRICHLOROBENZENE			X			
OV	1,2-DIBROMO-3-CHLOROPROPANE			X			X
OV	1,2-DIBROMOETHANE			X			X
OV	1,2-DICHLOROETHANE			X			X

Table E-3.5
Sensitivity Evaluation of the Limit of Detection - All Media Summary
NSA Crane SWMU 11 RFI Report

Fraction	Parameter	SS HH	SS Eco	SB HH	SD HH	SD Eco	GW HH
OV	1,2-DICHLOROPROPANE			X			X
OV	1,4-DICHLOROBENZENE			X			X
OV	2-HEXANONE			X			
OV	BENZENE			X			X
OV	BROMOCHLOROMETHANE			X			
OV	BROMODICHLOROMETHANE			X			X
OV	BROMOFORM			X			
OV	BROMOMETHANE			X			X
OV	CARBON TETRACHLORIDE			X			X
OV	CHLORODIBROMOMETHANE			X			X
OV	CHLOROFORM			X			X
	CIS-1,3-DICHLOROPROPENE			X			X
OV	DICHLORODIFLUOROMETHANE						X
OV	ETHYLBENZENE			X			
OV	METHYL TERT-BUTYL ETHER			X			
OV	METHYLENE CHLORIDE			X			
OV	TETRACHLOROETHENE			X			
OV	TRANS-1,3-DICHLOROPROPENE			X			
OV	TRICHLOROETHENE			X			X
OV	VINYL CHLORIDE			X			X
PAH	2-METHYLNAPHTHALENE					X	
PAH	ACENAPHTHENE					X	
PAH	ACENAPHTHYLENE					X	
PAH	DIBENZO(A,H)ANTHRACENE				X		
PCB	AROCLOR-1016		X				
PCB	AROCLOR-1221		X	X			
PCB	AROCLOR-1232		X	X			
PCB	AROCLOR-1242		X				
PCB	AROCLOR-1248		X				
PCB	AROCLOR-1254		X				
PCB	AROCLOR-1260		X				
PEST	TOXAPHENE					X	

X- Nondetected result exceeds PSL
Nondetected results that exceed a PSL but did not exceed Background (BKG) were not included; likewise nondetected results that exceeded BKG but did not exceed a PSL were not included.

Abbreviations:
HH - Human Health
Eco - Ecological
SS -Surface Soil
SB - Subsurface Soil
SD - Sediment
GW - Groundwater

Table E-4
Qualified Data and Associated Qualifier Codes
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sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11MWT0102	20121128	GW	1,1,1-TRICHLOROETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0202	20121129	GW	1,1,1-TRICHLOROETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0302	20121129	GW	1,1,1-TRICHLOROETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501	20121127	GW	1,1,1-TRICHLOROETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501-D	20121127	GW	1,1,1-TRICHLOROETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0601	20121127	GW	1,1,1-TRICHLOROETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
18CMWT00102	20121128	GW	1,1,1-TRICHLOROETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0102	20121128	GW	1,1,2,2-TETRACHLOROETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0202	20121129	GW	1,1,2,2-TETRACHLOROETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0302	20121129	GW	1,1,2,2-TETRACHLOROETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501	20121127	GW	1,1,2,2-TETRACHLOROETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501-D	20121127	GW	1,1,2,2-TETRACHLOROETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0601	20121127	GW	1,1,2,2-TETRACHLOROETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
18CMWT00102	20121128	GW	1,1,2,2-TETRACHLOROETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0102	20121128	GW	1,1,2-TRICHLOROETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0202	20121129	GW	1,1,2-TRICHLOROETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0302	20121129	GW	1,1,2-TRICHLOROETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501	20121127	GW	1,1,2-TRICHLOROETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501-D	20121127	GW	1,1,2-TRICHLOROETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0601	20121127	GW	1,1,2-TRICHLOROETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
18CMWT00102	20121128	GW	1,1,2-TRICHLOROETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0102	20121128	GW	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0202	20121129	GW	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0302	20121129	GW	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0501	20121127	GW	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0501-D	20121127	GW	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0601	20121127	GW	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	1	U	N		UG/L	2	U	2	1	100
18CMWT00102	20121128	GW	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0102	20121128	GW	1,1-DICHLOROETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0202	20121129	GW	1,1-DICHLOROETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0302	20121129	GW	1,1-DICHLOROETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501	20121127	GW	1,1-DICHLOROETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501-D	20121127	GW	1,1-DICHLOROETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0601	20121127	GW	1,1-DICHLOROETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
18CMWT00102	20121128	GW	1,1-DICHLOROETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0102	20121128	GW	1,1-DICHLOROETHENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0202	20121129	GW	1,1-DICHLOROETHENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0302	20121129	GW	1,1-DICHLOROETHENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501	20121127	GW	1,1-DICHLOROETHENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501-D	20121127	GW	1,1-DICHLOROETHENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0601	20121127	GW	1,1-DICHLOROETHENE	OV	0.5	U	N		UG/L	1	U	1	1	100
18CMWT00102	20121128	GW	1,1-DICHLOROETHENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0102	20121128	GW	1,2,3-TRICHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0202	20121129	GW	1,2,3-TRICHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0302	20121129	GW	1,2,3-TRICHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501	20121127	GW	1,2,3-TRICHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501-D	20121127	GW	1,2,3-TRICHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0601	20121127	GW	1,2,3-TRICHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
18CMWT00102	20121128	GW	1,2,3-TRICHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0102	20121128	GW	1,2,4-TRICHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0202	20121129	GW	1,2,4-TRICHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0302	20121129	GW	1,2,4-TRICHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501	20121127	GW	1,2,4-TRICHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501-D	20121127	GW	1,2,4-TRICHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0601	20121127	GW	1,2,4-TRICHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
18CMWT00102	20121128	GW	1,2,4-TRICHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0102	20121128	GW	1,2-DIBROMO-3-CHLOROPROPANE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0202	20121129	GW	1,2-DIBROMO-3-CHLOROPROPANE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0302	20121129	GW	1,2-DIBROMO-3-CHLOROPROPANE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0501	20121127	GW	1,2-DIBROMO-3-CHLOROPROPANE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0501-D	20121127	GW	1,2-DIBROMO-3-CHLOROPROPANE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0601	20121127	GW	1,2-DIBROMO-3-CHLOROPROPANE	OV	1	U	N		UG/L	2	U	2	1	100
18CMWT00102	20121128	GW	1,2-DIBROMO-3-CHLOROPROPANE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0102	20121128	GW	1,2-DIBROMOETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0202	20121129	GW	1,2-DIBROMOETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0302	20121129	GW	1,2-DIBROMOETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501	20121127	GW	1,2-DIBROMOETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501-D	20121127	GW	1,2-DIBROMOETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0601	20121127	GW	1,2-DIBROMOETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
18CMWT00102	20121128	GW	1,2-DIBROMOETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0102	20121128	GW	1,2-DICHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0202	20121129	GW	1,2-DICHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0302	20121129	GW	1,2-DICHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501	20121127	GW	1,2-DICHLOROBENZENE	OV	0.99	J	Y	P	UG/L	0.99	J	1	1	100
11MWT0601	20121127	GW	1,2-DICHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
18CMWT00102	20121128	GW	1,2-DICHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0102	20121128	GW	1,2-DICHLOROETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0202	20121129	GW	1,2-DICHLOROETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0302	20121129	GW	1,2-DICHLOROETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501	20121127	GW	1,2-DICHLOROETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501-D	20121127	GW	1,2-DICHLOROETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11MWT0601	20121127	GW	1,2-DICHLOROETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
18CMWT00102	20121128	GW	1,2-DICHLOROETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0102	20121128	GW	1,2-DICHLOROPROPANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0202	20121129	GW	1,2-DICHLOROPROPANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0302	20121129	GW	1,2-DICHLOROPROPANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501	20121127	GW	1,2-DICHLOROPROPANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501-D	20121127	GW	1,2-DICHLOROPROPANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0601	20121127	GW	1,2-DICHLOROPROPANE	OV	0.5	U	N		UG/L	1	U	1	1	100
18CMWT00102	20121128	GW	1,2-DICHLOROPROPANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0102	20121128	GW	1,3-DICHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0202	20121129	GW	1,3-DICHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0302	20121129	GW	1,3-DICHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501	20121127	GW	1,3-DICHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501-D	20121127	GW	1,3-DICHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0601	20121127	GW	1,3-DICHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
18CMWT00102	20121128	GW	1,3-DICHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0102	20121128	GW	1,4-DICHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0202	20121129	GW	1,4-DICHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0302	20121129	GW	1,4-DICHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501	20121127	GW	1,4-DICHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501-D	20121127	GW	1,4-DICHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0601	20121127	GW	1,4-DICHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
18CMWT00102	20121128	GW	1,4-DICHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0102	20121128	GW	2-BUTANONE	OV	5	U	N		UG/L	10	U	10	1	100
11MWT0202	20121129	GW	2-BUTANONE	OV	5	U	N		UG/L	10	U	10	1	100
11MWT0302	20121129	GW	2-BUTANONE	OV	5	U	N		UG/L	10	U	10	1	100
11MWT0501	20121127	GW	2-BUTANONE	OV	5	U	N		UG/L	10	U	10	1	100
11MWT0501-D	20121127	GW	2-BUTANONE	OV	5	U	N		UG/L	10	U	10	1	100
11MWT0601	20121127	GW	2-BUTANONE	OV	5	U	N		UG/L	10	U	10	1	100
18CMWT00102	20121128	GW	2-BUTANONE	OV	5	U	N		UG/L	10	U	10	1	100
11MWT0102	20121128	GW	2-HEXANONE	OV	2.5	U	N		UG/L	5	U	5	1	100
11MWT0202	20121129	GW	2-HEXANONE	OV	2.5	U	N		UG/L	5	U	5	1	100
11MWT0302	20121129	GW	2-HEXANONE	OV	2.5	U	N		UG/L	5	U	5	1	100
11MWT0501	20121127	GW	2-HEXANONE	OV	2.5	U	N		UG/L	5	U	5	1	100
11MWT0501-D	20121127	GW	2-HEXANONE	OV	2.5	U	N		UG/L	5	U	5	1	100
11MWT0601	20121127	GW	2-HEXANONE	OV	2.5	U	N		UG/L	5	U	5	1	100
18CMWT00102	20121128	GW	2-HEXANONE	OV	2.5	U	N		UG/L	5	U	5	1	100
11MWT0102	20121128	GW	4-METHYL-2-PENTANONE	OV	2.5	U	N		UG/L	5	U	5	1	100
11MWT0202	20121129	GW	4-METHYL-2-PENTANONE	OV	2.5	U	N		UG/L	5	U	5	1	100
11MWT0302	20121129	GW	4-METHYL-2-PENTANONE	OV	2.5	U	N		UG/L	5	U	5	1	100
11MWT0501	20121127	GW	4-METHYL-2-PENTANONE	OV	2.5	U	N		UG/L	5	U	5	1	100
11MWT0501-D	20121127	GW	4-METHYL-2-PENTANONE	OV	2.5	U	N		UG/L	5	U	5	1	100
11MWT0601	20121127	GW	4-METHYL-2-PENTANONE	OV	2.5	U	N		UG/L	5	U	5	1	100
18CMWT00102	20121128	GW	4-METHYL-2-PENTANONE	OV	2.5	U	N		UG/L	5	U	5	1	100
11MWT0102	20121128	GW	ACETONE	OV	5	U	N		UG/L	10	U	10	1	100
11MWT0201	20111214	GW	ACETONE	OV	3.4	J	Y	P	UG/L	3.400000	J	10	1	100
11MWT0202	20121129	GW	ACETONE	OV	5	U	N		UG/L	10	U	10	1	100
11MWT0302	20121129	GW	ACETONE	OV	5	U	N		UG/L	10	U	10	1	100
11MWT0501	20121127	GW	ACETONE	OV	2.74	J	Y	P	UG/L	2.74	J	10	1	100
11MWT0501-D	20121127	GW	ACETONE	OV	5	U	N		UG/L	10	U	10	1	100
11MWT0601	20121127	GW	ACETONE	OV	3.9	J	Y	P	UG/L	3.9	J	10	1	100
18CMWT00102	20121128	GW	ACETONE	OV	5	U	N		UG/L	10	U	10	1	100
11MWT0102	20121128	GW	BENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0202	20121129	GW	BENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0302	20121129	GW	BENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501	20121127	GW	BENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501-D	20121127	GW	BENZENE	OV	0.26	J	Y	P	UG/L	0.26	J	1	1	100
11MWT0601	20121127	GW	BENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
18CMWT00102	20121128	GW	BENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0102	20121128	GW	BROMOCHLOROMETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0202	20121129	GW	BROMOCHLOROMETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0302	20121129	GW	BROMOCHLOROMETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501	20121127	GW	BROMOCHLOROMETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501-D	20121127	GW	BROMOCHLOROMETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0601	20121127	GW	BROMOCHLOROMETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
18CMWT00102	20121128	GW	BROMOCHLOROMETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0102	20121128	GW	BROMODICHLOROMETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0202	20121129	GW	BROMODICHLOROMETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0302	20121129	GW	BROMODICHLOROMETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501	20121127	GW	BROMODICHLOROMETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501-D	20121127	GW	BROMODICHLOROMETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0601	20121127	GW	BROMODICHLOROMETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
18CMWT00102	20121128	GW	BROMODICHLOROMETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0102	20121128	GW	BROMOFORM	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0202	20121129	GW	BROMOFORM	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0302	20121129	GW	BROMOFORM	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501	20121127	GW	BROMOFORM	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501-D	20121127	GW	BROMOFORM	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0601	20121127	GW	BROMOFORM	OV	0.5	U	N		UG/L	1	U	1	1	100
18CMWT00102	20121128	GW	BROMOFORM	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0102	20121128	GW	BROMOMETHANE	OV	1	U	N		UG/L	2	U	2	1	100

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11MWT0202	20121129	GW	BROMOMETHANE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0302	20121129	GW	BROMOMETHANE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0501	20121127	GW	BROMOMETHANE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0501-D	20121127	GW	BROMOMETHANE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0601	20121127	GW	BROMOMETHANE	OV	1	U	N		UG/L	2	U	2	1	100
18CMWT00102	20121128	GW	BROMOMETHANE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0101	20111212	GW	CARBON DISULFIDE	OV	0.394	J	Y	P	UG/L	.394000	J	1	1	100
11MWT0102	20121128	GW	CARBON DISULFIDE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0202	20121129	GW	CARBON DISULFIDE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0302	20121129	GW	CARBON DISULFIDE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0601	20121127	GW	CARBON DISULFIDE	OV	0.5	U	N		UG/L	1	U	1	1	100
18CMWT00102	20121128	GW	CARBON DISULFIDE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0102	20121128	GW	CARBON TETRACHLORIDE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0202	20121129	GW	CARBON TETRACHLORIDE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0302	20121129	GW	CARBON TETRACHLORIDE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501	20121127	GW	CARBON TETRACHLORIDE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501-D	20121127	GW	CARBON TETRACHLORIDE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0601	20121127	GW	CARBON TETRACHLORIDE	OV	0.5	U	N		UG/L	1	U	1	1	100
18CMWT00102	20121128	GW	CARBON TETRACHLORIDE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0102	20121128	GW	CHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0202	20121129	GW	CHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0302	20121129	GW	CHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501	20121127	GW	CHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501-D	20121127	GW	CHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0601	20121127	GW	CHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
18CMWT00102	20121128	GW	CHLOROBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0102	20121128	GW	CHLORODIBROMOMETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0202	20121129	GW	CHLORODIBROMOMETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0302	20121129	GW	CHLORODIBROMOMETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501	20121127	GW	CHLORODIBROMOMETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501-D	20121127	GW	CHLORODIBROMOMETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0601	20121127	GW	CHLORODIBROMOMETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
18CMWT00102	20121128	GW	CHLORODIBROMOMETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0102	20121128	GW	CHLOROETHANE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0202	20121129	GW	CHLOROETHANE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0302	20121129	GW	CHLOROETHANE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0501	20121127	GW	CHLOROETHANE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0501-D	20121127	GW	CHLOROETHANE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0601	20121127	GW	CHLOROETHANE	OV	1	U	N		UG/L	2	U	2	1	100
18CMWT00102	20121128	GW	CHLOROETHANE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0102	20121128	GW	CHLOROFORM	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0201	20111214	GW	CHLOROFORM	OV	0.936	J	Y	P	UG/L	.936000	J	1	1	100
11MWT0201-D	20111214	GW	CHLOROFORM	OV	0.981	J	Y	P	UG/L	.981000	J	1	1	100
11MWT0202	20121129	GW	CHLOROFORM	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0302	20121129	GW	CHLOROFORM	OV	0.63	J	Y	P	UG/L	0.63	J	1	1	100
11MWT0501	20121127	GW	CHLOROFORM	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501-D	20121127	GW	CHLOROFORM	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0601	20121127	GW	CHLOROFORM	OV	0.32	J	Y	P	UG/L	0.32	J	1	1	100
18CMWT00102	20121128	GW	CHLOROFORM	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0101	20111212	GW	CHLOROMETHANE	OV	0.5	UJ	N	C	UG/L	1.000000	UY	1	1	100
11MWT0102	20121128	GW	CHLOROMETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0201	20111214	GW	CHLOROMETHANE	OV	0.5	UJ	N	C	UG/L	1.000000	UY	1	1	100
11MWT0201-D	20111214	GW	CHLOROMETHANE	OV	0.5	UJ	N	C	UG/L	1.000000	UY	1	1	100
11MWT0202	20121129	GW	CHLOROMETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0301	20111214	GW	CHLOROMETHANE	OV	0.5	UJ	N	C	UG/L	1.000000	UY	1	1	100
11MWT0302	20121129	GW	CHLOROMETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0401	20111215	GW	CHLOROMETHANE	OV	0.5	UJ	N	C	UG/L	1.000000	UY	1	1	100
11MWT0501	20121127	GW	CHLOROMETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501-D	20121127	GW	CHLOROMETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0601	20121127	GW	CHLOROMETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
18CMWT00102	20121128	GW	CHLOROMETHANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0102	20121128	GW	CIS-1,2-DICHLOROETHENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0302	20121129	GW	CIS-1,2-DICHLOROETHENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0601	20121127	GW	CIS-1,2-DICHLOROETHENE	OV	0.5	U	N		UG/L	1	U	1	1	100
18CMWT00102	20121128	GW	CIS-1,2-DICHLOROETHENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0102	20121128	GW	CIS-1,3-DICHLOROPROPENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0202	20121129	GW	CIS-1,3-DICHLOROPROPENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0302	20121129	GW	CIS-1,3-DICHLOROPROPENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501	20121127	GW	CIS-1,3-DICHLOROPROPENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501-D	20121127	GW	CIS-1,3-DICHLOROPROPENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0601	20121127	GW	CIS-1,3-DICHLOROPROPENE	OV	0.5	U	N		UG/L	1	U	1	1	100
18CMWT00102	20121128	GW	CIS-1,3-DICHLOROPROPENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0102	20121128	GW	CYCLOHEXANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0202	20121129	GW	CYCLOHEXANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0302	20121129	GW	CYCLOHEXANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501	20121127	GW	CYCLOHEXANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501-D	20121127	GW	CYCLOHEXANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0601	20121127	GW	CYCLOHEXANE	OV	0.5	U	N		UG/L	1	U	1	1	100
18CMWT00102	20121128	GW	CYCLOHEXANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0102	20121128	GW	DICHLORODIFLUOROMETHANE	OV	1	UJ	N	C	UG/L	2	UX	2	1	100
11MWT0202	20121129	GW	DICHLORODIFLUOROMETHANE	OV	1	UJ	N	C	UG/L	2	UX	2	1	100

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11MWT0302	20121129	GW	DICHLORODIFLUOROMETHANE	OV	1	UJ	N	C	UG/L	2	UX	2	1	100
11MWT0501	20121127	GW	DICHLORODIFLUOROMETHANE	OV	1	UJ	N	C	UG/L	2	UX	2	1	100
11MWT0501-D	20121127	GW	DICHLORODIFLUOROMETHANE	OV	1	UJ	N	C	UG/L	2	UX	2	1	100
11MWT0601	20121127	GW	DICHLORODIFLUOROMETHANE	OV	1	UJ	N	C	UG/L	2	UX	2	1	100
18CMWT00102	20121128	GW	DICHLORODIFLUOROMETHANE	OV	1	UJ	N	C	UG/L	2	UX	2	1	100
11MWT0102	20121128	GW	ETHYLBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0201	20111214	GW	ETHYLBENZENE	OV	0.43	J	Y	P	UG/L	.430000	J	1	1	100
11MWT0202	20121129	GW	ETHYLBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0301	20111214	GW	ETHYLBENZENE	OV	0.276	J	Y	P	UG/L	.276000	J	1	1	100
11MWT0302	20121129	GW	ETHYLBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501	20121127	GW	ETHYLBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501-D	20121127	GW	ETHYLBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0601	20121127	GW	ETHYLBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
18CMWT00102	20121128	GW	ETHYLBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0102	20121128	GW	ISOPROPYLBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0202	20121129	GW	ISOPROPYLBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0302	20121129	GW	ISOPROPYLBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501	20121127	GW	ISOPROPYLBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501-D	20121127	GW	ISOPROPYLBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0601	20121127	GW	ISOPROPYLBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
18CMWT00102	20121128	GW	ISOPROPYLBENZENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0102	20121128	GW	METHYL ACETATE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0202	20121129	GW	METHYL ACETATE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0302	20121129	GW	METHYL ACETATE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0501	20121127	GW	METHYL ACETATE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0501-D	20121127	GW	METHYL ACETATE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0601	20121127	GW	METHYL ACETATE	OV	1	U	N		UG/L	2	U	2	1	100
18CMWT00102	20121128	GW	METHYL ACETATE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0102	20121128	GW	METHYL CYCLOHEXANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0202	20121129	GW	METHYL CYCLOHEXANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0302	20121129	GW	METHYL CYCLOHEXANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501	20121127	GW	METHYL CYCLOHEXANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501-D	20121127	GW	METHYL CYCLOHEXANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0601	20121127	GW	METHYL CYCLOHEXANE	OV	0.5	U	N		UG/L	1	U	1	1	100
18CMWT00102	20121128	GW	METHYL CYCLOHEXANE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0102	20121128	GW	METHYL TERT-BUTYL ETHER	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0202	20121129	GW	METHYL TERT-BUTYL ETHER	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0302	20121129	GW	METHYL TERT-BUTYL ETHER	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501	20121127	GW	METHYL TERT-BUTYL ETHER	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501-D	20121127	GW	METHYL TERT-BUTYL ETHER	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0601	20121127	GW	METHYL TERT-BUTYL ETHER	OV	0.5	U	N		UG/L	1	U	1	1	100
18CMWT00102	20121128	GW	METHYL TERT-BUTYL ETHER	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0102	20121128	GW	METHYLENE CHLORIDE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0202	20121129	GW	METHYLENE CHLORIDE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0302	20121129	GW	METHYLENE CHLORIDE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0501	20121127	GW	METHYLENE CHLORIDE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0501-D	20121127	GW	METHYLENE CHLORIDE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0601	20121127	GW	METHYLENE CHLORIDE	OV	1	U	N		UG/L	2	U	2	1	100
18CMWT00102	20121128	GW	METHYLENE CHLORIDE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0102	20121128	GW	STYRENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0202	20121129	GW	STYRENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0302	20121129	GW	STYRENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501	20121127	GW	STYRENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501-D	20121127	GW	STYRENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0601	20121127	GW	STYRENE	OV	0.5	U	N		UG/L	1	U	1	1	100
18CMWT00102	20121128	GW	STYRENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0102	20121128	GW	TETRACHLOROETHENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0302	20121129	GW	TETRACHLOROETHENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0601	20121127	GW	TETRACHLOROETHENE	OV	0.5	U	N		UG/L	1	U	1	1	100
18CMWT00102	20121128	GW	TETRACHLOROETHENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0102	20121128	GW	TOLUENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0201	20111214	GW	TOLUENE	OV	3.87	J	Y	G	UG/L	3.870000		1	1	100
11MWT0201-D	20111214	GW	TOLUENE	OV	0.654	J	Y	GP	UG/L	.654000	J	1	1	100
11MWT0202	20121129	GW	TOLUENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0302	20121129	GW	TOLUENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0401	20111215	GW	TOLUENE	OV	0.286	J	Y	P	UG/L	.286000	J	1	1	100
11MWT0501	20121127	GW	TOLUENE	OV	0.42	J	Y	P	UG/L	0.42	J	1	1	100
11MWT0501-D	20121127	GW	TOLUENE	OV	0.46	J	Y	P	UG/L	0.46	J	1	1	100
11MWT0601	20121127	GW	TOLUENE	OV	0.5	U	N		UG/L	1	U	1	1	100
18CMWT00102	20121128	GW	TOLUENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0102	20121128	GW	TOTAL XYLENES	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0201	20111214	GW	TOTAL XYLENES	OV	0.884	J	Y	P	UG/L	.884000	J	1	1	100
11MWT0202	20121129	GW	TOTAL XYLENES	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0301	20111214	GW	TOTAL XYLENES	OV	0.563	J	Y	P	UG/L	.563000	J	1	1	100
11MWT0302	20121129	GW	TOTAL XYLENES	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501	20121127	GW	TOTAL XYLENES	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501-D	20121127	GW	TOTAL XYLENES	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0601	20121127	GW	TOTAL XYLENES	OV	0.5	U	N		UG/L	1	U	1	1	100
18CMWT00102	20121128	GW	TOTAL XYLENES	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0102	20121128	GW	TRANS-1,2-DICHLOROETHENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0201	20111214	GW	TRANS-1,2-DICHLOROETHENE	OV	0.361	J	Y	P	UG/L	.361000	J	1	1	100

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11MWT0201-D	20111214	GW	TRANS-1,2-DICHLOROETHENE	OV	0.369	J	Y	P	UG/L	.369000	J	1	1	100
11MWT0202	20121129	GW	TRANS-1,2-DICHLOROETHENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0302	20121129	GW	TRANS-1,2-DICHLOROETHENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501	20121127	GW	TRANS-1,2-DICHLOROETHENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501-D	20121127	GW	TRANS-1,2-DICHLOROETHENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0601	20121127	GW	TRANS-1,2-DICHLOROETHENE	OV	0.5	U	N		UG/L	1	U	1	1	100
18CMWT00102	20121128	GW	TRANS-1,2-DICHLOROETHENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0102	20121128	GW	TRANS-1,3-DICHLOROPROPENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0202	20121129	GW	TRANS-1,3-DICHLOROPROPENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0302	20121129	GW	TRANS-1,3-DICHLOROPROPENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501	20121127	GW	TRANS-1,3-DICHLOROPROPENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501-D	20121127	GW	TRANS-1,3-DICHLOROPROPENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0601	20121127	GW	TRANS-1,3-DICHLOROPROPENE	OV	0.5	U	N		UG/L	1	U	1	1	100
18CMWT00102	20121128	GW	TRANS-1,3-DICHLOROPROPENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0102	20121128	GW	TRICHLOROETHENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0301	20111214	GW	TRICHLOROETHENE	OV	0.255	J	Y	P	UG/L	.255000	J	1	1	100
11MWT0302	20121129	GW	TRICHLOROETHENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0601	20121127	GW	TRICHLOROETHENE	OV	0.5	U	N		UG/L	1	U	1	1	100
18CMWT00102	20121128	GW	TRICHLOROETHENE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0102	20121128	GW	TRICHLOROFLUOROMETHANE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0202	20121129	GW	TRICHLOROFLUOROMETHANE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0302	20121129	GW	TRICHLOROFLUOROMETHANE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0501	20121127	GW	TRICHLOROFLUOROMETHANE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0501-D	20121127	GW	TRICHLOROFLUOROMETHANE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0601	20121127	GW	TRICHLOROFLUOROMETHANE	OV	1	U	N		UG/L	2	U	2	1	100
18CMWT00102	20121128	GW	TRICHLOROFLUOROMETHANE	OV	1	U	N		UG/L	2	U	2	1	100
11MWT0102	20121128	GW	VINYL CHLORIDE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0201	20111214	GW	VINYL CHLORIDE	OV	0.503	J	Y	P	UG/L	.503000	J	1	1	100
11MWT0201-D	20111214	GW	VINYL CHLORIDE	OV	0.492	J	Y	P	UG/L	.492000	J	1	1	100
11MWT0202	20121129	GW	VINYL CHLORIDE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0302	20121129	GW	VINYL CHLORIDE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501	20121127	GW	VINYL CHLORIDE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0501-D	20121127	GW	VINYL CHLORIDE	OV	0.5	U	N		UG/L	1	U	1	1	100
11MWT0601	20121127	GW	VINYL CHLORIDE	OV	0.5	U	N		UG/L	1	U	1	1	100
18CMWT00102	20121128	GW	VINYL CHLORIDE	OV	0.5	U	N		UG/L	1	U	1	1	100
11SD020006	20110428	SD	1,2,3,4,6,7,8,9-OCDF	DIOX	192	J	Y	G	NG/KG	192		9.11	1	26
11SD020006-D	20110428	SD	1,2,3,4,6,7,8,9-OCDF	DIOX	106	J	Y	G	NG/KG	106		9.77	1	27.3
11SD020006	20110428	SD	1,2,3,4,6,7,8-HPCDD	DIOX	243	J	Y	G	NG/KG	243		4.56	1	26
11SD020006-D	20110428	SD	1,2,3,4,6,7,8-HPCDD	DIOX	134	J	Y	G	NG/KG	134		4.89	1	27.3
11SD020006	20110428	SD	1,2,3,4,6,7,8-HPCDF	DIOX	35.3	J	Y	G	NG/KG	35.3		4.56	1	26
11SD020006-D	20110428	SD	1,2,3,4,6,7,8-HPCDF	DIOX	19.4	J	Y	G	NG/KG	19.4		4.89	1	27.3
11SD020006	20110428	SD	1,2,3,4,7,8,9-HPCDF	DIOX	2.15	J	Y	P	NG/KG	2.15	J	4.56	1	26
11SD020612	20110428	SD	1,2,3,4,7,8,9-HPCDF	DIOX	2.75	J	Y	P	NG/KG	2.75	J	4.88	1	27.1
11SD060006	20111117	SD	1,2,3,4,7,8,9-HPCDF	DIOX	1.98	J	Y	P	NG/KG	1.980000	J	4.67	1	27
11SD020006-D	20110428	SD	1,2,3,4,7,8-HXCDD	DIOX	1.92	J	Y	P	NG/KG	1.92	J	4.89	1	27.3
11SD020612	20110428	SD	1,2,3,4,7,8-HXCDD	DIOX	4.48	J	Y	P	NG/KG	4.48	J	4.88	1	27.1
11SD060006	20111117	SD	1,2,3,4,7,8-HXCDD	DIOX	3.53	J	Y	P	NG/KG	3.530000	J	4.67	1	27
11SD020006	20110428	SD	1,2,3,4,7,8-HXCDF	DIOX	1.09	J	Y	P	NG/KG	1.09	J	4.56	1	26
11SD020612	20110428	SD	1,2,3,4,7,8-HXCDF	DIOX	1.2	J	Y	P	NG/KG	1.2	J	4.88	1	27.1
11SD020006-D	20110428	SD	1,2,3,6,7,8-HXCDD	DIOX	4.58	J	Y	P	NG/KG	4.58	J	4.89	1	27.3
11SD050006	20111117	SD	1,2,3,6,7,8-HXCDD	DIOX	2.08	J	Y	P	NG/KG	2.080000	J	4.88	1	29
11SD050006-D	20111117	SD	1,2,3,6,7,8-HXCDD	DIOX	1.78	J	Y	P	NG/KG	1.780000	J	4.98	1	28
11SD020006	20110428	SD	1,2,3,6,7,8-HXCDF	DIOX	1.01	J	Y	P	NG/KG	1.01	J	4.56	1	26
11SD020006-D	20110428	SD	1,2,3,6,7,8-HXCDF	DIOX	0.778	J	Y	P	NG/KG	0.778	J	4.89	1	27.3
11SD020612	20110428	SD	1,2,3,6,7,8-HXCDF	DIOX	1.07	J	Y	P	NG/KG	1.07	J	4.88	1	27.1
11SD020006	20110428	SD	1,2,3,7,8,9-HXCDD	DIOX	4.47	J	Y	P	NG/KG	4.47	J	4.56	1	26
11SD020006-D	20110428	SD	1,2,3,7,8,9-HXCDD	DIOX	2.88	J	Y	P	NG/KG	2.88	J	4.89	1	27.3
11SD020612	20110428	SD	1,2,3,7,8,9-HXCDD	DIOX	4.62	J	Y	P	NG/KG	4.62	J	4.88	1	27.1
11SD060006	20111117	SD	1,2,3,7,8,9-HXCDD	DIOX	4.42	J	Y	P	NG/KG	4.420000	J	4.67	1	27
11SD020006	20110428	SD	1,2,3,7,8-PECDD	DIOX	1.38	J	Y	PW	NG/KG	1.38	JK	4.56	1	26
11SD020006-D	20110428	SD	1,2,3,7,8-PECDD	DIOX	0.833	J	Y	P	NG/KG	0.833	J	4.89	1	27.3
11SD020612	20110428	SD	1,2,3,7,8-PECDD	DIOX	1.08	J	Y	P	NG/KG	1.08	J	4.88	1	27.1
11SD020006	20110428	SD	1,2,3,7,8-PECDF	DIOX	1.02	J	Y	P	NG/KG	1.02	J	4.56	1	26
11SD020006-D	20110428	SD	1,2,3,7,8-PECDF	DIOX	0.78	J	Y	P	NG/KG	0.78	J	4.89	1	27.3
11SD020612	20110428	SD	1,2,3,7,8-PECDF	DIOX	0.562	J	Y	P	NG/KG	0.562	J	4.88	1	27.1
11SD010612	20110428	SD	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	1140	UJ	N	C	UG/KG	2250	YU	2250	5	27.6
11SD020006-D	20110428	SD	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	204	UJ	N	C	UG/KG	403	YU	403	1	18.6
11SD030006	20110428	SD	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	216	UJ	N	C	UG/KG	426	YU	426	1	26.5
11SD040006	20110428	SD	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	223	UJ	N	C	UG/KG	441	YU	441	1	28.5
11SD040612	20110428	SD	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	224	UJ	N	C	UG/KG	442	YU	442	1	26.8
11SD020006	20110428	SD	2,3,4,6,7,8-HXCDF	DIOX	1.36	J	Y	P	NG/KG	1.36	J	4.56	1	26
11SD020006-D	20110428	SD	2,3,4,6,7,8-HXCDF	DIOX	0.948	J	Y	P	NG/KG	0.948	J	4.89	1	27.3
11SD020612	20110428	SD	2,3,4,6,7,8-HXCDF	DIOX	1.15	J	Y	P	NG/KG	1.15	J	4.88	1	27.1
11SD020006	20110428	SD	2,3,4,7,8-PECDF	DIOX	0.559	J	Y	P	NG/KG	0.559	J	4.56	1	26
11SD020612	20110428	SD	2,3,4,7,8-PECDF	DIOX	0.48	J	Y	P	NG/KG	0.48	J	4.88	1	27.1
11SD020006	20110428	SD	2,3,7,8-TCDD	DIOX	0.494	J	Y	P	NG/KG	0.494	J	0.911	1	26
11SD060006	20111117	SD	2,3,7,8-TCDD	DIOX	0.657	J	Y	P	NG/KG	.657000	J	0.934	1	27
11SD020006	20110428	SD	2,3,7,8-TCDF	DIOX	0.689	U	N	A	NG/KG	0.689	J	0.911	1	26
11SD020006-D	20110428	SD	2,3,7,8-TCDF	DIOX	0.754	U	N	A	NG/KG	0.754	J	0.977	1	27.3
11SD020612	20110428	SD	2,3,7,8-TCDF	DIOX	0.576	U	N	A	NG/KG	0.576	J	0.976	1	27.1
11SD060006	20111117	SD	2,3,7,8-TCDF	DIOX	0.622	UJ	N	H	NG/KG	.357000	J	0.934	1	27

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SD010006	20110428	SD	2,4-DINITROPHENOL	OS	11800	UJ	N	C	UG/KG	23400	UX	23400	5	31.3
11SD010612	20110428	SD	2,4-DINITROPHENOL	OS	11400	UJ	N	C	UG/KG	22500	UX	22500	5	27.6
11SD020006	20110428	SD	2,4-DINITROPHENOL	OS	2080	UJ	N	C	UG/KG	4120	UX	4120	1	21.4
11SD020612	20110428	SD	2,4-DINITROPHENOL	OS	2080	UJ	N	C	UG/KG	4110	UX	4110	1	22.2
11SD030006	20110428	SD	2,4-DINITROPHENOL	OS	2160	UJ	N	C	UG/KG	4260	UX	4260	1	26.5
11SD030612	20110428	SD	2,4-DINITROPHENOL	OS	1850	UJ	N	C	UG/KG	3660	UX	3660	1	14.3
11SD030006	20110428	SD	2,4-DINITROTOLUENE	OS	216	UJ	N	C	UG/KG	426	UX	426	1	26.5
11SD010006	20110428	SD	2-CHLORONAPHTHALENE	OS	1180	UJ	N	C	UG/KG	2340	UX	2340	5	31.3
11SD020006	20110428	SD	2-CHLORONAPHTHALENE	OS	208	UJ	N	C	UG/KG	412	UX	412	1	21.4
11SD020006-D	20110428	SD	2-CHLORONAPHTHALENE	OS	204	UJ	N	C	UG/KG	403	UX	403	1	18.6
11SD020612	20110428	SD	2-CHLORONAPHTHALENE	OS	208	UJ	N	C	UG/KG	411	UX	411	1	22.2
11SD030006	20110428	SD	2-CHLORONAPHTHALENE	OS	216	UJ	N	C	UG/KG	426	UX	426	1	26.5
11SD030612	20110428	SD	2-CHLORONAPHTHALENE	OS	185	UJ	N	C	UG/KG	366	UX	366	1	14.3
11SD040006	20110428	SD	2-CHLORONAPHTHALENE	OS	223	UJ	N	C	UG/KG	441	UX	441	1	28.5
11SD040612	20110428	SD	2-CHLORONAPHTHALENE	OS	224	UJ	N	C	UG/KG	442	UX	442	1	26.8
11SD040612	20110428	SD	2-METHYLNAPHTHALENE	PAH	2.85	J	Y	P	UG/KG	2.85	J	8.94	1	26.8
11SD020006-D	20110428	SD	3,3'-DICHLOROBENZIDINE	OS	204	UJ	N	C	UG/KG	403	UX	403	1	18.6
11SD040006	20110428	SD	3,3'-DICHLOROBENZIDINE	OS	223	UJ	N	C	UG/KG	441	UX	441	1	28.5
11SD040612	20110428	SD	3,3'-DICHLOROBENZIDINE	OS	224	UJ	N	C	UG/KG	442	UX	442	1	26.8
11SD010006	20110428	SD	4,4'-DDD	PEST	0.328	J	Y	PU	UG/KG	0.328	JXMP	0.926	1	31.3
11SD010612	20110428	SD	4,4'-DDD	PEST	1.13	J	Y	U	UG/KG	1.13	XMP	0.895	1	27.6
11SD010612	20110428	SD	4,4'-DDE	PEST	3.09	J	Y	U	UG/KG	3.09	P	0.895	1	27.6
11SD010612	20110428	SD	4,4'-DDT	PEST	1.45	J	Y	U	UG/KG	1.45	XMP	0.895	1	27.6
11SD010006	20110428	SD	4,6-DINITRO-2-METHYLPHENOL	OS	11800	UJ	N	C	UG/KG	23400	UX	23400	5	31.3
11SD010612	20110428	SD	4,6-DINITRO-2-METHYLPHENOL	OS	11400	UJ	N	C	UG/KG	22500	UX	22500	5	27.6
11SD020006	20110428	SD	4,6-DINITRO-2-METHYLPHENOL	OS	2080	UJ	N	C	UG/KG	4120	UX	4120	1	21.4
11SD020612	20110428	SD	4,6-DINITRO-2-METHYLPHENOL	OS	2080	UJ	N	C	UG/KG	4110	UX	4110	1	22.2
11SD030006	20110428	SD	4,6-DINITRO-2-METHYLPHENOL	OS	2160	UJ	N	C	UG/KG	4260	UX	4260	1	26.5
11SD030612	20110428	SD	4,6-DINITRO-2-METHYLPHENOL	OS	1850	UJ	N	C	UG/KG	3660	UX	3660	1	14.3
11SD010006	20110428	SD	4-CHLOROPHENYL PHENYL ETHER	OS	1180	UJ	N	C	UG/KG	2340	UX	2340	5	31.3
11SD020006	20110428	SD	4-CHLOROPHENYL PHENYL ETHER	OS	208	UJ	N	C	UG/KG	412	UX	412	1	21.4
11SD020612	20110428	SD	4-CHLOROPHENYL PHENYL ETHER	OS	208	UJ	N	C	UG/KG	411	UX	411	1	22.2
11SD030612	20110428	SD	4-CHLOROPHENYL PHENYL ETHER	OS	185	UJ	N	C	UG/KG	366	UX	366	1	14.3
11SD010006	20110428	SD	4-NITROANILINE	OS	4730	UJ	N	C	UG/KG	9210	UX	9210	5	31.3
11SD010612	20110428	SD	4-NITROANILINE	OS	4540	UJ	N	C	UG/KG	8860	UX	8860	5	27.6
11SD020006	20110428	SD	4-NITROANILINE	OS	832	UJ	N	C	UG/KG	1620	UX	1620	1	21.4
11SD020612	20110428	SD	4-NITROANILINE	OS	830	UJ	N	C	UG/KG	1620	UX	1620	1	22.2
11SD030006	20110428	SD	4-NITROANILINE	OS	861	UJ	N	C	UG/KG	1680	UX	1680	1	26.5
11SD030612	20110428	SD	4-NITROANILINE	OS	739	UJ	N	C	UG/KG	1440	UX	1440	1	14.3
11SD010006	20110428	SD	ACENAPHTHYLENE	PAH	27	J	Y	P	UG/KG	27	JD	47.3	5	31.3
11SD020006	20110428	SD	ACENAPHTHYLENE	PAH	7.96	J	Y	P	UG/KG	7.96	J	8.32	1	21.4
11SD020006-D	20110428	SD	ACENAPHTHYLENE	PAH	2.6	J	Y	P	UG/KG	2.6	J	8.14	1	18.6
11SD020612	20110428	SD	ACENAPHTHYLENE	PAH	6.11	J	Y	P	UG/KG	6.11	J	8.3	1	22.2
11SD030006	20110428	SD	ACENAPHTHYLENE	PAH	6.72	J	Y	P	UG/KG	6.72	J	8.61	1	26.5
11SD040612	20110428	SD	ACENAPHTHYLENE	PAH	4.49	J	Y	P	UG/KG	4.49	J	8.94	1	26.8
11SD010612	20110428	SD	ALPHA-BHC	PEST	2.02	J	Y	U	UG/KG	2.02	P	0.895	1	27.6
11SD020006	20110428	SD	ALUMINUM	M	6800	J	Y	G	MG/KG	6800	D	26	2	21.4
11SD020006-D	20110428	SD	ALUMINUM	M	11400	J	Y	G	MG/KG	11400	D	25.2	2	18.6
11SD010006	20110428	SD	ANTHRACENE	PAH	28.6	J	Y	P	UG/KG	28.6	JD	47.3	5	31.3
11SD010612	20110428	SD	ANTHRACENE	PAH	20.7	J	Y	P	UG/KG	20.7	JD	45.4	5	27.6
11SD020006-D	20110428	SD	ANTHRACENE	PAH	2.68	J	Y	P	UG/KG	2.68	J	8.14	1	18.6
11SD020612	20110428	SD	ANTHRACENE	PAH	7.63	J	Y	P	UG/KG	7.63	J	8.3	1	22.2
11SD030006	20110428	SD	ANTHRACENE	PAH	6.96	J	Y	P	UG/KG	6.96	J	8.61	1	26.5
11SD040612	20110428	SD	ANTHRACENE	PAH	4.26	J	Y	P	UG/KG	4.26	J	8.94	1	26.8
11SD010006	20110428	SD	ANTIMONY	M	1.15	UJ	N	D	MG/KG	1.43	UN	1.43	2	31.3
11SD010612	20110428	SD	ANTIMONY	M	0.637	J	Y	DP	MG/KG	0.637	JN	0.694	1	27.6
11SD020006	20110428	SD	AROCLOR-1260	PCB	12.7	J	Y	P	UG/KG	12.7		21.1	1	21.4
11SD020006-D	20110428	SD	AROCLOR-1260	PCB	7.17	J	Y	P	UG/KG	7.17		20.2	1	18.6
11SD020612	20110428	SD	AROCLOR-1260	PCB	7.95	J	Y	P	UG/KG	7.95		20.9	1	22.2
11SD030006	20110428	SD	AROCLOR-1260	PCB	10.3	J	Y	P	UG/KG	10.3		22.2	1	26.5
11SD010006	20110428	SD	BENZALDEHYDE	OS	1180	UJ	N	C	UG/KG	2340	YU	2340	5	31.3
11SD010612	20110428	SD	BENZALDEHYDE	OS	1140	UJ	N	C	UG/KG	2250	YU	2250	5	27.6
11SD020006	20110428	SD	BENZALDEHYDE	OS	208	UJ	N	C	UG/KG	412	YU	412	1	21.4
11SD020006-D	20110428	SD	BENZALDEHYDE	OS	204	UJ	N	C	UG/KG	403	YU	403	1	18.6
11SD020612	20110428	SD	BENZALDEHYDE	OS	208	UJ	N	C	UG/KG	411	YU	411	1	22.2
11SD030006	20110428	SD	BENZALDEHYDE	OS	216	UJ	N	C	UG/KG	426	YU	426	1	26.5
11SD030612	20110428	SD	BENZALDEHYDE	OS	185	UJ	N	C	UG/KG	366	YU	366	1	14.3
11SD040006	20110428	SD	BENZALDEHYDE	OS	223	UJ	N	C	UG/KG	441	YU	441	1	28.5
11SD040612	20110428	SD	BENZALDEHYDE	OS	224	UJ	N	C	UG/KG	442	YU	442	1	26.8
11SD020006-D	20110428	SD	BENZO(A)ANTHRACENE	PAH	7.22	J	Y	P	UG/KG	7.22	J	8.14	1	18.6
11SD040006	20110428	SD	BENZO(A)ANTHRACENE	PAH	3.34	J	Y	P	UG/KG	3.34	J	8.91	1	28.5
11SD020006	20110428	SD	BENZO(A)PYRENE	PAH	32.6	J	Y	G	UG/KG	32.6		8.32	1	21.4
11SD020006-D	20110428	SD	BENZO(A)PYRENE	PAH	9.44	J	Y	G	UG/KG	9.44		8.14	1	18.6
11SD030612	20110428	SD	BENZO(A)PYRENE	PAH	5.92	J	Y	P	UG/KG	5.92	J	7.39	1	14.3
11SD040006	20110428	SD	BENZO(A)PYRENE	PAH	5.01	J	Y	P	UG/KG	5.01	J	8.91	1	28.5
11SD020006	20110428	SD	BENZO(B)FLUORANTHENE	PAH	84.8	J	Y	G	UG/KG	84.8		8.32	1	21.4
11SD020006-D	20110428	SD	BENZO(B)FLUORANTHENE	PAH	14.4	J	Y	G	UG/KG	14.4		8.14	1	18.6
11SD040006	20110428	SD	BENZO(B)FLUORANTHENE	PAH	7.48	J	Y	P	UG/KG	7.48	J	8.91	1	28.5
11SD020006	20110428	SD	BENZO(G,H,I)PERYLENE	PAH	45.7	J	Y	G	UG/KG	45.7		8.32	1	21.4
11SD020006-D	20110428	SD	BENZO(G,H,I)PERYLENE	PAH	12.6	J	Y	G	UG/KG	12.6		8.14	1	18.6
11SD030612	20110428	SD	BENZO(G,H,I)PERYLENE	PAH	6.61	J	Y	P	UG/KG	6.61	J	7.39	1	14.3

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SD040006	20110428	SD	BENZO(G,H,I)PERYLENE	PAH	6.85	J	Y	P	UG/KG	6.85	J	8.91	1	28.5
11SD020006	20110428	SD	BENZO(K)FLUORANTHENE	PAH	27.2	J	Y	G	UG/KG	27.2		8.32	1	21.4
11SD020006-D	20110428	SD	BENZO(K)FLUORANTHENE	PAH	7.04	J	Y	GP	UG/KG	7.04	J	8.14	1	18.6
11SD030612	20110428	SD	BENZO(K)FLUORANTHENE	PAH	5.11	J	Y	P	UG/KG	5.11	J	7.39	1	14.3
11SD040006	20110428	SD	BENZO(K)FLUORANTHENE	PAH	3.9	J	Y	P	UG/KG	3.9	J	8.91	1	28.5
11SD010006	20110428	SD	BERYLLIUM	M	0.551	J	Y	P	MG/KG	0.551	JD	0.717	2	31.3
11SD010006	20110428	SD	CADMIUM	M	2.6	J	Y	CDF	MG/KG	2.6	XDN	0.717	2	31.3
11SD010612	20110428	SD	CADMIUM	M	2.48	J	Y	CDF	MG/KG	2.48	XN	0.347	1	27.6
11SD020006	20110428	SD	CADMIUM	M	0.95	J	Y	K	MG/KG	0.95	D	0.649	2	21.4
11SD020006-D	20110428	SD	CADMIUM	M	0.401	J	Y	P	MG/KG	0.401	JD	0.63	2	18.6
11SD020612	20110428	SD	CADMIUM	M	0.338	J	Y	P	MG/KG	0.338	JD	0.607	2	22.2
11SD030006	20110428	SD	CADMIUM	M	0.554	J	Y	P	MG/KG	0.554	JD	0.657	2	26.5
11SD030612	20110428	SD	CADMIUM	M	0.195	J	Y	P	MG/KG	0.195	JD	0.58	2	14.3
11SD040006	20110428	SD	CADMIUM	M	0.687	J	Y	K	MG/KG	0.687	D	0.679	2	28.5
11SD040612	20110428	SD	CADMIUM	M	0.601	J	Y	P	MG/KG	0.601	JD	0.683	2	26.8
11SD020006	20110428	SD	CALCIUM	M	46000	J	Y	G	MG/KG	46000	D	649	2	21.4
11SD020006-D	20110428	SD	CALCIUM	M	1640	J	Y	G	MG/KG	1640	D	630	2	18.6
11SD020006	20110428	SD	CHRYSENE	PAH	64.5	J	Y	G	UG/KG	64.5		8.32	1	21.4
11SD020006-D	20110428	SD	CHRYSENE	PAH	11.1	J	Y	G	UG/KG	11.1		8.14	1	18.6
11SD040006	20110428	SD	CHRYSENE	PAH	5.68	J	Y	P	UG/KG	5.68	J	8.91	1	28.5
11SD010006	20110428	SD	CYANIDE	MISC	0.383	UJ	N	D	MG/KG	1.15	UN*	1.15	1	31.3
11SD020006	20110428	SD	CYANIDE	MISC	0.395	J	Y	P	MG/KG	0.395	J	0.892	1	21.4
11SD020006-D	20110428	SD	CYANIDE	MISC	0.179	J	Y	P	MG/KG	0.179	J	0.878	1	18.6
11SD020612	20110428	SD	CYANIDE	MISC	0.201	J	Y	P	MG/KG	0.201	J	0.91	1	22.2
11SD030006	20110428	SD	CYANIDE	MISC	0.266	J	Y	P	MG/KG	0.266	J	1.01	1	26.5
11SD040612	20110428	SD	CYANIDE	MISC	0.462	J	Y	P	MG/KG	0.462	J	0.907	1	26.8
11SD020006	20110428	SD	DELTA-BHC	PEST	0.422	UJ	N	C	UG/KG	0.831	UX	0.831	1	21.4
11SD020006-D	20110428	SD	DELTA-BHC	PEST	0.404	UJ	N	C	UG/KG	0.797	UX	0.797	1	18.6
11SD020612	20110428	SD	DELTA-BHC	PEST	0.418	UJ	N	C	UG/KG	0.823	UX	0.823	1	22.2
11SD030612	20110428	SD	DELTA-BHC	PEST	0.386	UJ	N	C	UG/KG	0.761	UX	0.761	1	14.3
11SD010006	20110428	SD	DIBENZO(A,H)ANTHRACENE	PAH	29.7	J	Y	P	UG/KG	29.7	JD	47.3	5	31.3
11SD020006-D	20110428	SD	DIBENZO(A,H)ANTHRACENE	PAH	7.39	J	Y	P	UG/KG	7.39	J	8.14	1	18.6
11SD010006	20110428	SD	DIELDRIN	PEST	0.488	UJ	N	HR	UG/KG	0.962	UH2	0.962	1	31.3
11SD010612	20110428	SD	DIELDRIN	PEST	0.446	UJ	N	HR	UG/KG	0.878	UH2	0.878	1	27.6
11SD020006	20110428	SD	DIELDRIN	PEST	0.411	UJ	N	HR	UG/KG	0.81	UH2	0.81	1	21.4
11SD020006-D	20110428	SD	DIELDRIN	PEST	0.399	UJ	N	HR	UG/KG	0.787	UH2	0.787	1	18.6
11SD020612	20110428	SD	DIELDRIN	PEST	0.42	UJ	N	HR	UG/KG	0.829	UH2	0.829	1	22.2
11SD030006	20110428	SD	DIELDRIN	PEST	0.445	UJ	N	HR	UG/KG	0.876	UH2	0.876	1	26.5
11SD030612	20110428	SD	DIELDRIN	PEST	0.379	UJ	N	HR	UG/KG	0.747	UH2	0.747	1	14.3
11SD040006	20110428	SD	DIELDRIN	PEST	0.448	UJ	N	HR	UG/KG	0.884	UH2	0.884	1	28.5
11SD040612	20110428	SD	DIELDRIN	PEST	0.459	UJ	N	H	UG/KG	0.904	UH2	0.904	1	26.8
11SD010006	20110428	SD	ENDOSULFAN I	PEST	0.488	UJ	N	HR	UG/KG	0.962	UH2	0.962	1	31.3
11SD010612	20110428	SD	ENDOSULFAN I	PEST	0.446	UJ	N	HR	UG/KG	0.878	UH2	0.878	1	27.6
11SD020006	20110428	SD	ENDOSULFAN I	PEST	0.411	UJ	N	HR	UG/KG	0.81	UH2	0.81	1	21.4
11SD020006-D	20110428	SD	ENDOSULFAN I	PEST	0.399	UJ	N	HR	UG/KG	0.787	UH2	0.787	1	18.6
11SD020612	20110428	SD	ENDOSULFAN I	PEST	0.42	UJ	N	HR	UG/KG	0.829	UH2	0.829	1	22.2
11SD030006	20110428	SD	ENDOSULFAN I	PEST	0.445	UJ	N	HR	UG/KG	0.876	UH2	0.876	1	26.5
11SD030612	20110428	SD	ENDOSULFAN I	PEST	0.379	UJ	N	HR	UG/KG	0.747	UH2	0.747	1	14.3
11SD040006	20110428	SD	ENDOSULFAN I	PEST	0.448	UJ	N	HR	UG/KG	0.884	UH2	0.884	1	28.5
11SD040612	20110428	SD	ENDOSULFAN I	PEST	0.459	UJ	N	H	UG/KG	0.904	UH2	0.904	1	26.8
11SD010006	20110428	SD	ENDOSULFAN II	PEST	0.488	UJ	N	HR	UG/KG	0.962	UH2	0.962	1	31.3
11SD010612	20110428	SD	ENDOSULFAN II	PEST	0.446	UJ	N	HR	UG/KG	0.878	UH2	0.878	1	27.6
11SD020006	20110428	SD	ENDOSULFAN II	PEST	0.411	UJ	N	HR	UG/KG	0.81	UH2	0.81	1	21.4
11SD020006-D	20110428	SD	ENDOSULFAN II	PEST	0.399	UJ	N	HR	UG/KG	0.787	UH2	0.787	1	18.6
11SD020612	20110428	SD	ENDOSULFAN II	PEST	0.42	UJ	N	HR	UG/KG	0.829	UH2	0.829	1	22.2
11SD030006	20110428	SD	ENDOSULFAN II	PEST	0.445	UJ	N	HR	UG/KG	0.876	UH2	0.876	1	26.5
11SD030612	20110428	SD	ENDOSULFAN II	PEST	0.379	UJ	N	HR	UG/KG	0.747	UH2	0.747	1	14.3
11SD040006	20110428	SD	ENDOSULFAN II	PEST	0.448	UJ	N	HR	UG/KG	0.884	UH2	0.884	1	28.5
11SD040612	20110428	SD	ENDOSULFAN II	PEST	0.459	UJ	N	H	UG/KG	0.904	UH2	0.904	1	26.8
11SD010006	20110428	SD	ENDRIN	PEST	0.637	J	Y	HPR	UG/KG	0.637	JH2	0.962	1	31.3
11SD010612	20110428	SD	ENDRIN	PEST	0.747	J	Y	HPRU	UG/KG	0.747	JH2P	0.878	1	27.6
11SD020006	20110428	SD	ENDRIN	PEST	0.411	UJ	N	HR	UG/KG	0.81	UH2	0.81	1	21.4
11SD020006-D	20110428	SD	ENDRIN	PEST	0.399	UJ	N	HR	UG/KG	0.787	UH2	0.787	1	18.6
11SD020612	20110428	SD	ENDRIN	PEST	0.42	UJ	N	HR	UG/KG	0.829	UH2	0.829	1	22.2
11SD030006	20110428	SD	ENDRIN	PEST	0.445	UJ	N	HR	UG/KG	0.876	UH2	0.876	1	26.5
11SD030612	20110428	SD	ENDRIN	PEST	0.379	UJ	N	HR	UG/KG	0.747	UH2	0.747	1	14.3
11SD040006	20110428	SD	ENDRIN	PEST	0.448	UJ	N	HR	UG/KG	0.884	UH2	0.884	1	28.5
11SD040612	20110428	SD	ENDRIN	PEST	0.459	UJ	N	H	UG/KG	0.904	UH2	0.904	1	26.8
11SD010006	20110428	SD	ENDRIN ALDEHYDE	PEST	0.488	UJ	N	HR	UG/KG	0.962	UH2	0.962	1	31.3
11SD010612	20110428	SD	ENDRIN ALDEHYDE	PEST	0.446	UJ	N	HR	UG/KG	0.878	UH2	0.878	1	27.6
11SD020006	20110428	SD	ENDRIN ALDEHYDE	PEST	0.411	UJ	N	HR	UG/KG	0.81	UH2	0.81	1	21.4
11SD020006-D	20110428	SD	ENDRIN ALDEHYDE	PEST	0.399	UJ	N	HR	UG/KG	0.787	UH2	0.787	1	18.6
11SD020612	20110428	SD	ENDRIN ALDEHYDE	PEST	0.42	UJ	N	HR	UG/KG	0.829	UH2	0.829	1	22.2
11SD030006	20110428	SD	ENDRIN ALDEHYDE	PEST	0.445	UJ	N	HR	UG/KG	0.876	UH2	0.876	1	26.5
11SD030612	20110428	SD	ENDRIN ALDEHYDE	PEST	0.379	UJ	N	HR	UG/KG	0.747	UH2	0.747	1	14.3
11SD040006	20110428	SD	ENDRIN ALDEHYDE	PEST	0.448	UJ	N	HR	UG/KG	0.884	UH2	0.884	1	28.5
11SD040612	20110428	SD	ENDRIN ALDEHYDE	PEST	0.459	UJ	N	H	UG/KG	0.904	UH2	0.904	1	26.8
11SD020006	20110428	SD	FLUORANTHENE	PAH	52.8	J	Y	G	UG/KG	52.8		8.32	1	21.4
11SD020006-D	20110428	SD	FLUORANTHENE	PAH	14.8	J	Y	G	UG/KG	14.8		8.14	1	18.6
11SD040006	20110428	SD	FLUORANTHENE	PAH	6.68	J	Y	P	UG/KG	6.68	J	8.91	1	28.5
11SD020006	20110428	SD	GAMMA-CHLORDANE	PEST	0.623	J	Y	P	UG/KG	0.623	J	0.831	1	21.4

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SD020612	20110428	SD	GAMMA-CHLORDANE	PEST	0.182	J	Y	CPU	UG/KG	0.182	JP	0.823	1	22.2
11SD030006	20110428	SD	HEXACHLOROBUTADIENE	OS	216	UJ	N	C	UG/KG	426	UX	426	1	26.5
11SD010006	20110428	SD	HEXACHLOROCYCLOPENTADIENE	OS	1180	UJ	N	C	UG/KG	2340	UX	2340	5	31.3
11SD020006	20110428	SD	HEXACHLOROCYCLOPENTADIENE	OS	208	UJ	N	C	UG/KG	412	UX	412	1	21.4
11SD020612	20110428	SD	HEXACHLOROCYCLOPENTADIENE	OS	208	UJ	N	C	UG/KG	411	UX	411	1	22.2
11SD030006	20110428	SD	HEXACHLOROCYCLOPENTADIENE	OS	216	UJ	N	C	UG/KG	426	UX	426	1	26.5
11SD030612	20110428	SD	HEXACHLOROCYCLOPENTADIENE	OS	185	UJ	N	C	UG/KG	366	UX	366	1	14.3
11SD020006	20110428	SD	INDENO(1,2,3-CD)PYRENE	PAH	39.3	J	Y	G	UG/KG	39.3		8.32	1	21.4
11SD020006-D	20110428	SD	INDENO(1,2,3-CD)PYRENE	PAH	8.81	J	Y	G	UG/KG	8.81		8.14	1	18.6
11SD030612	20110428	SD	INDENO(1,2,3-CD)PYRENE	PAH	5.41	J	Y	P	UG/KG	5.41	J	7.39	1	14.3
11SD040006	20110428	SD	INDENO(1,2,3-CD)PYRENE	PAH	4.76	J	Y	P	UG/KG	4.76	J	8.91	1	28.5
11SD020006	20110428	SD	IRON	M	22200	J	Y	G	MG/KG	22200	D	13	2	21.4
11SD020006-D	20110428	SD	IRON	M	48700	J	Y	G	MG/KG	48700	D	12.6	2	18.6
11SD020006	20110428	SD	LEAD	M	79.6	J	Y	G	MG/KG	79.6	D	0.39	2	21.4
11SD020006-D	20110428	SD	LEAD	M	35.6	J	Y	G	MG/KG	35.6	D	0.378	2	18.6
11SD020006	20110428	SD	MAGNESIUM	M	1580	J	Y	G	MG/KG	1580	D	649	2	21.4
11SD020006-D	20110428	SD	MAGNESIUM	M	813	J	Y	G	MG/KG	813	D	630	2	18.6
11SD010006	20110428	SD	MANGANESE	M	2030	J	Y	F	MG/KG	2030	D	5.38	5	31.3
11SD010612	20110428	SD	MANGANESE	M	1060	J	Y	F	MG/KG	1060	D	5.2	5	27.6
11SD020006	20110428	SD	MANGANESE	M	2190	J	Y	G	MG/KG	2190	D	4.87	5	21.4
11SD020006-D	20110428	SD	MANGANESE	M	685	J	Y	G	MG/KG	685	D	1.89	2	18.6
11SD030612	20110428	SD	MERCURY	M	0.0337	J	Y	P	MG/KG	0.0337	J	0.034	1	14.3
11SD010006	20110428	SD	METHOXYCHLOR	PEST	0.488	UJ	N	HR	UG/KG	0.962	UH2	0.962	1	31.3
11SD010612	20110428	SD	METHOXYCHLOR	PEST	0.446	UJ	N	HR	UG/KG	0.878	UH2	0.878	1	27.6
11SD020006	20110428	SD	METHOXYCHLOR	PEST	0.411	UJ	N	CHR	UG/KG	0.81	UH2Y	0.81	1	21.4
11SD020006-D	20110428	SD	METHOXYCHLOR	PEST	0.399	UJ	N	CHR	UG/KG	0.787	UH2Y	0.787	1	18.6
11SD020612	20110428	SD	METHOXYCHLOR	PEST	0.42	UJ	N	CHR	UG/KG	0.829	UH2Y	0.829	1	22.2
11SD030006	20110428	SD	METHOXYCHLOR	PEST	0.445	UJ	N	CHR	UG/KG	0.876	UH2Y	0.876	1	26.5
11SD030612	20110428	SD	METHOXYCHLOR	PEST	0.379	UJ	N	CHR	UG/KG	0.747	UH2Y	0.747	1	14.3
11SD040006	20110428	SD	METHOXYCHLOR	PEST	0.448	UJ	N	HR	UG/KG	0.884	UH2	0.884	1	28.5
11SD040612	20110428	SD	METHOXYCHLOR	PEST	0.459	UJ	N	CH	UG/KG	0.904	UH2Y	0.904	1	26.8
11SD010612	20110428	SD	NAPHTHALENE	PAH	15.7	J	Y	EP	UG/KG	15.7	QJD	45.4	5	27.6
11SD020006	20110428	SD	NAPHTHALENE	PAH	3.01	J	Y	EP	UG/KG	3.01	QJ	8.32	1	21.4
11SD020612	20110428	SD	NAPHTHALENE	PAH	2.38	J	Y	EP	UG/KG	2.38	QJ	8.3	1	22.2
11SD010612	20110428	SD	N-NITROSO-DI-N-PROPYLAMINE	OS	1140	UJ	N	C	UG/KG	2250	YU	2250	5	27.6
11SD020006-D	20110428	SD	N-NITROSO-DI-N-PROPYLAMINE	OS	204	UJ	N	C	UG/KG	403	YU	403	1	18.6
11SD040006	20110428	SD	N-NITROSO-DI-N-PROPYLAMINE	OS	223	UJ	N	C	UG/KG	441	YU	441	1	28.5
11SD040612	20110428	SD	N-NITROSO-DI-N-PROPYLAMINE	OS	224	UJ	N	C	UG/KG	442	YU	442	1	26.8
11SD010006	20110428	SD	N-NITROSODIPHENYLAMINE	OS	1180	UJ	N	C	UG/KG	2340	QUX	2340	5	31.3
11MWT0101	20111212	GW	1,1,1-TRICHLOROETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201	20111214	GW	1,1,1-TRICHLOROETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201-D	20111214	GW	1,1,1-TRICHLOROETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0301	20111214	GW	1,1,1-TRICHLOROETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0401	20111215	GW	1,1,1-TRICHLOROETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0101	20111212	GW	1,1,2,2-TETRACHLOROETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201	20111214	GW	1,1,2,2-TETRACHLOROETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201-D	20111214	GW	1,1,2,2-TETRACHLOROETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0301	20111214	GW	1,1,2,2-TETRACHLOROETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0401	20111215	GW	1,1,2,2-TETRACHLOROETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0101	20111212	GW	1,1,2-TRICHLOROETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201	20111214	GW	1,1,2-TRICHLOROETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201-D	20111214	GW	1,1,2-TRICHLOROETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0301	20111214	GW	1,1,2-TRICHLOROETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0401	20111215	GW	1,1,2-TRICHLOROETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0101	20111212	GW	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0201	20111214	GW	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0201-D	20111214	GW	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0301	20111214	GW	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0401	20111215	GW	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0101	20111212	GW	1,1-DICHLOROETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201	20111214	GW	1,1-DICHLOROETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201-D	20111214	GW	1,1-DICHLOROETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0301	20111214	GW	1,1-DICHLOROETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0401	20111215	GW	1,1-DICHLOROETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0101	20111212	GW	1,1-DICHLOROETHENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201	20111214	GW	1,1-DICHLOROETHENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201-D	20111214	GW	1,1-DICHLOROETHENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0301	20111214	GW	1,1-DICHLOROETHENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0401	20111215	GW	1,1-DICHLOROETHENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0101	20111212	GW	1,2,3-TRICHLOROBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201	20111214	GW	1,2,3-TRICHLOROBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201-D	20111214	GW	1,2,3-TRICHLOROBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0301	20111214	GW	1,2,3-TRICHLOROBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0401	20111215	GW	1,2,3-TRICHLOROBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0101	20111212	GW	1,2,4-TRICHLOROBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201	20111214	GW	1,2,4-TRICHLOROBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201-D	20111214	GW	1,2,4-TRICHLOROBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0301	20111214	GW	1,2,4-TRICHLOROBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0401	20111215	GW	1,2,4-TRICHLOROBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0101	20111212	GW	1,2-DIBROMO-3-CHLOROPROPANE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0201	20111214	GW	1,2-DIBROMO-3-CHLOROPROPANE	OV	1	U	N		UG/L	2.000000	U	2	1	100

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11MWT0201-D	20111214	GW	1,2-DIBROMO-3-CHLOROPROPANE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0301	20111214	GW	1,2-DIBROMO-3-CHLOROPROPANE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0401	20111215	GW	1,2-DIBROMO-3-CHLOROPROPANE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0101	20111212	GW	1,2-DIBROMOETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201	20111214	GW	1,2-DIBROMOETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201-D	20111214	GW	1,2-DIBROMOETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0301	20111214	GW	1,2-DIBROMOETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0401	20111215	GW	1,2-DIBROMOETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0101	20111212	GW	1,2-DICHLOROBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201	20111214	GW	1,2-DICHLOROBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201-D	20111214	GW	1,2-DICHLOROBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0301	20111214	GW	1,2-DICHLOROBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0401	20111215	GW	1,2-DICHLOROBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0101	20111212	GW	1,2-DICHLOROETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201	20111214	GW	1,2-DICHLOROETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201-D	20111214	GW	1,2-DICHLOROETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0301	20111214	GW	1,2-DICHLOROETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0401	20111215	GW	1,2-DICHLOROETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0101	20111212	GW	1,2-DICHLOROPROPANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201	20111214	GW	1,2-DICHLOROPROPANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201-D	20111214	GW	1,2-DICHLOROPROPANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0301	20111214	GW	1,2-DICHLOROPROPANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0401	20111215	GW	1,2-DICHLOROPROPANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0101	20111212	GW	1,3-DICHLOROBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201	20111214	GW	1,3-DICHLOROBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201-D	20111214	GW	1,3-DICHLOROBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0301	20111214	GW	1,3-DICHLOROBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0401	20111215	GW	1,3-DICHLOROBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0101	20111212	GW	1,4-DICHLOROBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201	20111214	GW	1,4-DICHLOROBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201-D	20111214	GW	1,4-DICHLOROBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0301	20111214	GW	1,4-DICHLOROBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0401	20111215	GW	1,4-DICHLOROBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0101	20111212	GW	2-BUTANONE	OV	5	U	N		UG/L	10.000000	U	10	1	100
11MWT0201	20111214	GW	2-BUTANONE	OV	5	U	N		UG/L	10.000000	U	10	1	100
11MWT0201-D	20111214	GW	2-BUTANONE	OV	5	U	N		UG/L	10.000000	U	10	1	100
11MWT0301	20111214	GW	2-BUTANONE	OV	5	U	N		UG/L	10.000000	U	10	1	100
11MWT0401	20111215	GW	2-BUTANONE	OV	5	U	N		UG/L	10.000000	U	10	1	100
11MWT0101	20111212	GW	2-HEXANONE	OV	2.5	U	N		UG/L	5.000000	U	5	1	100
11MWT0201	20111214	GW	2-HEXANONE	OV	2.5	U	N		UG/L	5.000000	U	5	1	100
11MWT0201-D	20111214	GW	2-HEXANONE	OV	2.5	U	N		UG/L	5.000000	U	5	1	100
11MWT0301	20111214	GW	2-HEXANONE	OV	2.5	U	N		UG/L	5.000000	U	5	1	100
11MWT0401	20111215	GW	2-HEXANONE	OV	2.5	U	N		UG/L	5.000000	U	5	1	100
11MWT0101	20111212	GW	4-METHYL-2-PENTANONE	OV	2.5	U	N		UG/L	5.000000	U	5	1	100
11MWT0201	20111214	GW	4-METHYL-2-PENTANONE	OV	2.5	U	N		UG/L	5.000000	U	5	1	100
11MWT0201-D	20111214	GW	4-METHYL-2-PENTANONE	OV	2.5	U	N		UG/L	5.000000	U	5	1	100
11MWT0301	20111214	GW	4-METHYL-2-PENTANONE	OV	2.5	U	N		UG/L	5.000000	U	5	1	100
11MWT0401	20111215	GW	4-METHYL-2-PENTANONE	OV	2.5	U	N		UG/L	5.000000	U	5	1	100
11MWT0101	20111212	GW	ACETONE	OV	5	U	N		UG/L	10.000000	U	10	1	100
11MWT0201-D	20111214	GW	ACETONE	OV	5	U	N		UG/L	10.000000	U	10	1	100
11MWT0301	20111214	GW	ACETONE	OV	5	U	N		UG/L	10.000000	U	10	1	100
11MWT0401	20111215	GW	ACETONE	OV	5	U	N		UG/L	10.000000	U	10	1	100
11MWT0101	20111212	GW	BENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0401	20111215	GW	BENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0101	20111212	GW	BROMOCHLOROMETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201	20111214	GW	BROMOCHLOROMETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201-D	20111214	GW	BROMOCHLOROMETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0301	20111214	GW	BROMOCHLOROMETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0401	20111215	GW	BROMOCHLOROMETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0101	20111212	GW	BROMODICHLOROMETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201	20111214	GW	BROMODICHLOROMETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201-D	20111214	GW	BROMODICHLOROMETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0301	20111214	GW	BROMODICHLOROMETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0401	20111215	GW	BROMODICHLOROMETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0101	20111212	GW	BROMOFORM	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201	20111214	GW	BROMOFORM	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201-D	20111214	GW	BROMOFORM	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0301	20111214	GW	BROMOFORM	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0401	20111215	GW	BROMOFORM	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0101	20111212	GW	BROMOMETHANE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0201	20111214	GW	BROMOMETHANE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0201-D	20111214	GW	BROMOMETHANE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0301	20111214	GW	BROMOMETHANE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0401	20111215	GW	BROMOMETHANE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0201	20111214	GW	CARBON DISULFIDE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201-D	20111214	GW	CARBON DISULFIDE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0301	20111214	GW	CARBON DISULFIDE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0401	20111215	GW	CARBON DISULFIDE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0101	20111212	GW	CARBON TETRACHLORIDE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201	20111214	GW	CARBON TETRACHLORIDE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201-D	20111214	GW	CARBON TETRACHLORIDE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11MWT0301	20111214	GW	CARBON TETRACHLORIDE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0401	20111215	GW	CARBON TETRACHLORIDE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0101	20111212	GW	CHLOROBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201	20111214	GW	CHLOROBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201-D	20111214	GW	CHLOROBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0301	20111214	GW	CHLOROBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0401	20111215	GW	CHLOROBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0101	20111212	GW	CHLORODIBROMOMETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201	20111214	GW	CHLORODIBROMOMETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201-D	20111214	GW	CHLORODIBROMOMETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0301	20111214	GW	CHLORODIBROMOMETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0401	20111215	GW	CHLORODIBROMOMETHANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0101	20111212	GW	CHLOROETHANE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0201	20111214	GW	CHLOROETHANE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0201-D	20111214	GW	CHLOROETHANE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0301	20111214	GW	CHLOROETHANE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0401	20111215	GW	CHLOROETHANE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0101	20111212	GW	CHLOROFORM	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0401	20111215	GW	CHLOROFORM	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0101	20111212	GW	CIS-1,2-DICHLOROETHENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0301	20111214	GW	CIS-1,2-DICHLOROETHENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0401	20111215	GW	CIS-1,2-DICHLOROETHENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0101	20111212	GW	CIS-1,3-DICHLOROPROPENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201	20111214	GW	CIS-1,3-DICHLOROPROPENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201-D	20111214	GW	CIS-1,3-DICHLOROPROPENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0301	20111214	GW	CIS-1,3-DICHLOROPROPENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0401	20111215	GW	CIS-1,3-DICHLOROPROPENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0101	20111212	GW	CYCLOHEXANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201	20111214	GW	CYCLOHEXANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201-D	20111214	GW	CYCLOHEXANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0301	20111214	GW	CYCLOHEXANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0401	20111215	GW	CYCLOHEXANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0101	20111212	GW	DICHLORODIFLUOROMETHANE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0201	20111214	GW	DICHLORODIFLUOROMETHANE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0201-D	20111214	GW	DICHLORODIFLUOROMETHANE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0301	20111214	GW	DICHLORODIFLUOROMETHANE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0401	20111215	GW	DICHLORODIFLUOROMETHANE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0101	20111212	GW	ETHYLBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201-D	20111214	GW	ETHYLBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0401	20111215	GW	ETHYLBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0101	20111212	GW	ISOPROPYLBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201	20111214	GW	ISOPROPYLBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201-D	20111214	GW	ISOPROPYLBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0301	20111214	GW	ISOPROPYLBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0401	20111215	GW	ISOPROPYLBENZENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0101	20111212	GW	METHYL ACETATE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0201	20111214	GW	METHYL ACETATE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0201-D	20111214	GW	METHYL ACETATE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0301	20111214	GW	METHYL ACETATE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0401	20111215	GW	METHYL ACETATE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0101	20111212	GW	METHYL CYCLOHEXANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201	20111214	GW	METHYL CYCLOHEXANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201-D	20111214	GW	METHYL CYCLOHEXANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0301	20111214	GW	METHYL CYCLOHEXANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0401	20111215	GW	METHYL CYCLOHEXANE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0101	20111212	GW	METHYL TERT-BUTYL ETHER	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201	20111214	GW	METHYL TERT-BUTYL ETHER	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201-D	20111214	GW	METHYL TERT-BUTYL ETHER	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0301	20111214	GW	METHYL TERT-BUTYL ETHER	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0401	20111215	GW	METHYL TERT-BUTYL ETHER	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0101	20111212	GW	METHYLENE CHLORIDE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0201	20111214	GW	METHYLENE CHLORIDE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0201-D	20111214	GW	METHYLENE CHLORIDE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0301	20111214	GW	METHYLENE CHLORIDE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0401	20111215	GW	METHYLENE CHLORIDE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0101	20111212	GW	STYRENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201	20111214	GW	STYRENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201-D	20111214	GW	STYRENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0301	20111214	GW	STYRENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0401	20111215	GW	STYRENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0101	20111212	GW	TETRACHLOROETHENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0301	20111214	GW	TETRACHLOROETHENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0401	20111215	GW	TETRACHLOROETHENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0101	20111212	GW	TOLUENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0101	20111212	GW	TOTAL XYLENES	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201-D	20111214	GW	TOTAL XYLENES	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0401	20111215	GW	TOTAL XYLENES	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0101	20111212	GW	TRANS-1,2-DICHLOROETHENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0301	20111214	GW	TRANS-1,2-DICHLOROETHENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0401	20111215	GW	TRANS-1,2-DICHLOROETHENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0101	20111212	GW	TRANS-1,3-DICHLOROPROPENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11MWT0201	20111214	GW	TRANS-1,3-DICHLOROPROPENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0201-D	20111214	GW	TRANS-1,3-DICHLOROPROPENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0301	20111214	GW	TRANS-1,3-DICHLOROPROPENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0401	20111215	GW	TRANS-1,3-DICHLOROPROPENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0101	20111212	GW	TRICHLOROETHENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0401	20111215	GW	TRICHLOROETHENE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0101	20111212	GW	TRICHLOROFLUOROMETHANE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0201	20111214	GW	TRICHLOROFLUOROMETHANE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0201-D	20111214	GW	TRICHLOROFLUOROMETHANE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0301	20111214	GW	TRICHLOROFLUOROMETHANE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0401	20111215	GW	TRICHLOROFLUOROMETHANE	OV	1	U	N		UG/L	2.000000	U	2	1	100
11MWT0101	20111212	GW	VINYL CHLORIDE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0301	20111214	GW	VINYL CHLORIDE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11MWT0401	20111215	GW	VINYL CHLORIDE	OV	0.5	U	N		UG/L	1.000000	U	1	1	100
11SD020006-D	20110428	SD	1,2,3,4,7,8,9-HPCDF	DIOX	3.26	U	N		NG/KG	3.26	U	4.89	1	27.3
11SD050006	20111117	SD	1,2,3,4,7,8,9-HPCDF	DIOX	3.26	U	N		NG/KG	3.260000	U	4.88	1	29
11SD050006-D	20111117	SD	1,2,3,4,7,8,9-HPCDF	DIOX	3.32	U	N		NG/KG	3.320000	U	4.98	1	28
11SD050006	20111117	SD	1,2,3,4,7,8-HXCDD	DIOX	3.26	U	N		NG/KG	3.260000	U	4.88	1	29
11SD050006-D	20111117	SD	1,2,3,4,7,8-HXCDD	DIOX	3.32	U	N		NG/KG	3.320000	U	4.98	1	28
11SD020006-D	20110428	SD	1,2,3,4,7,8-HXCDF	DIOX	3.26	U	N		NG/KG	3.26	U	4.89	1	27.3
11SD050006	20111117	SD	1,2,3,4,7,8-HXCDF	DIOX	3.26	U	N		NG/KG	3.260000	U	4.88	1	29
11SD050006-D	20111117	SD	1,2,3,4,7,8-HXCDF	DIOX	3.32	U	N		NG/KG	3.320000	U	4.98	1	28
11SD060006	20111117	SD	1,2,3,4,7,8-HXCDF	DIOX	3.12	U	N		NG/KG	3.120000	U	4.67	1	27
11SD050006	20111117	SD	1,2,3,6,7,8-HXCDF	DIOX	3.26	U	N		NG/KG	3.260000	U	4.88	1	29
11SD050006-D	20111117	SD	1,2,3,6,7,8-HXCDF	DIOX	3.32	U	N		NG/KG	3.320000	U	4.98	1	28
11SD060006	20111117	SD	1,2,3,6,7,8-HXCDF	DIOX	3.12	U	N		NG/KG	3.120000	U	4.67	1	27
11SD050006	20111117	SD	1,2,3,7,8,9-HXCDD	DIOX	3.26	U	N		NG/KG	3.260000	U	4.88	1	29
11SD050006-D	20111117	SD	1,2,3,7,8,9-HXCDD	DIOX	3.32	U	N		NG/KG	3.320000	U	4.98	1	28
11SD020006	20110428	SD	1,2,3,7,8,9-HXCDF	DIOX	3.04	U	N		NG/KG	3.04	U	4.56	1	26
11SD020006-D	20110428	SD	1,2,3,7,8,9-HXCDF	DIOX	3.26	U	N		NG/KG	3.26	U	4.89	1	27.3
11SD020612	20110428	SD	1,2,3,7,8,9-HXCDF	DIOX	3.26	U	N		NG/KG	3.26	U	4.88	1	27.1
11SD050006	20111117	SD	1,2,3,7,8,9-HXCDF	DIOX	3.26	U	N		NG/KG	3.260000	U	4.88	1	29
11SD050006-D	20111117	SD	1,2,3,7,8,9-HXCDF	DIOX	3.32	U	N		NG/KG	3.320000	U	4.98	1	28
11SD060006	20111117	SD	1,2,3,7,8,9-HXCDF	DIOX	3.12	U	N		NG/KG	3.120000	U	4.67	1	27
11SD050006	20111117	SD	1,2,3,7,8-PECDD	DIOX	3.26	U	N		NG/KG	3.260000	U	4.88	1	29
11SD050006-D	20111117	SD	1,2,3,7,8-PECDD	DIOX	3.32	U	N		NG/KG	3.320000	U	4.98	1	28
11SD060006	20111117	SD	1,2,3,7,8-PECDD	DIOX	3.12	U	N		NG/KG	3.120000	U	4.67	1	27
11SD050006	20111117	SD	1,2,3,7,8-PECDF	DIOX	3.26	U	N		NG/KG	3.260000	U	4.88	1	29
11SD050006-D	20111117	SD	1,2,3,7,8-PECDF	DIOX	3.32	U	N		NG/KG	3.320000	U	4.98	1	28
11SD060006	20111117	SD	1,2,3,7,8-PECDF	DIOX	3.12	U	N		NG/KG	3.120000	U	4.67	1	27
11SD050006	20111117	SD	2,3,4,6,7,8-HXCDF	DIOX	3.26	U	N		NG/KG	3.260000	U	4.88	1	29
11SD050006-D	20111117	SD	2,3,4,6,7,8-HXCDF	DIOX	3.32	U	N		NG/KG	3.320000	U	4.98	1	28
11SD060006	20111117	SD	2,3,4,6,7,8-HXCDF	DIOX	3.12	U	N		NG/KG	3.120000	U	4.67	1	27
11SD020006-D	20110428	SD	2,3,4,7,8-PECDF	DIOX	3.26	U	N		NG/KG	3.26	U	4.89	1	27.3
11SD050006	20111117	SD	2,3,4,7,8-PECDF	DIOX	3.26	U	N		NG/KG	3.260000	U	4.88	1	29
11SD050006-D	20111117	SD	2,3,4,7,8-PECDF	DIOX	3.32	U	N		NG/KG	3.320000	U	4.98	1	28
11SD060006	20111117	SD	2,3,4,7,8-PECDF	DIOX	3.12	U	N		NG/KG	3.120000	U	4.67	1	27
11SD020006-D	20110428	SD	2,3,7,8-TCDD	DIOX	0.651	U	N		NG/KG	0.651	U	0.977	1	27.3
11SD020612	20110428	SD	2,3,7,8-TCDD	DIOX	0.65	U	N		NG/KG	0.65	U	0.976	1	27.1
11SD050006	20111117	SD	2,3,7,8-TCDD	DIOX	0.65	U	N		NG/KG	.650000	U	0.976	1	29
11SD050006-D	20111117	SD	2,3,7,8-TCDD	DIOX	0.663	U	N		NG/KG	.663000	U	0.995	1	28
11SD050006	20111117	SD	2,3,7,8-TCDF	DIOX	0.65	U	N		NG/KG	.650000	U	0.976	1	29
11SD050006-D	20111117	SD	2,3,7,8-TCDF	DIOX	0.663	U	N		NG/KG	.663000	U	0.995	1	28
11SD050006	20111117	SD	TOTAL PECDD	DIOX	3.26	U	N		NG/KG	3.260000	U	4.88	1	29
11SD050006-D	20111117	SD	TOTAL PECDD	DIOX	3.32	U	N		NG/KG	3.320000	U	4.98	1	28
11SD050006	20111117	SD	TOTAL PECDF	DIOX	3.26	U	N		NG/KG	3.260000	U	4.88	1	29
11SD050006-D	20111117	SD	TOTAL PECDF	DIOX	3.32	U	N		NG/KG	3.320000	U	4.98	1	28
11SD020006	20110428	SD	TOTAL TCDD	DIOX	0.607	U	N		NG/KG	0.607	U	0.911	1	26
11SD020006-D	20110428	SD	TOTAL TCDD	DIOX	0.651	U	N		NG/KG	0.651	U	0.977	1	27.3
11SD020612	20110428	SD	TOTAL TCDD	DIOX	0.65	U	N		NG/KG	0.65	U	0.976	1	27.1
11SD050006	20111117	SD	TOTAL TCDD	DIOX	0.65	U	N		NG/KG	.650000	U	0.976	1	29
11SD050006-D	20111117	SD	TOTAL TCDD	DIOX	0.663	U	N		NG/KG	.663000	U	0.995	1	28
11SD050006-D	20111117	SD	TOTAL TCDF	DIOX	0.663	U	N		NG/KG	.663000	U	0.995	1	28
11SD020006	20110428	SD	ANTIMONY	M	1.04	U	N		MG/KG	1.3	U	1.3	2	21.4
11SD020006-D	20110428	SD	ANTIMONY	M	1.01	U	N		MG/KG	1.26	U	1.26	2	18.6
11SD020612	20110428	SD	ANTIMONY	M	0.971	U	N		MG/KG	1.21	U	1.21	2	22.2
11SD030006	20110428	SD	ANTIMONY	M	1.05	U	N		MG/KG	1.31	U	1.31	2	26.5
11SD030612	20110428	SD	ANTIMONY	M	0.929	U	N		MG/KG	1.16	U	1.16	2	14.3
11SD040006	20110428	SD	ANTIMONY	M	1.09	U	N		MG/KG	1.36	U	1.36	2	28.5
11SD040612	20110428	SD	ANTIMONY	M	1.09	U	N		MG/KG	1.37	U	1.37	2	26.8
11SD020006-D	20110428	SD	SELENIUM	M	0.63	U	N		MG/KG	1.26	U	1.26	2	18.6
11SD020612	20110428	SD	SELENIUM	M	0.607	U	N		MG/KG	1.21	U	1.21	2	22.2
11SD040612	20110428	SD	SELENIUM	M	3.42	U	N		MG/KG	6.83	U	6.83	10	26.8
11SD010006	20110428	SD	SILVER	M	0.287	U	N		MG/KG	1.43	U	1.43	2	31.3
11SD010612	20110428	SD	SILVER	M	0.139	U	N		MG/KG	0.694	U	0.694	1	27.6
11SD020006	20110428	SD	SILVER	M	0.26	U	N		MG/KG	1.3	U	1.3	2	21.4
11SD020006-D	20110428	SD	SILVER	M	0.252	U	N		MG/KG	1.26	U	1.26	2	18.6
11SD020612	20110428	SD	SILVER	M	0.243	U	N		MG/KG	1.21	U	1.21	2	22.2
11SD030006	20110428	SD	SILVER	M	0.263	U	N		MG/KG	1.31	U	1.31	2	26.5
11SD030612	20110428	SD	SILVER	M	0.232	U	N		MG/KG	1.16	U	1.16	2	14.3
11SD040006	20110428	SD	SILVER	M	0.271	U	N		MG/KG	1.36	U	1.36	2	28.5

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SD040612	20110428	SD	SILVER	M	1.37	U	N		MG/KG	6.83	U	6.83	10	26.8
11SD020006	20110428	SD	SODIUM	M	390	U	N		MG/KG	649	UX	649	2	21.4
11SD020006-D	20110428	SD	SODIUM	M	378	U	N		MG/KG	630	UX	630	2	18.6
11SD020612	20110428	SD	SODIUM	M	364	U	N		MG/KG	607	UX	607	2	22.2
11SD030006	20110428	SD	SODIUM	M	394	U	N		MG/KG	657	UX	657	2	26.5
11SD030612	20110428	SD	SODIUM	M	348	U	N		MG/KG	580	UX	580	2	14.3
11SD040006	20110428	SD	SODIUM	M	407	U	N		MG/KG	679	UX	679	2	28.5
11SD040612	20110428	SD	SODIUM	M	410	U	N		MG/KG	683	UX	683	2	26.8
11SD010612	20110428	SD	THALLIUM	M	0.278	U	N		MG/KG	0.555	U	0.555	1	27.6
11SD020006-D	20110428	SD	THALLIUM	M	0.504	U	N		MG/KG	1.01	U	1.01	2	18.6
11SD020612	20110428	SD	THALLIUM	M	0.485	U	N		MG/KG	0.971	U	0.971	2	22.2
11SD030612	20110428	SD	THALLIUM	M	0.464	U	N		MG/KG	0.929	U	0.929	2	14.3
11SD040612	20110428	SD	THALLIUM	M	2.73	U	N		MG/KG	5.47	U	5.47	10	26.8
11SD010612	20110428	SD	CYANIDE	MISC	0.349	U	N		MG/KG	1.05	U	1.05	1	27.6
11SD030612	20110428	SD	CYANIDE	MISC	0.298	U	N		MG/KG	0.893	U	0.893	1	14.3
11SD040006	20110428	SD	CYANIDE	MISC	0.357	U	N		MG/KG	1.07	U	1.07	1	28.5
11SD010006	20110428	SD	1,1-BIPHENYL	OS	1180	U	N		UG/KG	2340	U	2340	5	31.3
11SD010612	20110428	SD	1,1-BIPHENYL	OS	1140	U	N		UG/KG	2250	U	2250	5	27.6
11SD020006	20110428	SD	1,1-BIPHENYL	OS	208	U	N		UG/KG	412	U	412	1	21.4
11SD020006-D	20110428	SD	1,1-BIPHENYL	OS	204	U	N		UG/KG	403	U	403	1	18.6
11SD020612	20110428	SD	1,1-BIPHENYL	OS	208	U	N		UG/KG	411	U	411	1	22.2
11SD030006	20110428	SD	1,1-BIPHENYL	OS	216	U	N		UG/KG	426	U	426	1	26.5
11SD030612	20110428	SD	1,1-BIPHENYL	OS	185	U	N		UG/KG	366	U	366	1	14.3
11SD040006	20110428	SD	1,1-BIPHENYL	OS	223	U	N		UG/KG	441	U	441	1	28.5
11SD040612	20110428	SD	1,1-BIPHENYL	OS	224	U	N		UG/KG	442	U	442	1	26.8
11SD010006	20110428	SD	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	1180	U	N		UG/KG	2340	U	2340	5	31.3
11SD020006	20110428	SD	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	208	U	N		UG/KG	412	U	412	1	21.4
11SD020612	20110428	SD	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	208	U	N		UG/KG	411	U	411	1	22.2
11SD030612	20110428	SD	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	185	U	N		UG/KG	366	U	366	1	14.3
11SD010006	20110428	SD	2,4,5-TRICHLOROPHENOL	OS	1180	U	N		UG/KG	2340	U	2340	5	31.3
11SD010612	20110428	SD	2,4,5-TRICHLOROPHENOL	OS	1140	U	N		UG/KG	2250	U	2250	5	27.6
11SD020006	20110428	SD	2,4,5-TRICHLOROPHENOL	OS	208	U	N		UG/KG	412	U	412	1	21.4
11SD020006-D	20110428	SD	2,4,5-TRICHLOROPHENOL	OS	204	U	N		UG/KG	403	U	403	1	18.6
11SD020612	20110428	SD	2,4,5-TRICHLOROPHENOL	OS	208	U	N		UG/KG	411	U	411	1	22.2
11SD030006	20110428	SD	2,4,5-TRICHLOROPHENOL	OS	216	U	N		UG/KG	426	U	426	1	26.5
11SD030612	20110428	SD	2,4,5-TRICHLOROPHENOL	OS	185	U	N		UG/KG	366	U	366	1	14.3
11SD040006	20110428	SD	2,4,5-TRICHLOROPHENOL	OS	223	U	N		UG/KG	441	U	441	1	28.5
11SD040612	20110428	SD	2,4,5-TRICHLOROPHENOL	OS	224	U	N		UG/KG	442	U	442	1	26.8
11SD010006	20110428	SD	2,4,6-TRICHLOROPHENOL	OS	1180	U	N		UG/KG	2340	U	2340	5	31.3
11SD010612	20110428	SD	2,4,6-TRICHLOROPHENOL	OS	1140	U	N		UG/KG	2250	U	2250	5	27.6
11SD020006	20110428	SD	2,4,6-TRICHLOROPHENOL	OS	208	U	N		UG/KG	412	U	412	1	21.4
11SD020006-D	20110428	SD	2,4,6-TRICHLOROPHENOL	OS	204	U	N		UG/KG	403	U	403	1	18.6
11SD020612	20110428	SD	2,4,6-TRICHLOROPHENOL	OS	208	U	N		UG/KG	411	U	411	1	22.2
11SD030006	20110428	SD	2,4,6-TRICHLOROPHENOL	OS	216	U	N		UG/KG	426	U	426	1	26.5
11SD030612	20110428	SD	2,4,6-TRICHLOROPHENOL	OS	185	U	N		UG/KG	366	U	366	1	14.3
11SD040006	20110428	SD	2,4,6-TRICHLOROPHENOL	OS	223	U	N		UG/KG	441	U	441	1	28.5
11SD040612	20110428	SD	2,4,6-TRICHLOROPHENOL	OS	224	U	N		UG/KG	442	U	442	1	26.8
11SD010006	20110428	SD	2,4-DICHLOROPHENOL	OS	1180	U	N		UG/KG	2340	U	2340	5	31.3
11SD010612	20110428	SD	2,4-DICHLOROPHENOL	OS	1140	U	N		UG/KG	2250	U	2250	5	27.6
11SD020006	20110428	SD	2,4-DICHLOROPHENOL	OS	208	U	N		UG/KG	412	U	412	1	21.4
11SD020006-D	20110428	SD	2,4-DICHLOROPHENOL	OS	204	U	N		UG/KG	403	U	403	1	18.6
11SD020612	20110428	SD	2,4-DICHLOROPHENOL	OS	208	U	N		UG/KG	411	U	411	1	22.2
11SD030006	20110428	SD	2,4-DICHLOROPHENOL	OS	216	U	N		UG/KG	426	U	426	1	26.5
11SD030612	20110428	SD	2,4-DICHLOROPHENOL	OS	185	U	N		UG/KG	366	U	366	1	14.3
11SD040006	20110428	SD	2,4-DICHLOROPHENOL	OS	223	U	N		UG/KG	441	U	441	1	28.5
11SD040612	20110428	SD	2,4-DICHLOROPHENOL	OS	224	U	N		UG/KG	442	U	442	1	26.8
11SD010006	20110428	SD	2,4-DIMETHYLPHENOL	OS	4730	U	N		UG/KG	9210	U	9210	5	31.3
11SD010612	20110428	SD	2,4-DIMETHYLPHENOL	OS	4540	U	N		UG/KG	8860	U	8860	5	27.6
11SD020006	20110428	SD	2,4-DIMETHYLPHENOL	OS	832	U	N		UG/KG	1620	U	1620	1	21.4
11SD020006-D	20110428	SD	2,4-DIMETHYLPHENOL	OS	814	U	N		UG/KG	1590	U	1590	1	18.6
11SD020612	20110428	SD	2,4-DIMETHYLPHENOL	OS	830	U	N		UG/KG	1620	U	1620	1	22.2
11SD030006	20110428	SD	2,4-DIMETHYLPHENOL	OS	861	U	N		UG/KG	1680	U	1680	1	26.5
11SD030612	20110428	SD	2,4-DIMETHYLPHENOL	OS	739	U	N		UG/KG	1440	U	1440	1	14.3
11SD040006	20110428	SD	2,4-DIMETHYLPHENOL	OS	891	U	N		UG/KG	1740	U	1740	1	28.5
11SD040612	20110428	SD	2,4-DIMETHYLPHENOL	OS	894	U	N		UG/KG	1740	U	1740	1	26.8
11SD020006-D	20110428	SD	2,4-DINITROPHENOL	OS	2040	U	N		UG/KG	4030	UX	4030	1	18.6
11SD040006	20110428	SD	2,4-DINITROPHENOL	OS	2230	U	N		UG/KG	4410	UX	4410	1	28.5
11SD040612	20110428	SD	2,4-DINITROPHENOL	OS	2240	U	N		UG/KG	4420	UX	4420	1	26.8
11SD010006	20110428	SD	2,4-DINITROTOLUENE	OS	1180	U	N		UG/KG	2340	U	2340	5	31.3
11SD010612	20110428	SD	2,4-DINITROTOLUENE	OS	1140	U	N		UG/KG	2250	U	2250	5	27.6
11SD020006	20110428	SD	2,4-DINITROTOLUENE	OS	208	U	N		UG/KG	412	U	412	1	21.4
11SD020006-D	20110428	SD	2,4-DINITROTOLUENE	OS	204	U	N		UG/KG	403	U	403	1	18.6
11SD020612	20110428	SD	2,4-DINITROTOLUENE	OS	208	U	N		UG/KG	411	U	411	1	22.2
11SD030612	20110428	SD	2,4-DINITROTOLUENE	OS	185	U	N		UG/KG	366	U	366	1	14.3
11SD040006	20110428	SD	2,4-DINITROTOLUENE	OS	223	U	N		UG/KG	441	U	441	1	28.5
11SD040612	20110428	SD	2,4-DINITROTOLUENE	OS	224	U	N		UG/KG	442	U	442	1	26.8
11SD010006	20110428	SD	2,6-DINITROTOLUENE	OS	1180	U	N		UG/KG	2340	U	2340	5	31.3
11SD010612	20110428	SD	2,6-DINITROTOLUENE	OS	1140	U	N		UG/KG	2250	U	2250	5	27.6
11SD020006	20110428	SD	2,6-DINITROTOLUENE	OS	208	U	N		UG/KG	412	U	412	1	21.4
11SD020006-D	20110428	SD	2,6-DINITROTOLUENE	OS	204	U	N		UG/KG	403	U	403	1	18.6
11SD020612	20110428	SD	2,6-DINITROTOLUENE	OS	208	U	N		UG/KG	411	U	411	1	22.2

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SD030006	20110428	SD	2,6-DINITROTOLUENE	OS	216	U	N		UG/KG	426	U	426	1	26.5
11SD030612	20110428	SD	2,6-DINITROTOLUENE	OS	185	U	N		UG/KG	366	U	366	1	14.3
11SD040006	20110428	SD	2,6-DINITROTOLUENE	OS	223	U	N		UG/KG	441	U	441	1	28.5
11SD040612	20110428	SD	2,6-DINITROTOLUENE	OS	224	U	N		UG/KG	442	U	442	1	26.8
11SD010612	20110428	SD	2-CHLORONAPHTHALENE	OS	1140	U	N		UG/KG	2250	U	2250	5	27.6
11SD010006	20110428	SD	2-CHLOROPHENOL	OS	1180	U	N		UG/KG	2340	U	2340	5	31.3
11SD010612	20110428	SD	2-CHLOROPHENOL	OS	1140	U	N		UG/KG	2250	U	2250	5	27.6
11SD020006	20110428	SD	2-CHLOROPHENOL	OS	208	U	N		UG/KG	412	U	412	1	21.4
11SD020006-D	20110428	SD	2-CHLOROPHENOL	OS	204	U	N		UG/KG	403	U	403	1	18.6
11SD020612	20110428	SD	2-CHLOROPHENOL	OS	208	U	N		UG/KG	411	U	411	1	22.2
11SD030006	20110428	SD	2-CHLOROPHENOL	OS	216	U	N		UG/KG	426	U	426	1	26.5
11SD030612	20110428	SD	2-CHLOROPHENOL	OS	185	U	N		UG/KG	366	U	366	1	14.3
11SD040006	20110428	SD	2-CHLOROPHENOL	OS	223	U	N		UG/KG	441	U	441	1	28.5
11SD040612	20110428	SD	2-CHLOROPHENOL	OS	224	U	N		UG/KG	442	U	442	1	26.8
11SD010006	20110428	SD	2-METHYLPHENOL	OS	1180	U	N		UG/KG	2340	U	2340	5	31.3
11SD010612	20110428	SD	2-METHYLPHENOL	OS	1140	U	N		UG/KG	2250	U	2250	5	27.6
11SD020006	20110428	SD	2-METHYLPHENOL	OS	208	U	N		UG/KG	412	U	412	1	21.4
11SD020006-D	20110428	SD	2-METHYLPHENOL	OS	204	U	N		UG/KG	403	U	403	1	18.6
11SD020612	20110428	SD	2-METHYLPHENOL	OS	208	U	N		UG/KG	411	U	411	1	22.2
11SD030006	20110428	SD	2-METHYLPHENOL	OS	216	U	N		UG/KG	426	U	426	1	26.5
11SD030612	20110428	SD	2-METHYLPHENOL	OS	185	U	N		UG/KG	366	U	366	1	14.3
11SD040006	20110428	SD	2-METHYLPHENOL	OS	223	U	N		UG/KG	441	U	441	1	28.5
11SD040612	20110428	SD	2-METHYLPHENOL	OS	224	U	N		UG/KG	442	U	442	1	26.8
11SD010006	20110428	SD	2-NITROANILINE	OS	4730	U	N		UG/KG	9210	U	9210	5	31.3
11SD010612	20110428	SD	2-NITROANILINE	OS	4540	U	N		UG/KG	8860	U	8860	5	27.6
11SD020006	20110428	SD	2-NITROANILINE	OS	832	U	N		UG/KG	1620	U	1620	1	21.4
11SD020006-D	20110428	SD	2-NITROANILINE	OS	814	U	N		UG/KG	1590	U	1590	1	18.6
11SD020612	20110428	SD	2-NITROANILINE	OS	830	U	N		UG/KG	1620	U	1620	1	22.2
11SD030006	20110428	SD	2-NITROANILINE	OS	861	U	N		UG/KG	1680	U	1680	1	26.5
11SD030612	20110428	SD	2-NITROANILINE	OS	739	U	N		UG/KG	1440	U	1440	1	14.3
11SD040006	20110428	SD	2-NITROANILINE	OS	891	U	N		UG/KG	1740	U	1740	1	28.5
11SD040612	20110428	SD	2-NITROANILINE	OS	894	U	N		UG/KG	1740	U	1740	1	26.8
11SD010006	20110428	SD	2-NITROPHENOL	OS	1180	U	N		UG/KG	2340	U	2340	5	31.3
11SD010612	20110428	SD	2-NITROPHENOL	OS	1140	U	N		UG/KG	2250	U	2250	5	27.6
11SD020006	20110428	SD	2-NITROPHENOL	OS	208	U	N		UG/KG	412	U	412	1	21.4
11SD020006-D	20110428	SD	2-NITROPHENOL	OS	204	U	N		UG/KG	403	U	403	1	18.6
11SD020612	20110428	SD	2-NITROPHENOL	OS	208	U	N		UG/KG	411	U	411	1	22.2
11SD030006	20110428	SD	2-NITROPHENOL	OS	216	U	N		UG/KG	426	U	426	1	26.5
11SD030612	20110428	SD	2-NITROPHENOL	OS	185	U	N		UG/KG	366	U	366	1	14.3
11SD040006	20110428	SD	2-NITROPHENOL	OS	223	U	N		UG/KG	441	U	441	1	28.5
11SD040612	20110428	SD	2-NITROPHENOL	OS	224	U	N		UG/KG	442	U	442	1	26.8
11SD010006	20110428	SD	3,3'-DICHLOROBENZIDINE	OS	1180	U	N		UG/KG	2340	U	2340	5	31.3
11SD010612	20110428	SD	3,3'-DICHLOROBENZIDINE	OS	1140	U	N		UG/KG	2250	U	2250	5	27.6
11SD020006	20110428	SD	3,3'-DICHLOROBENZIDINE	OS	208	U	N		UG/KG	412	U	412	1	21.4
11SD020612	20110428	SD	3,3'-DICHLOROBENZIDINE	OS	208	U	N		UG/KG	411	U	411	1	22.2
11SD030006	20110428	SD	3,3'-DICHLOROBENZIDINE	OS	216	U	N		UG/KG	426	U	426	1	26.5
11SD030612	20110428	SD	3,3'-DICHLOROBENZIDINE	OS	185	U	N		UG/KG	366	U	366	1	14.3
11SD010006	20110428	SD	3-NITROANILINE	OS	4730	U	N		UG/KG	9210	U	9210	5	31.3
11SD010612	20110428	SD	3-NITROANILINE	OS	4540	U	N		UG/KG	8860	U	8860	5	27.6
11SD020006	20110428	SD	3-NITROANILINE	OS	832	U	N		UG/KG	1620	U	1620	1	21.4
11SD020006-D	20110428	SD	3-NITROANILINE	OS	814	U	N		UG/KG	1590	U	1590	1	18.6
11SD020612	20110428	SD	3-NITROANILINE	OS	830	U	N		UG/KG	1620	U	1620	1	22.2
11SD030006	20110428	SD	3-NITROANILINE	OS	861	U	N		UG/KG	1680	U	1680	1	26.5
11SD030612	20110428	SD	3-NITROANILINE	OS	739	U	N		UG/KG	1440	U	1440	1	14.3
11SD040006	20110428	SD	3-NITROANILINE	OS	891	U	N		UG/KG	1740	U	1740	1	28.5
11SD040612	20110428	SD	3-NITROANILINE	OS	894	U	N		UG/KG	1740	U	1740	1	26.8
11SD020006-D	20110428	SD	4,6-DINITRO-2-METHYLPHENOL	OS	2040	U	N		UG/KG	4030	U	4030	1	18.6
11SD040006	20110428	SD	4,6-DINITRO-2-METHYLPHENOL	OS	2230	U	N		UG/KG	4410	U	4410	1	28.5
11SD040612	20110428	SD	4,6-DINITRO-2-METHYLPHENOL	OS	2240	U	N		UG/KG	4420	U	4420	1	26.8
11SD010006	20110428	SD	4-BROMOPHENYL PHENYL ETHER	OS	1180	U	N		UG/KG	2340	U	2340	5	31.3
11SD010612	20110428	SD	4-BROMOPHENYL PHENYL ETHER	OS	1140	U	N		UG/KG	2250	U	2250	5	27.6
11SD020006	20110428	SD	4-BROMOPHENYL PHENYL ETHER	OS	208	U	N		UG/KG	412	U	412	1	21.4
11SD020006-D	20110428	SD	4-BROMOPHENYL PHENYL ETHER	OS	204	U	N		UG/KG	403	U	403	1	18.6
11SD020612	20110428	SD	4-BROMOPHENYL PHENYL ETHER	OS	208	U	N		UG/KG	411	U	411	1	22.2
11SD030006	20110428	SD	4-BROMOPHENYL PHENYL ETHER	OS	216	U	N		UG/KG	426	U	426	1	26.5
11SD030612	20110428	SD	4-BROMOPHENYL PHENYL ETHER	OS	185	U	N		UG/KG	366	U	366	1	14.3
11SD040006	20110428	SD	4-BROMOPHENYL PHENYL ETHER	OS	223	U	N		UG/KG	441	U	441	1	28.5
11SD040612	20110428	SD	4-BROMOPHENYL PHENYL ETHER	OS	224	U	N		UG/KG	442	U	442	1	26.8
11SD010006	20110428	SD	4-CHLORO-3-METHYLPHENOL	OS	1180	U	N		UG/KG	2340	U	2340	5	31.3
11SD010612	20110428	SD	4-CHLORO-3-METHYLPHENOL	OS	1140	U	N		UG/KG	2250	U	2250	5	27.6
11SD020006	20110428	SD	4-CHLORO-3-METHYLPHENOL	OS	208	U	N		UG/KG	412	U	412	1	21.4
11SD020006-D	20110428	SD	4-CHLORO-3-METHYLPHENOL	OS	204	U	N		UG/KG	403	U	403	1	18.6
11SD020612	20110428	SD	4-CHLORO-3-METHYLPHENOL	OS	208	U	N		UG/KG	411	U	411	1	22.2
11SD030006	20110428	SD	4-CHLORO-3-METHYLPHENOL	OS	216	U	N		UG/KG	426	U	426	1	26.5
11SD030612	20110428	SD	4-CHLORO-3-METHYLPHENOL	OS	185	U	N		UG/KG	366	U	366	1	14.3
11SD040006	20110428	SD	4-CHLORO-3-METHYLPHENOL	OS	223	U	N		UG/KG	441	U	441	1	28.5
11SD040612	20110428	SD	4-CHLORO-3-METHYLPHENOL	OS	224	U	N		UG/KG	442	U	442	1	26.8
11SD010006	20110428	SD	4-CHLOROANILINE	OS	1180	U	N		UG/KG	2340	U	2340	5	31.3
11SD010612	20110428	SD	4-CHLOROANILINE	OS	1140	U	N		UG/KG	2250	U	2250	5	27.6
11SD020006	20110428	SD	4-CHLOROANILINE	OS	208	U	N		UG/KG	412	U	412	1	21.4
11SD020006-D	20110428	SD	4-CHLOROANILINE	OS	204	U	N		UG/KG	403	U	403	1	18.6

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SD020612	20110428	SD	4-CHLOROANILINE	OS	208	U	N		UG/KG	411	U	411	1	22.2
11SD030006	20110428	SD	4-CHLOROANILINE	OS	216	U	N		UG/KG	426	U	426	1	26.5
11SD030612	20110428	SD	4-CHLOROANILINE	OS	185	U	N		UG/KG	366	U	366	1	14.3
11SD040006	20110428	SD	4-CHLOROANILINE	OS	223	U	N		UG/KG	441	U	441	1	28.5
11SD040612	20110428	SD	4-CHLOROANILINE	OS	224	U	N		UG/KG	442	U	442	1	26.8
11SD010612	20110428	SD	4-CHLOROPHENYL PHENYL ETHER	OS	1140	U	N		UG/KG	2250	U	2250	5	27.6
11SD020006-D	20110428	SD	4-CHLOROPHENYL PHENYL ETHER	OS	204	U	N		UG/KG	403	U	403	1	18.6
11SD030006	20110428	SD	4-CHLOROPHENYL PHENYL ETHER	OS	216	U	N		UG/KG	426	U	426	1	26.5
11SD040006	20110428	SD	4-CHLOROPHENYL PHENYL ETHER	OS	223	U	N		UG/KG	441	U	441	1	28.5
11SD040612	20110428	SD	4-CHLOROPHENYL PHENYL ETHER	OS	224	U	N		UG/KG	442	U	442	1	26.8
11SD010006	20110428	SD	4-METHYLPHENOL	OS	1180	U	N		UG/KG	2340	U	2340	5	31.3
11SD010612	20110428	SD	4-METHYLPHENOL	OS	1140	U	N		UG/KG	2250	U	2250	5	27.6
11SD020006	20110428	SD	4-METHYLPHENOL	OS	208	U	N		UG/KG	412	U	412	1	21.4
11SD020006-D	20110428	SD	4-METHYLPHENOL	OS	204	U	N		UG/KG	403	U	403	1	18.6
11SD020612	20110428	SD	4-METHYLPHENOL	OS	208	U	N		UG/KG	411	U	411	1	22.2
11SD030006	20110428	SD	4-METHYLPHENOL	OS	216	U	N		UG/KG	426	U	426	1	26.5
11SD030612	20110428	SD	4-METHYLPHENOL	OS	185	U	N		UG/KG	366	U	366	1	14.3
11SD040006	20110428	SD	4-METHYLPHENOL	OS	223	U	N		UG/KG	441	U	441	1	28.5
11SD040612	20110428	SD	4-METHYLPHENOL	OS	224	U	N		UG/KG	442	U	442	1	26.8
11SD020006-D	20110428	SD	4-NITROANILINE	OS	814	U	N		UG/KG	1590	U	1590	1	18.6
11SD040006	20110428	SD	4-NITROANILINE	OS	891	U	N		UG/KG	1740	U	1740	1	28.5
11SD040612	20110428	SD	4-NITROANILINE	OS	894	U	N		UG/KG	1740	U	1740	1	26.8
11SD010006	20110428	SD	4-NITROPHENOL	OS	4730	U	N		UG/KG	9210	U	9210	5	31.3
11SD010612	20110428	SD	4-NITROPHENOL	OS	4540	U	N		UG/KG	8860	U	8860	5	27.6
11SD020006	20110428	SD	4-NITROPHENOL	OS	832	U	N		UG/KG	1620	U	1620	1	21.4
11SD020006-D	20110428	SD	4-NITROPHENOL	OS	814	U	N		UG/KG	1590	U	1590	1	18.6
11SD020612	20110428	SD	4-NITROPHENOL	OS	830	U	N		UG/KG	1620	U	1620	1	22.2
11SD030006	20110428	SD	4-NITROPHENOL	OS	861	U	N		UG/KG	1680	U	1680	1	26.5
11SD030612	20110428	SD	4-NITROPHENOL	OS	739	U	N		UG/KG	1440	U	1440	1	14.3
11SD040006	20110428	SD	4-NITROPHENOL	OS	891	U	N		UG/KG	1740	U	1740	1	28.5
11SD040612	20110428	SD	4-NITROPHENOL	OS	894	U	N		UG/KG	1740	U	1740	1	26.8
11SD010006	20110428	SD	ACETOPHENONE	OS	1180	U	N		UG/KG	2340	U	2340	5	31.3
11SD010612	20110428	SD	ACETOPHENONE	OS	1140	U	N		UG/KG	2250	U	2250	5	27.6
11SD020006	20110428	SD	ACETOPHENONE	OS	208	U	N		UG/KG	412	U	412	1	21.4
11SD020006-D	20110428	SD	ACETOPHENONE	OS	204	U	N		UG/KG	403	U	403	1	18.6
11SD020612	20110428	SD	ACETOPHENONE	OS	208	U	N		UG/KG	411	U	411	1	22.2
11SD030006	20110428	SD	ACETOPHENONE	OS	216	U	N		UG/KG	426	U	426	1	26.5
11SD030612	20110428	SD	ACETOPHENONE	OS	185	U	N		UG/KG	366	U	366	1	14.3
11SD040006	20110428	SD	ACETOPHENONE	OS	223	U	N		UG/KG	441	U	441	1	28.5
11SD040612	20110428	SD	ACETOPHENONE	OS	224	U	N		UG/KG	442	U	442	1	26.8
11SD010006	20110428	SD	ATRAZINE	OS	1180	U	N		UG/KG	2340	U	2340	5	31.3
11SD010612	20110428	SD	ATRAZINE	OS	1140	U	N		UG/KG	2250	U	2250	5	27.6
11SD020006	20110428	SD	ATRAZINE	OS	208	U	N		UG/KG	412	U	412	1	21.4
11SD020006-D	20110428	SD	ATRAZINE	OS	204	U	N		UG/KG	403	U	403	1	18.6
11SD020612	20110428	SD	ATRAZINE	OS	208	U	N		UG/KG	411	U	411	1	22.2
11SD030006	20110428	SD	ATRAZINE	OS	216	U	N		UG/KG	426	U	426	1	26.5
11SD030612	20110428	SD	ATRAZINE	OS	185	U	N		UG/KG	366	U	366	1	14.3
11SD040006	20110428	SD	ATRAZINE	OS	223	U	N		UG/KG	441	U	441	1	28.5
11SD040612	20110428	SD	ATRAZINE	OS	224	U	N		UG/KG	442	U	442	1	26.8
11SD010006	20110428	SD	BIS(2-CHLOROETHOXY)METHANE	OS	1180	U	N		UG/KG	2340	U	2340	5	31.3
11SD010612	20110428	SD	BIS(2-CHLOROETHOXY)METHANE	OS	1140	U	N		UG/KG	2250	U	2250	5	27.6
11SD020006	20110428	SD	BIS(2-CHLOROETHOXY)METHANE	OS	208	U	N		UG/KG	412	U	412	1	21.4
11SD020006-D	20110428	SD	BIS(2-CHLOROETHOXY)METHANE	OS	204	U	N		UG/KG	403	U	403	1	18.6
11SD020612	20110428	SD	BIS(2-CHLOROETHOXY)METHANE	OS	208	U	N		UG/KG	411	U	411	1	22.2
11SD030006	20110428	SD	BIS(2-CHLOROETHOXY)METHANE	OS	216	U	N		UG/KG	426	U	426	1	26.5
11SD030612	20110428	SD	BIS(2-CHLOROETHOXY)METHANE	OS	185	U	N		UG/KG	366	U	366	1	14.3
11SD040006	20110428	SD	BIS(2-CHLOROETHOXY)METHANE	OS	223	U	N		UG/KG	441	U	441	1	28.5
11SD040612	20110428	SD	BIS(2-CHLOROETHOXY)METHANE	OS	224	U	N		UG/KG	442	U	442	1	26.8
11SD010006	20110428	SD	BIS(2-CHLOROETHYL)ETHER	OS	1180	U	N		UG/KG	2340	U	2340	5	31.3
11SD010612	20110428	SD	BIS(2-CHLOROETHYL)ETHER	OS	1140	U	N		UG/KG	2250	U	2250	5	27.6
11SD020006	20110428	SD	BIS(2-CHLOROETHYL)ETHER	OS	208	U	N		UG/KG	412	U	412	1	21.4
11SD020006-D	20110428	SD	BIS(2-CHLOROETHYL)ETHER	OS	204	U	N		UG/KG	403	U	403	1	18.6
11SD020612	20110428	SD	BIS(2-CHLOROETHYL)ETHER	OS	208	U	N		UG/KG	411	U	411	1	22.2
11SD030006	20110428	SD	BIS(2-CHLOROETHYL)ETHER	OS	216	U	N		UG/KG	426	U	426	1	26.5
11SD030612	20110428	SD	BIS(2-CHLOROETHYL)ETHER	OS	185	U	N		UG/KG	366	U	366	1	14.3
11SD040006	20110428	SD	BIS(2-CHLOROETHYL)ETHER	OS	223	U	N		UG/KG	441	U	441	1	28.5
11SD040612	20110428	SD	BIS(2-CHLOROETHYL)ETHER	OS	224	U	N		UG/KG	442	U	442	1	26.8
11SD010006	20110428	SD	BIS(2-ETHYLHEXYL)PHTHALATE	OS	1180	U	N		UG/KG	2340	U	2340	5	31.3
11SD010612	20110428	SD	BIS(2-ETHYLHEXYL)PHTHALATE	OS	1140	U	N		UG/KG	2250	U	2250	5	27.6
11SD020006	20110428	SD	BIS(2-ETHYLHEXYL)PHTHALATE	OS	208	U	N		UG/KG	412	U	412	1	21.4
11SD020006-D	20110428	SD	BIS(2-ETHYLHEXYL)PHTHALATE	OS	204	U	N		UG/KG	403	U	403	1	18.6
11SD020612	20110428	SD	BIS(2-ETHYLHEXYL)PHTHALATE	OS	208	U	N		UG/KG	411	U	411	1	22.2
11SD030006	20110428	SD	BIS(2-ETHYLHEXYL)PHTHALATE	OS	216	U	N		UG/KG	426	U	426	1	26.5
11SD030612	20110428	SD	BIS(2-ETHYLHEXYL)PHTHALATE	OS	185	U	N		UG/KG	366	U	366	1	14.3
11SD040006	20110428	SD	BIS(2-ETHYLHEXYL)PHTHALATE	OS	223	U	N		UG/KG	441	U	441	1	28.5
11SD040612	20110428	SD	BIS(2-ETHYLHEXYL)PHTHALATE	OS	224	U	N		UG/KG	442	U	442	1	26.8
11SD010006	20110428	SD	BUTYL BENZYL PHTHALATE	OS	1180	U	N		UG/KG	2340	U	2340	5	31.3
11SD010612	20110428	SD	BUTYL BENZYL PHTHALATE	OS	1140	U	N		UG/KG	2250	U	2250	5	27.6
11SD020006	20110428	SD	BUTYL BENZYL PHTHALATE	OS	208	U	N		UG/KG	412	U	412	1	21.4
11SD020006-D	20110428	SD	BUTYL BENZYL PHTHALATE	OS	204	U	N		UG/KG	403	U	403	1	18.6
11SD020612	20110428	SD	BUTYL BENZYL PHTHALATE	OS	208	U	N		UG/KG	411	U	411	1	22.2

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SD030006	20110428	SD	BUTYL BENZYL PHTHALATE	OS	216	U	N		UG/KG	426	U	426	1	26.5
11SD030612	20110428	SD	BUTYL BENZYL PHTHALATE	OS	185	U	N		UG/KG	366	U	366	1	14.3
11SD040006	20110428	SD	BUTYL BENZYL PHTHALATE	OS	223	U	N		UG/KG	441	U	441	1	28.5
11SD040612	20110428	SD	BUTYL BENZYL PHTHALATE	OS	224	U	N		UG/KG	442	U	442	1	26.8
11SD010006	20110428	SD	CAPROLACTAM	OS	1180	U	N		UG/KG	2340	U	2340	5	31.3
11SD010612	20110428	SD	CAPROLACTAM	OS	1140	U	N		UG/KG	2250	U	2250	5	27.6
11SD020006	20110428	SD	CAPROLACTAM	OS	208	U	N		UG/KG	412	U	412	1	21.4
11SD020006-D	20110428	SD	CAPROLACTAM	OS	204	U	N		UG/KG	403	U	403	1	18.6
11SD020612	20110428	SD	CAPROLACTAM	OS	208	U	N		UG/KG	411	U	411	1	22.2
11SD030006	20110428	SD	CAPROLACTAM	OS	216	U	N		UG/KG	426	U	426	1	26.5
11SD030612	20110428	SD	CAPROLACTAM	OS	185	U	N		UG/KG	366	U	366	1	14.3
11SD040006	20110428	SD	CAPROLACTAM	OS	223	U	N		UG/KG	441	U	441	1	28.5
11SD040612	20110428	SD	CAPROLACTAM	OS	224	U	N		UG/KG	442	U	442	1	26.8
11SD010006	20110428	SD	CARBAZOLE	OS	1180	U	N		UG/KG	2340	U	2340	5	31.3
11SD010612	20110428	SD	CARBAZOLE	OS	1140	U	N		UG/KG	2250	U	2250	5	27.6
11SD020006	20110428	SD	CARBAZOLE	OS	208	U	N		UG/KG	412	U	412	1	21.4
11SD020006-D	20110428	SD	CARBAZOLE	OS	204	U	N		UG/KG	403	U	403	1	18.6
11SD020612	20110428	SD	CARBAZOLE	OS	208	U	N		UG/KG	411	U	411	1	22.2
11SD030006	20110428	SD	CARBAZOLE	OS	216	U	N		UG/KG	426	U	426	1	26.5
11SD030612	20110428	SD	CARBAZOLE	OS	185	U	N		UG/KG	366	U	366	1	14.3
11SD040006	20110428	SD	CARBAZOLE	OS	223	U	N		UG/KG	441	U	441	1	28.5
11SD040612	20110428	SD	CARBAZOLE	OS	224	U	N		UG/KG	442	U	442	1	26.8
11SD010006	20110428	SD	DIBENZOFURAN	OS	1180	U	N		UG/KG	2340	U	2340	5	31.3
11SD010612	20110428	SD	DIBENZOFURAN	OS	1140	U	N		UG/KG	2250	U	2250	5	27.6
11SD020006	20110428	SD	DIBENZOFURAN	OS	208	U	N		UG/KG	412	U	412	1	21.4
11SD020006-D	20110428	SD	DIBENZOFURAN	OS	204	U	N		UG/KG	403	U	403	1	18.6
11SD020612	20110428	SD	DIBENZOFURAN	OS	208	U	N		UG/KG	411	U	411	1	22.2
11SD030006	20110428	SD	DIBENZOFURAN	OS	216	U	N		UG/KG	426	U	426	1	26.5
11SD030612	20110428	SD	DIBENZOFURAN	OS	185	U	N		UG/KG	366	U	366	1	14.3
11SD040006	20110428	SD	DIBENZOFURAN	OS	223	U	N		UG/KG	441	U	441	1	28.5
11SD040612	20110428	SD	DIBENZOFURAN	OS	224	U	N		UG/KG	442	U	442	1	26.8
11SD010006	20110428	SD	DIETHYL PHTHALATE	OS	1180	U	N		UG/KG	2340	U	2340	5	31.3
11SD010612	20110428	SD	DIETHYL PHTHALATE	OS	1140	U	N		UG/KG	2250	U	2250	5	27.6
11SD020006	20110428	SD	DIETHYL PHTHALATE	OS	208	U	N		UG/KG	412	U	412	1	21.4
11SD020006-D	20110428	SD	DIETHYL PHTHALATE	OS	204	U	N		UG/KG	403	U	403	1	18.6
11SD020612	20110428	SD	DIETHYL PHTHALATE	OS	208	U	N		UG/KG	411	U	411	1	22.2
11SD030006	20110428	SD	DIETHYL PHTHALATE	OS	216	U	N		UG/KG	426	U	426	1	26.5
11SD030612	20110428	SD	DIETHYL PHTHALATE	OS	185	U	N		UG/KG	366	U	366	1	14.3
11SD040006	20110428	SD	DIETHYL PHTHALATE	OS	223	U	N		UG/KG	441	U	441	1	28.5
11SD040612	20110428	SD	DIETHYL PHTHALATE	OS	224	U	N		UG/KG	442	U	442	1	26.8
11SD010006	20110428	SD	DIMETHYL PHTHALATE	OS	1180	U	N		UG/KG	2340	U	2340	5	31.3
11SD010612	20110428	SD	DIMETHYL PHTHALATE	OS	1140	U	N		UG/KG	2250	U	2250	5	27.6
11SD020006	20110428	SD	DIMETHYL PHTHALATE	OS	208	U	N		UG/KG	412	U	412	1	21.4
11SD020006-D	20110428	SD	DIMETHYL PHTHALATE	OS	204	U	N		UG/KG	403	U	403	1	18.6
11SD020612	20110428	SD	DIMETHYL PHTHALATE	OS	208	U	N		UG/KG	411	U	411	1	22.2
11SD030006	20110428	SD	DIMETHYL PHTHALATE	OS	216	U	N		UG/KG	426	U	426	1	26.5
11SD030612	20110428	SD	DIMETHYL PHTHALATE	OS	185	U	N		UG/KG	366	U	366	1	14.3
11SD040006	20110428	SD	DIMETHYL PHTHALATE	OS	223	U	N		UG/KG	441	U	441	1	28.5
11SD040612	20110428	SD	DIMETHYL PHTHALATE	OS	224	U	N		UG/KG	442	U	442	1	26.8
11SD010006	20110428	SD	DI-N-BUTYL PHTHALATE	OS	1180	U	N		UG/KG	2340	U	2340	5	31.3
11SD010612	20110428	SD	DI-N-BUTYL PHTHALATE	OS	1140	U	N		UG/KG	2250	U	2250	5	27.6
11SD020006	20110428	SD	DI-N-BUTYL PHTHALATE	OS	208	U	N		UG/KG	412	U	412	1	21.4
11SD020006-D	20110428	SD	DI-N-BUTYL PHTHALATE	OS	204	U	N		UG/KG	403	U	403	1	18.6
11SD020612	20110428	SD	DI-N-BUTYL PHTHALATE	OS	208	U	N		UG/KG	411	U	411	1	22.2
11SD030006	20110428	SD	DI-N-BUTYL PHTHALATE	OS	216	U	N		UG/KG	426	U	426	1	26.5
11SD030612	20110428	SD	DI-N-BUTYL PHTHALATE	OS	185	U	N		UG/KG	366	U	366	1	14.3
11SD040006	20110428	SD	DI-N-BUTYL PHTHALATE	OS	223	U	N		UG/KG	441	U	441	1	28.5
11SD040612	20110428	SD	DI-N-BUTYL PHTHALATE	OS	224	U	N		UG/KG	442	U	442	1	26.8
11SD010006	20110428	SD	DI-N-OCTYL PHTHALATE	OS	1180	U	N		UG/KG	2340	U	2340	5	31.3
11SD010612	20110428	SD	DI-N-OCTYL PHTHALATE	OS	1140	U	N		UG/KG	2250	U	2250	5	27.6
11SD020006	20110428	SD	DI-N-OCTYL PHTHALATE	OS	208	U	N		UG/KG	412	U	412	1	21.4
11SD020006-D	20110428	SD	DI-N-OCTYL PHTHALATE	OS	204	U	N		UG/KG	403	U	403	1	18.6
11SD020612	20110428	SD	DI-N-OCTYL PHTHALATE	OS	208	U	N		UG/KG	411	U	411	1	22.2
11SD030006	20110428	SD	DI-N-OCTYL PHTHALATE	OS	216	U	N		UG/KG	426	U	426	1	26.5
11SD030612	20110428	SD	DI-N-OCTYL PHTHALATE	OS	185	U	N		UG/KG	366	U	366	1	14.3
11SD040006	20110428	SD	DI-N-OCTYL PHTHALATE	OS	223	U	N		UG/KG	441	U	441	1	28.5
11SD040612	20110428	SD	DI-N-OCTYL PHTHALATE	OS	224	U	N		UG/KG	442	U	442	1	26.8
11SD010006	20110428	SD	HEXACHLOROBENZENE	OS	1180	U	N		UG/KG	2340	U	2340	5	31.3
11SD010612	20110428	SD	HEXACHLOROBENZENE	OS	1140	U	N		UG/KG	2250	U	2250	5	27.6
11SD020006	20110428	SD	HEXACHLOROBENZENE	OS	208	U	N		UG/KG	412	U	412	1	21.4
11SD020006-D	20110428	SD	HEXACHLOROBENZENE	OS	204	U	N		UG/KG	403	U	403	1	18.6
11SD020612	20110428	SD	HEXACHLOROBENZENE	OS	208	U	N		UG/KG	411	U	411	1	22.2
11SD030006	20110428	SD	HEXACHLOROBENZENE	OS	216	U	N		UG/KG	426	U	426	1	26.5
11SD030612	20110428	SD	HEXACHLOROBENZENE	OS	185	U	N		UG/KG	366	U	366	1	14.3
11SD040006	20110428	SD	HEXACHLOROBENZENE	OS	223	U	N		UG/KG	441	U	441	1	28.5
11SD040612	20110428	SD	HEXACHLOROBENZENE	OS	224	U	N		UG/KG	442	U	442	1	26.8
11SD010006	20110428	SD	HEXACHLOROBUTADIENE	OS	1180	U	N		UG/KG	2340	U	2340	5	31.3
11SD010612	20110428	SD	HEXACHLOROBUTADIENE	OS	1140	U	N		UG/KG	2250	U	2250	5	27.6
11SD020006	20110428	SD	HEXACHLOROBUTADIENE	OS	208	U	N		UG/KG	412	U	412	1	21.4
11SD020006-D	20110428	SD	HEXACHLOROBUTADIENE	OS	204	U	N		UG/KG	403	U	403	1	18.6
11SD020612	20110428	SD	HEXACHLOROBUTADIENE	OS	208	U	N		UG/KG	411	U	411	1	22.2

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SD030612	20110428	SD	HEXACHLOROBUTADIENE	OS	185	U	N		UG/KG	366	U	366	1	14.3
11SD040006	20110428	SD	HEXACHLOROBUTADIENE	OS	223	U	N		UG/KG	441	U	441	1	28.5
11SD040612	20110428	SD	HEXACHLOROBUTADIENE	OS	224	U	N		UG/KG	442	U	442	1	26.8
11SD010612	20110428	SD	HEXACHLOROCYCLOPENTADIENE	OS	1140	U	N		UG/KG	2250	U	2250	5	27.6
11SD020006-D	20110428	SD	HEXACHLOROCYCLOPENTADIENE	OS	204	U	N		UG/KG	403	U	403	1	18.6
11SD040006	20110428	SD	HEXACHLOROCYCLOPENTADIENE	OS	223	U	N		UG/KG	441	U	441	1	28.5
11SD040612	20110428	SD	HEXACHLOROCYCLOPENTADIENE	OS	224	U	N		UG/KG	442	U	442	1	26.8
11SD010006	20110428	SD	HEXACHLOROETHANE	OS	1180	U	N		UG/KG	2340	U	2340	5	31.3
11SD010612	20110428	SD	HEXACHLOROETHANE	OS	1140	U	N		UG/KG	2250	U	2250	5	27.6
11SD020006	20110428	SD	HEXACHLOROETHANE	OS	208	U	N		UG/KG	412	U	412	1	21.4
11SD020006-D	20110428	SD	HEXACHLOROETHANE	OS	204	U	N		UG/KG	403	U	403	1	18.6
11SD020612	20110428	SD	HEXACHLOROETHANE	OS	208	U	N		UG/KG	411	U	411	1	22.2
11SD030006	20110428	SD	HEXACHLOROETHANE	OS	216	U	N		UG/KG	426	U	426	1	26.5
11SD030612	20110428	SD	HEXACHLOROETHANE	OS	185	U	N		UG/KG	366	U	366	1	14.3
11SD040006	20110428	SD	HEXACHLOROETHANE	OS	223	U	N		UG/KG	441	U	441	1	28.5
11SD040612	20110428	SD	HEXACHLOROETHANE	OS	224	U	N		UG/KG	442	U	442	1	26.8
11SD010006	20110428	SD	ISOPHORONE	OS	1180	U	N		UG/KG	2340	U	2340	5	31.3
11SD010612	20110428	SD	ISOPHORONE	OS	1140	U	N		UG/KG	2250	U	2250	5	27.6
11SD020006	20110428	SD	ISOPHORONE	OS	208	U	N		UG/KG	412	U	412	1	21.4
11SD020006-D	20110428	SD	ISOPHORONE	OS	204	U	N		UG/KG	403	U	403	1	18.6
11SD020612	20110428	SD	ISOPHORONE	OS	208	U	N		UG/KG	411	U	411	1	22.2
11SD030006	20110428	SD	ISOPHORONE	OS	216	U	N		UG/KG	426	U	426	1	26.5
11SD030612	20110428	SD	ISOPHORONE	OS	185	U	N		UG/KG	366	U	366	1	14.3
11SD040006	20110428	SD	ISOPHORONE	OS	223	U	N		UG/KG	441	U	441	1	28.5
11SD040612	20110428	SD	ISOPHORONE	OS	224	U	N		UG/KG	442	U	442	1	26.8
11SD010006	20110428	SD	NITROBENZENE	OS	1180	U	N		UG/KG	2340	U	2340	5	31.3
11SD010612	20110428	SD	NITROBENZENE	OS	1140	U	N		UG/KG	2250	U	2250	5	27.6
11SD020006	20110428	SD	NITROBENZENE	OS	208	U	N		UG/KG	412	U	412	1	21.4
11SD020006-D	20110428	SD	NITROBENZENE	OS	204	U	N		UG/KG	403	U	403	1	18.6
11SD020612	20110428	SD	NITROBENZENE	OS	208	U	N		UG/KG	411	U	411	1	22.2
11SD030006	20110428	SD	NITROBENZENE	OS	216	U	N		UG/KG	426	U	426	1	26.5
11SD030612	20110428	SD	NITROBENZENE	OS	185	U	N		UG/KG	366	U	366	1	14.3
11SD040006	20110428	SD	NITROBENZENE	OS	223	U	N		UG/KG	441	U	441	1	28.5
11SD040612	20110428	SD	NITROBENZENE	OS	224	U	N		UG/KG	442	U	442	1	26.8
11SD010006	20110428	SD	N-NITROSO-DI-N-PROPYLAMINE	OS	1180	U	N		UG/KG	2340	U	2340	5	31.3
11SD020006	20110428	SD	N-NITROSO-DI-N-PROPYLAMINE	OS	208	U	N		UG/KG	412	U	412	1	21.4
11SD020612	20110428	SD	N-NITROSO-DI-N-PROPYLAMINE	OS	208	U	N		UG/KG	411	U	411	1	22.2
11SD030006	20110428	SD	N-NITROSO-DI-N-PROPYLAMINE	OS	216	U	N		UG/KG	426	U	426	1	26.5
11SD030612	20110428	SD	N-NITROSO-DI-N-PROPYLAMINE	OS	185	U	N		UG/KG	366	U	366	1	14.3
11SD020006-D	20110428	SD	N-NITROSODIPHENYLAMINE	OS	204	U	N		UG/KG	403	QU	403	1	18.6
11SD030006	20110428	SD	N-NITROSODIPHENYLAMINE	OS	216	U	N		UG/KG	426	QU	426	1	26.5
11SD040006	20110428	SD	N-NITROSODIPHENYLAMINE	OS	223	U	N		UG/KG	441	QU	441	1	28.5
11SD040612	20110428	SD	N-NITROSODIPHENYLAMINE	OS	224	U	N		UG/KG	442	QU	442	1	26.8
11SD020006-D	20110428	SD	PENTACHLOROPHENOL	OS	814	U	N		UG/KG	1590	U	1590	1	18.6
11SD030006	20110428	SD	PENTACHLOROPHENOL	OS	861	U	N		UG/KG	1680	U	1680	1	26.5
11SD040006	20110428	SD	PENTACHLOROPHENOL	OS	891	U	N		UG/KG	1740	U	1740	1	28.5
11SD040612	20110428	SD	PENTACHLOROPHENOL	OS	894	U	N		UG/KG	1740	U	1740	1	26.8
11SD010006	20110428	SD	PHENOL	OS	1180	U	N		UG/KG	2340	U	2340	5	31.3
11SD010612	20110428	SD	PHENOL	OS	1140	U	N		UG/KG	2250	U	2250	5	27.6
11SD020006	20110428	SD	PHENOL	OS	208	U	N		UG/KG	412	U	412	1	21.4
11SD020006-D	20110428	SD	PHENOL	OS	204	U	N		UG/KG	403	U	403	1	18.6
11SD020612	20110428	SD	PHENOL	OS	208	U	N		UG/KG	411	U	411	1	22.2
11SD030006	20110428	SD	PHENOL	OS	216	U	N		UG/KG	426	U	426	1	26.5
11SD030612	20110428	SD	PHENOL	OS	185	U	N		UG/KG	366	U	366	1	14.3
11SD040006	20110428	SD	PHENOL	OS	223	U	N		UG/KG	441	U	441	1	28.5
11SD040612	20110428	SD	PHENOL	OS	224	U	N		UG/KG	442	U	442	1	26.8
11SD010006	20110428	SD	2-METHYLNAPHTHALENE	PAH	23.6	U	N		UG/KG	47.3	QU	47.3	5	31.3
11SD010612	20110428	SD	2-METHYLNAPHTHALENE	PAH	22.7	U	N		UG/KG	45.4	QU	45.4	5	27.6
11SD020006	20110428	SD	2-METHYLNAPHTHALENE	PAH	4.16	U	N		UG/KG	8.32	QU	8.32	1	21.4
11SD020006-D	20110428	SD	2-METHYLNAPHTHALENE	PAH	4.07	U	N		UG/KG	8.14	U	8.14	1	18.6
11SD020612	20110428	SD	2-METHYLNAPHTHALENE	PAH	4.14	U	N		UG/KG	8.3	QU	8.3	1	22.2
11SD030006	20110428	SD	2-METHYLNAPHTHALENE	PAH	4.3	U	N		UG/KG	8.61	QU	8.61	1	26.5
11SD030612	20110428	SD	2-METHYLNAPHTHALENE	PAH	3.69	U	N		UG/KG	7.39	QU	7.39	1	14.3
11SD040006	20110428	SD	2-METHYLNAPHTHALENE	PAH	4.45	U	N		UG/KG	8.91	U	8.91	1	28.5
11SD010006	20110428	SD	ACENAPHTHENE	PAH	23.6	U	N		UG/KG	47.3	QU	47.3	5	31.3
11SD010612	20110428	SD	ACENAPHTHENE	PAH	22.7	U	N		UG/KG	45.4	QU	45.4	5	27.6
11SD020006	20110428	SD	ACENAPHTHENE	PAH	4.16	U	N		UG/KG	8.32	QU	8.32	1	21.4
11SD020006-D	20110428	SD	ACENAPHTHENE	PAH	4.07	U	N		UG/KG	8.14	U	8.14	1	18.6
11SD020612	20110428	SD	ACENAPHTHENE	PAH	4.14	U	N		UG/KG	8.3	QU	8.3	1	22.2
11SD030006	20110428	SD	ACENAPHTHENE	PAH	4.3	U	N		UG/KG	8.61	QU	8.61	1	26.5
11SD030612	20110428	SD	ACENAPHTHENE	PAH	3.69	U	N		UG/KG	7.39	QU	7.39	1	14.3
11SD040006	20110428	SD	ACENAPHTHENE	PAH	4.45	U	N		UG/KG	8.91	U	8.91	1	28.5
11SD040612	20110428	SD	ACENAPHTHENE	PAH	4.46	U	N		UG/KG	8.94	U	8.94	1	26.8
11SD010612	20110428	SD	ACENAPHTHYLENE	PAH	22.7	U	N		UG/KG	45.4	U	45.4	5	27.6
11SD030612	20110428	SD	ACENAPHTHYLENE	PAH	3.69	U	N		UG/KG	7.39	U	7.39	1	14.3
11SD040006	20110428	SD	ACENAPHTHYLENE	PAH	4.45	U	N		UG/KG	8.91	U	8.91	1	28.5
11SD030612	20110428	SD	ANTHRACENE	PAH	3.69	U	N		UG/KG	7.39	U	7.39	1	14.3
11SD040006	20110428	SD	ANTHRACENE	PAH	4.45	U	N		UG/KG	8.91	U	8.91	1	28.5
11SD030612	20110428	SD	BENZO(A)ANTHRACENE	PAH	3.69	U	N		UG/KG	7.39	U	7.39	1	14.3
11SD030612	20110428	SD	CHRYSENE	PAH	3.69	U	N		UG/KG	7.39	U	7.39	1	14.3
11SD010612	20110428	SD	DIBENZO(A,H)ANTHRACENE	PAH	22.7	U	N		UG/KG	45.4	U	45.4	5	27.6

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SD030612	20110428	SD	DIBENZO(A,H)ANTHRACENE	PAH	3.69	U	N		UG/KG	7.39	U	7.39	1	14.3
11SD040006	20110428	SD	DIBENZO(A,H)ANTHRACENE	PAH	4.45	U	N		UG/KG	8.91	U	8.91	1	28.5
11SD010006	20110428	SD	FLUORENE	PAH	23.6	U	N		UG/KG	47.3	QU	47.3	5	31.3
11SD010612	20110428	SD	FLUORENE	PAH	22.7	U	N		UG/KG	45.4	QU	45.4	5	27.6
11SD020006	20110428	SD	FLUORENE	PAH	4.16	U	N		UG/KG	8.32	QU	8.32	1	21.4
11SD020006-D	20110428	SD	FLUORENE	PAH	4.07	U	N		UG/KG	8.14	U	8.14	1	18.6
11SD020612	20110428	SD	FLUORENE	PAH	4.14	U	N		UG/KG	8.3	QU	8.3	1	22.2
11SD030006	20110428	SD	FLUORENE	PAH	4.3	U	N		UG/KG	8.61	QU	8.61	1	26.5
11SD030612	20110428	SD	FLUORENE	PAH	3.69	U	N		UG/KG	7.39	QU	7.39	1	14.3
11SD040006	20110428	SD	FLUORENE	PAH	4.45	U	N		UG/KG	8.91	U	8.91	1	28.5
11SD040612	20110428	SD	FLUORENE	PAH	4.46	U	N		UG/KG	8.94	U	8.94	1	26.8
11SD010006	20110428	SD	NAPHTHALENE	PAH	23.6	U	N		UG/KG	47.3	QU	47.3	5	31.3
11SD020006-D	20110428	SD	NAPHTHALENE	PAH	4.07	U	N		UG/KG	8.14	U	8.14	1	18.6
11SD030006	20110428	SD	NAPHTHALENE	PAH	4.3	U	N		UG/KG	8.61	QU	8.61	1	26.5
11SD030612	20110428	SD	NAPHTHALENE	PAH	3.69	U	N		UG/KG	7.39	QU	7.39	1	14.3
11SD040006	20110428	SD	NAPHTHALENE	PAH	4.45	U	N		UG/KG	8.91	U	8.91	1	28.5
11SD040612	20110428	SD	NAPHTHALENE	PAH	4.46	U	N		UG/KG	8.94	U	8.94	1	26.8
11SD010006	20110428	SD	AROCLOR-1016	PCB	11.5	U	N		UG/KG	23.5	UX	23.5	1	31.3
11SD010612	20110428	SD	AROCLOR-1016	PCB	11.1	U	N		UG/KG	22.7	UX	22.7	1	27.6
11SD020006	20110428	SD	AROCLOR-1016	PCB	10.3	U	N		UG/KG	21.1	UX	21.1	1	21.4
11SD020006-D	20110428	SD	AROCLOR-1016	PCB	9.91	U	N		UG/KG	20.2	UX	20.2	1	18.6
11SD020612	20110428	SD	AROCLOR-1016	PCB	10.2	U	N		UG/KG	20.9	UX	20.9	1	22.2
11SD030006	20110428	SD	AROCLOR-1016	PCB	10.9	U	N		UG/KG	22.2	UX	22.2	1	26.5
11SD030612	20110428	SD	AROCLOR-1016	PCB	9.47	U	N		UG/KG	19.3	UX	19.3	1	14.3
11SD040006	20110428	SD	AROCLOR-1016	PCB	11.2	U	N		UG/KG	22.9	UX	22.9	1	28.5
11SD040612	20110428	SD	AROCLOR-1016	PCB	10.9	U	N		UG/KG	22.3	UX	22.3	1	26.8
11SD010006	20110428	SD	AROCLOR-1221	PCB	11.5	U	N		UG/KG	23.5	U	23.5	1	31.3
11SD010612	20110428	SD	AROCLOR-1221	PCB	11.1	U	N		UG/KG	22.7	U	22.7	1	27.6
11SD020006	20110428	SD	AROCLOR-1221	PCB	10.3	U	N		UG/KG	21.1	U	21.1	1	21.4
11SD020006-D	20110428	SD	AROCLOR-1221	PCB	9.91	U	N		UG/KG	20.2	U	20.2	1	18.6
11SD020612	20110428	SD	AROCLOR-1221	PCB	10.2	U	N		UG/KG	20.9	U	20.9	1	22.2
11SD030006	20110428	SD	AROCLOR-1221	PCB	10.9	U	N		UG/KG	22.2	U	22.2	1	26.5
11SD030612	20110428	SD	AROCLOR-1221	PCB	9.47	U	N		UG/KG	19.3	U	19.3	1	14.3
11SD040006	20110428	SD	AROCLOR-1221	PCB	11.2	U	N		UG/KG	22.9	U	22.9	1	28.5
11SD040612	20110428	SD	AROCLOR-1221	PCB	10.9	U	N		UG/KG	22.3	U	22.3	1	26.8
11SD010006	20110428	SD	AROCLOR-1232	PCB	11.5	U	N		UG/KG	23.5	U	23.5	1	31.3
11SD010612	20110428	SD	AROCLOR-1232	PCB	11.1	U	N		UG/KG	22.7	U	22.7	1	27.6
11SD020006	20110428	SD	AROCLOR-1232	PCB	10.3	U	N		UG/KG	21.1	U	21.1	1	21.4
11SD020006-D	20110428	SD	AROCLOR-1232	PCB	9.91	U	N		UG/KG	20.2	U	20.2	1	18.6
11SD020612	20110428	SD	AROCLOR-1232	PCB	10.2	U	N		UG/KG	20.9	U	20.9	1	22.2
11SD030006	20110428	SD	AROCLOR-1232	PCB	10.9	U	N		UG/KG	22.2	U	22.2	1	26.5
11SD030612	20110428	SD	AROCLOR-1232	PCB	9.47	U	N		UG/KG	19.3	U	19.3	1	14.3
11SD040006	20110428	SD	AROCLOR-1232	PCB	11.2	U	N		UG/KG	22.9	U	22.9	1	28.5
11SD040612	20110428	SD	AROCLOR-1232	PCB	10.9	U	N		UG/KG	22.3	U	22.3	1	26.8
11SD010006	20110428	SD	AROCLOR-1242	PCB	11.5	U	N		UG/KG	23.5	U	23.5	1	31.3
11SD010612	20110428	SD	AROCLOR-1242	PCB	11.1	U	N		UG/KG	22.7	U	22.7	1	27.6
11SD020006	20110428	SD	AROCLOR-1242	PCB	10.3	U	N		UG/KG	21.1	U	21.1	1	21.4
11SD020006-D	20110428	SD	AROCLOR-1242	PCB	9.91	U	N		UG/KG	20.2	U	20.2	1	18.6
11SD020612	20110428	SD	AROCLOR-1242	PCB	10.2	U	N		UG/KG	20.9	U	20.9	1	22.2
11SD030006	20110428	SD	AROCLOR-1242	PCB	10.9	U	N		UG/KG	22.2	U	22.2	1	26.5
11SD030612	20110428	SD	AROCLOR-1242	PCB	9.47	U	N		UG/KG	19.3	U	19.3	1	14.3
11SD040006	20110428	SD	AROCLOR-1242	PCB	11.2	U	N		UG/KG	22.9	U	22.9	1	28.5
11SD040612	20110428	SD	AROCLOR-1242	PCB	10.9	U	N		UG/KG	22.3	U	22.3	1	26.8
11SD010006	20110428	SD	AROCLOR-1248	PCB	11.5	U	N		UG/KG	23.5	U	23.5	1	31.3
11SD010612	20110428	SD	AROCLOR-1248	PCB	11.1	U	N		UG/KG	22.7	U	22.7	1	27.6
11SD020006	20110428	SD	AROCLOR-1248	PCB	10.3	U	N		UG/KG	21.1	U	21.1	1	21.4
11SD020006-D	20110428	SD	AROCLOR-1248	PCB	9.91	U	N		UG/KG	20.2	U	20.2	1	18.6
11SD020612	20110428	SD	AROCLOR-1248	PCB	10.2	U	N		UG/KG	20.9	U	20.9	1	22.2
11SD030006	20110428	SD	AROCLOR-1248	PCB	10.9	U	N		UG/KG	22.2	U	22.2	1	26.5
11SD030612	20110428	SD	AROCLOR-1248	PCB	9.47	U	N		UG/KG	19.3	U	19.3	1	14.3
11SD040006	20110428	SD	AROCLOR-1248	PCB	11.2	U	N		UG/KG	22.9	U	22.9	1	28.5
11SD040612	20110428	SD	AROCLOR-1248	PCB	10.9	U	N		UG/KG	22.3	U	22.3	1	26.8
11SD010006	20110428	SD	AROCLOR-1254	PCB	11.5	U	N		UG/KG	23.5	U	23.5	1	31.3
11SD010612	20110428	SD	AROCLOR-1254	PCB	11.1	U	N		UG/KG	22.7	U	22.7	1	27.6
11SD020006	20110428	SD	AROCLOR-1254	PCB	10.3	U	N		UG/KG	21.1	U	21.1	1	21.4
11SD020006-D	20110428	SD	AROCLOR-1254	PCB	9.91	U	N		UG/KG	20.2	U	20.2	1	18.6
11SD020612	20110428	SD	AROCLOR-1254	PCB	10.2	U	N		UG/KG	20.9	U	20.9	1	22.2
11SD030006	20110428	SD	AROCLOR-1254	PCB	10.9	U	N		UG/KG	22.2	U	22.2	1	26.5
11SD030612	20110428	SD	AROCLOR-1254	PCB	9.47	U	N		UG/KG	19.3	U	19.3	1	14.3
11SD040006	20110428	SD	AROCLOR-1254	PCB	11.2	U	N		UG/KG	22.9	U	22.9	1	28.5
11SD040612	20110428	SD	AROCLOR-1254	PCB	10.9	U	N		UG/KG	22.3	U	22.3	1	26.8
11SD010612	20110428	SD	AROCLOR-1260	PCB	11.1	U	N		UG/KG	22.7	U	22.7	1	27.6
11SD030612	20110428	SD	AROCLOR-1260	PCB	9.47	U	N		UG/KG	19.3	U	19.3	1	14.3
11SD040006	20110428	SD	AROCLOR-1260	PCB	11.2	U	N		UG/KG	22.9	U	22.9	1	28.5
11SD040612	20110428	SD	AROCLOR-1260	PCB	10.9	U	N		UG/KG	22.3	U	22.3	1	26.8
11SD020006	20110428	SD	4,4'-DDD	PEST	0.422	U	N		UG/KG	0.831	U	0.831	1	21.4
11SD020006-D	20110428	SD	4,4'-DDD	PEST	0.404	U	N		UG/KG	0.797	U	0.797	1	18.6
11SD020612	20110428	SD	4,4'-DDD	PEST	0.418	U	N		UG/KG	0.823	U	0.823	1	22.2
11SD030006	20110428	SD	4,4'-DDD	PEST	0.445	U	N		UG/KG	0.876	U	0.876	1	26.5
11SD030612	20110428	SD	4,4'-DDD	PEST	0.386	U	N		UG/KG	0.761	U	0.761	1	14.3
11SD040006	20110428	SD	4,4'-DDD	PEST	0.457	U	N		UG/KG	0.901	U	0.901	1	28.5

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SD040612	20110428	SD	4,4'-DDD	PEST	0.447	U	N		UG/KG	0.88	U	0.88	1	26.8
11SD010006	20110428	SD	4,4'-DDE	PEST	0.47	U	N		UG/KG	0.926	U	0.926	1	31.3
11SD020006	20110428	SD	4,4'-DDE	PEST	0.422	U	N		UG/KG	0.831	U	0.831	1	21.4
11SD020006-D	20110428	SD	4,4'-DDE	PEST	0.404	U	N		UG/KG	0.797	U	0.797	1	18.6
11SD020612	20110428	SD	4,4'-DDE	PEST	0.418	U	N		UG/KG	0.823	U	0.823	1	22.2
11SD030006	20110428	SD	4,4'-DDE	PEST	0.445	U	N		UG/KG	0.876	U	0.876	1	26.5
11SD030612	20110428	SD	4,4'-DDE	PEST	0.386	U	N		UG/KG	0.761	U	0.761	1	14.3
11SD040006	20110428	SD	4,4'-DDE	PEST	0.457	U	N		UG/KG	0.901	U	0.901	1	28.5
11SD040612	20110428	SD	4,4'-DDE	PEST	0.447	U	N		UG/KG	0.88	U	0.88	1	26.8
11SD010006	20110428	SD	4,4'-DDT	PEST	0.47	U	N		UG/KG	0.926	UX	0.926	1	31.3
11SD020006	20110428	SD	4,4'-DDT	PEST	0.422	U	N		UG/KG	0.831	U	0.831	1	21.4
11SD020006-D	20110428	SD	4,4'-DDT	PEST	0.404	U	N		UG/KG	0.797	U	0.797	1	18.6
11SD020612	20110428	SD	4,4'-DDT	PEST	0.418	U	N		UG/KG	0.823	U	0.823	1	22.2
11SD030006	20110428	SD	4,4'-DDT	PEST	0.445	U	N		UG/KG	0.876	UX	0.876	1	26.5
11SD030612	20110428	SD	4,4'-DDT	PEST	0.386	U	N		UG/KG	0.761	U	0.761	1	14.3
11SD040006	20110428	SD	4,4'-DDT	PEST	0.457	U	N		UG/KG	0.901	UX	0.901	1	28.5
11SD040612	20110428	SD	4,4'-DDT	PEST	0.447	U	N		UG/KG	0.88	UX	0.88	1	26.8
11SD010006	20110428	SD	ALDRIN	PEST	0.47	U	N		UG/KG	0.926	U	0.926	1	31.3
11SD010612	20110428	SD	ALDRIN	PEST	0.454	U	N		UG/KG	0.895	U	0.895	1	27.6
11SD020006	20110428	SD	ALDRIN	PEST	0.422	U	N		UG/KG	0.831	U	0.831	1	21.4
11SD020006-D	20110428	SD	ALDRIN	PEST	0.404	U	N		UG/KG	0.797	U	0.797	1	18.6
11SD020612	20110428	SD	ALDRIN	PEST	0.418	U	N		UG/KG	0.823	U	0.823	1	22.2
11SD030006	20110428	SD	ALDRIN	PEST	0.445	U	N		UG/KG	0.876	U	0.876	1	26.5
11SD030612	20110428	SD	ALDRIN	PEST	0.386	U	N		UG/KG	0.761	U	0.761	1	14.3
11SD040006	20110428	SD	ALDRIN	PEST	0.457	U	N		UG/KG	0.901	U	0.901	1	28.5
11SD040612	20110428	SD	ALDRIN	PEST	0.447	U	N		UG/KG	0.88	U	0.88	1	26.8
11SD020006	20110428	SD	ALPHA-BHC	PEST	0.422	U	N		UG/KG	0.831	U	0.831	1	21.4
11SD020612	20110428	SD	ALPHA-BHC	PEST	0.418	U	N		UG/KG	0.823	U	0.823	1	22.2
11SD010006	20110428	SD	ALPHA-CHLORDANE	PEST	0.47	U	N		UG/KG	0.926	U	0.926	1	31.3
11SD010612	20110428	SD	ALPHA-CHLORDANE	PEST	0.454	U	N		UG/KG	0.895	U	0.895	1	27.6
11SD020006	20110428	SD	ALPHA-CHLORDANE	PEST	0.422	U	N		UG/KG	0.831	U	0.831	1	21.4
11SD020006-D	20110428	SD	ALPHA-CHLORDANE	PEST	0.404	U	N		UG/KG	0.797	U	0.797	1	18.6
11SD020612	20110428	SD	ALPHA-CHLORDANE	PEST	0.418	U	N		UG/KG	0.823	U	0.823	1	22.2
11SD030006	20110428	SD	ALPHA-CHLORDANE	PEST	0.445	U	N		UG/KG	0.876	U	0.876	1	26.5
11SD030612	20110428	SD	ALPHA-CHLORDANE	PEST	0.386	U	N		UG/KG	0.761	U	0.761	1	14.3
11SD040006	20110428	SD	ALPHA-CHLORDANE	PEST	0.457	U	N		UG/KG	0.901	U	0.901	1	28.5
11SD040612	20110428	SD	ALPHA-CHLORDANE	PEST	0.447	U	N		UG/KG	0.88	U	0.88	1	26.8
11SD010006	20110428	SD	BETA-BHC	PEST	0.47	U	N		UG/KG	0.926	U	0.926	1	31.3
11SD010612	20110428	SD	BETA-BHC	PEST	0.454	U	N		UG/KG	0.895	U	0.895	1	27.6
11SD020006	20110428	SD	BETA-BHC	PEST	0.422	U	N		UG/KG	0.831	U	0.831	1	21.4
11SD020006-D	20110428	SD	BETA-BHC	PEST	0.404	U	N		UG/KG	0.797	U	0.797	1	18.6
11SD020612	20110428	SD	BETA-BHC	PEST	0.418	U	N		UG/KG	0.823	U	0.823	1	22.2
11SD030006	20110428	SD	BETA-BHC	PEST	0.445	U	N		UG/KG	0.876	U	0.876	1	26.5
11SD030612	20110428	SD	BETA-BHC	PEST	0.386	U	N		UG/KG	0.761	U	0.761	1	14.3
11SD040006	20110428	SD	BETA-BHC	PEST	0.457	U	N		UG/KG	0.901	U	0.901	1	28.5
11SD040612	20110428	SD	BETA-BHC	PEST	0.447	U	N		UG/KG	0.88	U	0.88	1	26.8
11SD010006	20110428	SD	DELTA-BHC	PEST	0.47	U	N		UG/KG	0.926	UX	0.926	1	31.3
11SD010612	20110428	SD	DELTA-BHC	PEST	0.454	U	N		UG/KG	0.895	UX	0.895	1	27.6
11SD030006	20110428	SD	DELTA-BHC	PEST	0.445	U	N		UG/KG	0.876	UX	0.876	1	26.5
11SD040006	20110428	SD	DELTA-BHC	PEST	0.457	U	N		UG/KG	0.901	UX	0.901	1	28.5
11SD040612	20110428	SD	DELTA-BHC	PEST	0.447	U	N		UG/KG	0.88	UX	0.88	1	26.8
11SD010006	20110428	SD	ENDOSULFAN SULFATE	PEST	0.47	U	N		UG/KG	0.926	U	0.926	1	31.3
11SD010612	20110428	SD	ENDOSULFAN SULFATE	PEST	0.454	U	N		UG/KG	0.895	U	0.895	1	27.6
11SD020006	20110428	SD	ENDOSULFAN SULFATE	PEST	0.422	U	N		UG/KG	0.831	U	0.831	1	21.4
11SD020006-D	20110428	SD	ENDOSULFAN SULFATE	PEST	0.404	U	N		UG/KG	0.797	U	0.797	1	18.6
11SD020612	20110428	SD	ENDOSULFAN SULFATE	PEST	0.418	U	N		UG/KG	0.823	U	0.823	1	22.2
11SD030006	20110428	SD	ENDOSULFAN SULFATE	PEST	0.445	U	N		UG/KG	0.876	U	0.876	1	26.5
11SD030612	20110428	SD	ENDOSULFAN SULFATE	PEST	0.386	U	N		UG/KG	0.761	U	0.761	1	14.3
11SD040006	20110428	SD	ENDOSULFAN SULFATE	PEST	0.457	U	N		UG/KG	0.901	U	0.901	1	28.5
11SD040612	20110428	SD	ENDOSULFAN SULFATE	PEST	0.447	U	N		UG/KG	0.88	U	0.88	1	26.8
11SD010006	20110428	SD	ENDRIN KETONE	PEST	0.47	U	N		UG/KG	0.926	U	0.926	1	31.3
11SD010612	20110428	SD	ENDRIN KETONE	PEST	0.454	U	N		UG/KG	0.895	U	0.895	1	27.6
11SD020006	20110428	SD	ENDRIN KETONE	PEST	0.422	U	N		UG/KG	0.831	U	0.831	1	21.4
11SD020006-D	20110428	SD	ENDRIN KETONE	PEST	0.404	U	N		UG/KG	0.797	U	0.797	1	18.6
11SD020612	20110428	SD	ENDRIN KETONE	PEST	0.418	U	N		UG/KG	0.823	U	0.823	1	22.2
11SD030006	20110428	SD	ENDRIN KETONE	PEST	0.445	U	N		UG/KG	0.876	U	0.876	1	26.5
11SD030612	20110428	SD	ENDRIN KETONE	PEST	0.386	U	N		UG/KG	0.761	U	0.761	1	14.3
11SD040006	20110428	SD	ENDRIN KETONE	PEST	0.457	U	N		UG/KG	0.901	U	0.901	1	28.5
11SD040612	20110428	SD	ENDRIN KETONE	PEST	0.447	U	N		UG/KG	0.88	UN	0.88	1	26.8
11SD010006	20110428	SD	GAMMA-BHC (LINDANE)	PEST	0.47	U	N		UG/KG	0.926	U	0.926	1	31.3
11SD010612	20110428	SD	GAMMA-BHC (LINDANE)	PEST	0.454	U	N		UG/KG	0.895	U	0.895	1	27.6
11SD020006	20110428	SD	GAMMA-BHC (LINDANE)	PEST	0.422	U	N		UG/KG	0.831	U	0.831	1	21.4
11SD020006-D	20110428	SD	GAMMA-BHC (LINDANE)	PEST	0.404	U	N		UG/KG	0.797	U	0.797	1	18.6
11SD020612	20110428	SD	GAMMA-BHC (LINDANE)	PEST	0.418	U	N		UG/KG	0.823	U	0.823	1	22.2
11SD030006	20110428	SD	GAMMA-BHC (LINDANE)	PEST	0.445	U	N		UG/KG	0.876	U	0.876	1	26.5
11SD030612	20110428	SD	GAMMA-BHC (LINDANE)	PEST	0.386	U	N		UG/KG	0.761	U	0.761	1	14.3
11SD040006	20110428	SD	GAMMA-BHC (LINDANE)	PEST	0.457	U	N		UG/KG	0.901	U	0.901	1	28.5
11SD040612	20110428	SD	GAMMA-BHC (LINDANE)	PEST	0.447	U	N		UG/KG	0.88	U	0.88	1	26.8
11SD030006	20110428	SD	GAMMA-CHLORDANE	PEST	0.445	U	N		UG/KG	0.876	U	0.876	1	26.5
11SD030612	20110428	SD	GAMMA-CHLORDANE	PEST	0.386	U	N		UG/KG	0.761	U	0.761	1	14.3
11SD040006	20110428	SD	GAMMA-CHLORDANE	PEST	0.457	U	N		UG/KG	0.901	U	0.901	1	28.5

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SD040612	20110428	SD	GAMMA-CHLORDANE	PEST	0.447	U	N		UG/KG	0.88	U	0.88	1	26.8
11SD010006	20110428	SD	HEPTACHLOR	PEST	0.47	U	N		UG/KG	0.926	U	0.926	1	31.3
11SD010612	20110428	SD	HEPTACHLOR	PEST	0.454	U	N		UG/KG	0.895	U	0.895	1	27.6
11SD020006	20110428	SD	HEPTACHLOR	PEST	0.422	U	N		UG/KG	0.831	U	0.831	1	21.4
11SD020006-D	20110428	SD	HEPTACHLOR	PEST	0.404	U	N		UG/KG	0.797	U	0.797	1	18.6
11SD020612	20110428	SD	HEPTACHLOR	PEST	0.418	U	N		UG/KG	0.823	U	0.823	1	22.2
11SD030006	20110428	SD	HEPTACHLOR	PEST	0.445	U	N		UG/KG	0.876	U	0.876	1	26.5
11SD030612	20110428	SD	HEPTACHLOR	PEST	0.386	U	N		UG/KG	0.761	U	0.761	1	14.3
11SD040006	20110428	SD	HEPTACHLOR	PEST	0.457	U	N		UG/KG	0.901	U	0.901	1	28.5
11SD040612	20110428	SD	HEPTACHLOR	PEST	0.447	U	N		UG/KG	0.88	U	0.88	1	26.8
11SD010006	20110428	SD	HEPTACHLOR EPOXIDE	PEST	0.47	U	N		UG/KG	0.926	U	0.926	1	31.3
11SD010612	20110428	SD	HEPTACHLOR EPOXIDE	PEST	0.454	U	N		UG/KG	0.895	U	0.895	1	27.6
11SD020006	20110428	SD	HEPTACHLOR EPOXIDE	PEST	0.422	U	N		UG/KG	0.831	U	0.831	1	21.4
11SD020006-D	20110428	SD	HEPTACHLOR EPOXIDE	PEST	0.404	U	N		UG/KG	0.797	U	0.797	1	18.6
11SD020612	20110428	SD	HEPTACHLOR EPOXIDE	PEST	0.418	U	N		UG/KG	0.823	U	0.823	1	22.2
11SD030006	20110428	SD	HEPTACHLOR EPOXIDE	PEST	0.445	U	N		UG/KG	0.876	U	0.876	1	26.5
11SD030612	20110428	SD	HEPTACHLOR EPOXIDE	PEST	0.386	U	N		UG/KG	0.761	U	0.761	1	14.3
11SD040006	20110428	SD	HEPTACHLOR EPOXIDE	PEST	0.457	U	N		UG/KG	0.901	U	0.901	1	28.5
11SD040612	20110428	SD	HEPTACHLOR EPOXIDE	PEST	0.447	U	N		UG/KG	0.88	UN	0.88	1	26.8
11SD010006	20110428	SD	TOXAPHENE	PEST	30.4	U	N		UG/KG	45.6	UX	45.6	1	31.3
11SD010612	20110428	SD	TOXAPHENE	PEST	29.4	U	N		UG/KG	44.1	UX	44.1	1	27.6
11SD020006	20110428	SD	TOXAPHENE	PEST	27.3	U	N		UG/KG	40.9	UX	40.9	1	21.4
11SD020006-D	20110428	SD	TOXAPHENE	PEST	26.2	U	N		UG/KG	39.3	UX	39.3	1	18.6
11SD020612	20110428	SD	TOXAPHENE	PEST	27	U	N		UG/KG	40.6	UX	40.6	1	22.2
11SD030006	20110428	SD	TOXAPHENE	PEST	28.8	U	N		UG/KG	43.2	UX	43.2	1	26.5
11SD030612	20110428	SD	TOXAPHENE	PEST	25	U	N		UG/KG	37.5	UX	37.5	1	14.3
11SD040006	20110428	SD	TOXAPHENE	PEST	29.6	U	N		UG/KG	44.4	UX	44.4	1	28.5
11SD040612	20110428	SD	TOXAPHENE	PEST	28.9	U	N		UG/KG	43.4	UN	43.4	1	26.8
11SS180002	20110426	SO	1,2,3,4,6,7,8,9-OCDF	DIOX	6.33	U	N		NG/KG	6.33	U	9.5	1	19
11SS210002-D	20110426	SO	1,2,3,4,6,7,8,9-OCDF	DIOX	6.03	U	N		NG/KG	6.03	U	9.05	1	21
11SS230002	20110426	SO	1,2,3,4,6,7,8,9-OCDF	DIOX	6.36	U	N		NG/KG	6.36	U	9.56	1	19
11SS240002	20110426	SO	1,2,3,4,6,7,8,9-OCDF	DIOX	6.22	U	N		NG/KG	6.22	U	9.34	1	17
11SS180002	20110426	SO	1,2,3,4,6,7,8-HPCDF	DIOX	3.17	U	N		NG/KG	3.17	U	4.75	1	19
11SS210002-D	20110426	SO	1,2,3,4,6,7,8-HPCDF	DIOX	3.02	U	N		NG/KG	3.02	U	4.53	1	21
11SS230002	20110426	SO	1,2,3,4,6,7,8-HPCDF	DIOX	3.19	U	N		NG/KG	3.19	U	4.78	1	19
11SS240002	20110426	SO	1,2,3,4,6,7,8-HPCDF	DIOX	3.12	U	N		NG/KG	3.12	U	4.67	1	17
11SB020002	20110426	SO	1,2,3,4,7,8,9-HPCDF	DIOX	3.28	U	N		NG/KG	3.28	U	4.9	1	20
11SS090002	20110426	SO	1,2,3,4,7,8,9-HPCDF	DIOX	3.19	U	N		NG/KG	3.19	U	4.77	1	19
11SS110002-D	20110426	SO	1,2,3,4,7,8,9-HPCDF	DIOX	3.11	U	N		NG/KG	3.11	U	4.65	1	20
11SS140002	20110426	SO	1,2,3,4,7,8,9-HPCDF	DIOX	3.12	U	N		NG/KG	3.12	U	4.66	1	20
11SS180002	20110426	SO	1,2,3,4,7,8,9-HPCDF	DIOX	3.17	U	N		NG/KG	3.17	U	4.75	1	19
11SS190002	20110426	SO	1,2,3,4,7,8,9-HPCDF	DIOX	3.18	U	N		NG/KG	3.18	U	4.76	1	18
11SS210002	20110426	SO	1,2,3,4,7,8,9-HPCDF	DIOX	3.21	U	N		NG/KG	3.21	U	4.81	1	19
11SS210002-D	20110426	SO	1,2,3,4,7,8,9-HPCDF	DIOX	3.02	U	N		NG/KG	3.02	U	4.53	1	21
11SS230002	20110426	SO	1,2,3,4,7,8,9-HPCDF	DIOX	3.19	U	N		NG/KG	3.19	U	4.78	1	19
11SS240002	20110426	SO	1,2,3,4,7,8,9-HPCDF	DIOX	3.12	U	N		NG/KG	3.12	U	4.67	1	17
11SS090002	20110426	SO	1,2,3,4,7,8-HXCDD	DIOX	3.19	U	N		NG/KG	3.19	U	4.77	1	19
11SS110002-D	20110426	SO	1,2,3,4,7,8-HXCDD	DIOX	3.11	U	N		NG/KG	3.11	U	4.65	1	20
11SS180002	20110426	SO	1,2,3,4,7,8-HXCDD	DIOX	3.17	U	N		NG/KG	3.17	U	4.75	1	19
11SS190002	20110426	SO	1,2,3,4,7,8-HXCDD	DIOX	3.18	U	N		NG/KG	3.18	U	4.76	1	18
11SS210002	20110426	SO	1,2,3,4,7,8-HXCDD	DIOX	3.21	U	N		NG/KG	3.21	U	4.81	1	19
11SS210002-D	20110426	SO	1,2,3,4,7,8-HXCDD	DIOX	3.02	U	N		NG/KG	3.02	U	4.53	1	21
11SS230002	20110426	SO	1,2,3,4,7,8-HXCDD	DIOX	3.19	U	N		NG/KG	3.19	U	4.78	1	19
11SS240002	20110426	SO	1,2,3,4,7,8-HXCDD	DIOX	3.12	U	N		NG/KG	3.12	U	4.67	1	17
11SB020002	20110426	SO	1,2,3,4,7,8-HXCDF	DIOX	3.28	U	N		NG/KG	3.28	U	4.9	1	20
11SS090002	20110426	SO	1,2,3,4,7,8-HXCDF	DIOX	3.19	U	N		NG/KG	3.19	U	4.77	1	19
11SS110002-D	20110426	SO	1,2,3,4,7,8-HXCDF	DIOX	3.11	U	N		NG/KG	3.11	U	4.65	1	20
11SS180002	20110426	SO	1,2,3,4,7,8-HXCDF	DIOX	3.17	U	N		NG/KG	3.17	U	4.75	1	19
11SS190002	20110426	SO	1,2,3,4,7,8-HXCDF	DIOX	3.18	U	N		NG/KG	3.18	U	4.76	1	18
11SS210002-D	20110426	SO	1,2,3,4,7,8-HXCDF	DIOX	3.02	U	N		NG/KG	3.02	U	4.53	1	21
11SS230002	20110426	SO	1,2,3,4,7,8-HXCDF	DIOX	3.19	U	N		NG/KG	3.19	U	4.78	1	19
11SS240002	20110426	SO	1,2,3,4,7,8-HXCDF	DIOX	3.12	U	N		NG/KG	3.12	U	4.67	1	17
11SS090002	20110426	SO	1,2,3,6,7,8-HXCDD	DIOX	3.19	U	N		NG/KG	3.19	U	4.77	1	19
11SS180002	20110426	SO	1,2,3,6,7,8-HXCDD	DIOX	3.17	U	N		NG/KG	3.17	U	4.75	1	19
11SS230002	20110426	SO	1,2,3,6,7,8-HXCDD	DIOX	3.19	U	N		NG/KG	3.19	U	4.78	1	19
11SS240002	20110426	SO	1,2,3,6,7,8-HXCDD	DIOX	3.12	U	N		NG/KG	3.12	U	4.67	1	17
11SB020002	20110426	SO	1,2,3,6,7,8-HXCDF	DIOX	3.28	U	N		NG/KG	3.28	U	4.9	1	20
11SS090002	20110426	SO	1,2,3,6,7,8-HXCDF	DIOX	3.19	U	N		NG/KG	3.19	U	4.77	1	19
11SS110002-D	20110426	SO	1,2,3,6,7,8-HXCDF	DIOX	3.11	U	N		NG/KG	3.11	U	4.65	1	20
11SS180002	20110426	SO	1,2,3,6,7,8-HXCDF	DIOX	3.17	U	N		NG/KG	3.17	U	4.75	1	19
11SS190002	20110426	SO	1,2,3,6,7,8-HXCDF	DIOX	3.18	U	N		NG/KG	3.18	U	4.76	1	18
11SS210002	20110426	SO	1,2,3,6,7,8-HXCDF	DIOX	3.21	U	N		NG/KG	3.21	U	4.81	1	19
11SS210002-D	20110426	SO	1,2,3,6,7,8-HXCDF	DIOX	3.02	U	N		NG/KG	3.02	U	4.53	1	21
11SS230002	20110426	SO	1,2,3,6,7,8-HXCDF	DIOX	3.19	U	N		NG/KG	3.19	U	4.78	1	19
11SS240002	20110426	SO	1,2,3,6,7,8-HXCDF	DIOX	3.12	U	N		NG/KG	3.12	U	4.67	1	17
11SS090002	20110426	SO	1,2,3,7,8,9-HXCDD	DIOX	3.19	U	N		NG/KG	3.19	U	4.77	1	19
11SS180002	20110426	SO	1,2,3,7,8,9-HXCDD	DIOX	3.17	U	N		NG/KG	3.17	U	4.75	1	19
11SS230002	20110426	SO	1,2,3,7,8,9-HXCDD	DIOX	3.19	U	N		NG/KG	3.19	U	4.78	1	19
11SS240002	20110426	SO	1,2,3,7,8,9-HXCDD	DIOX	3.12	U	N		NG/KG	3.12	U	4.67	1	17
11SB020002	20110426	SO	1,2,3,7,8,9-HXCDF	DIOX	3.28	U	N		NG/KG	3.28	U	4.9	1	20
11SS090002	20110426	SO	1,2,3,7,8,9-HXCDF	DIOX	3.19	U	N		NG/KG	3.19	U	4.77	1	19

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SS110002-D	20110426	SO	1,2,3,7,8,9-HXCDF	DIOX	3.11	U	N		NG/KG	3.11	U	4.65	1	20
11SS140002	20110426	SO	1,2,3,7,8,9-HXCDF	DIOX	3.12	U	N		NG/KG	3.12	U	4.66	1	20
11SS180002	20110426	SO	1,2,3,7,8,9-HXCDF	DIOX	3.17	U	N		NG/KG	3.17	U	4.75	1	19
11SS190002	20110426	SO	1,2,3,7,8,9-HXCDF	DIOX	3.18	U	N		NG/KG	3.18	U	4.76	1	18
11SS200002	20110426	SO	1,2,3,7,8,9-HXCDF	DIOX	3.09	U	N		NG/KG	3.09	U	4.63	1	14
11SS210002	20110426	SO	1,2,3,7,8,9-HXCDF	DIOX	3.21	U	N		NG/KG	3.21	U	4.81	1	19
11SS210002-D	20110426	SO	1,2,3,7,8,9-HXCDF	DIOX	3.02	U	N		NG/KG	3.02	U	4.53	1	21
11SS220002	20110426	SO	1,2,3,7,8,9-HXCDF	DIOX	3.19	U	N		NG/KG	3.19	U	4.78	1	13
11SS230002	20110426	SO	1,2,3,7,8,9-HXCDF	DIOX	3.19	U	N		NG/KG	3.19	U	4.78	1	19
11SS240002	20110426	SO	1,2,3,7,8,9-HXCDF	DIOX	3.12	U	N		NG/KG	3.12	U	4.67	1	17
11SB020002	20110426	SO	1,2,3,7,8-PECDD	DIOX	3.28	U	N		NG/KG	3.28	U	4.9	1	20
11SS090002	20110426	SO	1,2,3,7,8-PECDD	DIOX	3.19	U	N		NG/KG	3.19	U	4.77	1	19
11SS110002-D	20110426	SO	1,2,3,7,8-PECDD	DIOX	3.11	U	N		NG/KG	3.11	U	4.65	1	20
11SS140002	20110426	SO	1,2,3,7,8-PECDD	DIOX	3.12	U	N		NG/KG	3.12	U	4.66	1	20
11SS180002	20110426	SO	1,2,3,7,8-PECDD	DIOX	3.17	U	N		NG/KG	3.17	U	4.75	1	19
11SS190002	20110426	SO	1,2,3,7,8-PECDD	DIOX	3.18	U	N		NG/KG	3.18	U	4.76	1	18
11SS200002	20110426	SO	1,2,3,7,8-PECDD	DIOX	3.09	U	N		NG/KG	3.09	U	4.63	1	14
11SS210002	20110426	SO	1,2,3,7,8-PECDD	DIOX	3.21	U	N		NG/KG	3.21	U	4.81	1	19
11SS210002-D	20110426	SO	1,2,3,7,8-PECDD	DIOX	3.02	U	N		NG/KG	3.02	U	4.53	1	21
11SS230002	20110426	SO	1,2,3,7,8-PECDD	DIOX	3.19	U	N		NG/KG	3.19	U	4.78	1	19
11SS240002	20110426	SO	1,2,3,7,8-PECDD	DIOX	3.12	U	N		NG/KG	3.12	U	4.67	1	17
11SB020002	20110426	SO	1,2,3,7,8-PECDF	DIOX	3.28	U	N		NG/KG	3.28	U	4.9	1	20
11SS090002	20110426	SO	1,2,3,7,8-PECDF	DIOX	3.19	U	N		NG/KG	3.19	U	4.77	1	19
11SS110002-D	20110426	SO	1,2,3,7,8-PECDF	DIOX	3.11	U	N		NG/KG	3.11	U	4.65	1	20
11SS180002	20110426	SO	1,2,3,7,8-PECDF	DIOX	3.17	U	N		NG/KG	3.17	U	4.75	1	19
11SS190002	20110426	SO	1,2,3,7,8-PECDF	DIOX	3.18	U	N		NG/KG	3.18	U	4.76	1	18
11SS200002	20110426	SO	1,2,3,7,8-PECDF	DIOX	3.09	U	N		NG/KG	3.09	U	4.63	1	14
11SS210002	20110426	SO	1,2,3,7,8-PECDF	DIOX	3.21	U	N		NG/KG	3.21	U	4.81	1	19
11SS210002-D	20110426	SO	1,2,3,7,8-PECDF	DIOX	3.02	U	N		NG/KG	3.02	U	4.53	1	21
11SS230002	20110426	SO	1,2,3,7,8-PECDF	DIOX	3.19	U	N		NG/KG	3.19	U	4.78	1	19
11SS240002	20110426	SO	1,2,3,7,8-PECDF	DIOX	3.12	U	N		NG/KG	3.12	U	4.67	1	17
11SB020002	20110426	SO	2,3,4,6,7,8-HXCDF	DIOX	3.28	U	N		NG/KG	3.28	U	4.9	1	20
11SS090002	20110426	SO	2,3,4,6,7,8-HXCDF	DIOX	3.19	U	N		NG/KG	3.19	U	4.77	1	19
11SS110002-D	20110426	SO	2,3,4,6,7,8-HXCDF	DIOX	3.11	U	N		NG/KG	3.11	U	4.65	1	20
11SS180002	20110426	SO	2,3,4,6,7,8-HXCDF	DIOX	3.17	U	N		NG/KG	3.17	U	4.75	1	19
11SS190002	20110426	SO	2,3,4,6,7,8-HXCDF	DIOX	3.18	U	N		NG/KG	3.18	U	4.76	1	18
11SS210002	20110426	SO	2,3,4,6,7,8-HXCDF	DIOX	3.21	U	N		NG/KG	3.21	U	4.81	1	19
11SS210002-D	20110426	SO	2,3,4,6,7,8-HXCDF	DIOX	3.02	U	N		NG/KG	3.02	U	4.53	1	21
11SS230002	20110426	SO	2,3,4,6,7,8-HXCDF	DIOX	3.19	U	N		NG/KG	3.19	U	4.78	1	19
11SS240002	20110426	SO	2,3,4,6,7,8-HXCDF	DIOX	3.12	U	N		NG/KG	3.12	U	4.67	1	17
11SB020002	20110426	SO	2,3,4,7,8-PECDF	DIOX	3.28	U	N		NG/KG	3.28	U	4.9	1	20
11SS090002	20110426	SO	2,3,4,7,8-PECDF	DIOX	3.19	U	N		NG/KG	3.19	U	4.77	1	19
11SS110002-D	20110426	SO	2,3,4,7,8-PECDF	DIOX	3.11	U	N		NG/KG	3.11	U	4.65	1	20
11SS180002	20110426	SO	2,3,4,7,8-PECDF	DIOX	3.17	U	N		NG/KG	3.17	U	4.75	1	19
11SS190002	20110426	SO	2,3,4,7,8-PECDF	DIOX	3.18	U	N		NG/KG	3.18	U	4.76	1	18
11SS200002	20110426	SO	2,3,4,7,8-PECDF	DIOX	3.09	U	N		NG/KG	3.09	U	4.63	1	14
11SS210002	20110426	SO	2,3,4,7,8-PECDF	DIOX	3.21	U	N		NG/KG	3.21	U	4.81	1	19
11SS210002-D	20110426	SO	2,3,4,7,8-PECDF	DIOX	3.02	U	N		NG/KG	3.02	U	4.53	1	21
11SS230002	20110426	SO	2,3,4,7,8-PECDF	DIOX	3.19	U	N		NG/KG	3.19	U	4.78	1	19
11SS240002	20110426	SO	2,3,4,7,8-PECDF	DIOX	3.12	U	N		NG/KG	3.12	U	4.67	1	17
11SB020002	20110426	SO	2,3,7,8-TCDD	DIOX	0.653	U	N		NG/KG	0.653	U	0.981	1	20
11SS090002	20110426	SO	2,3,7,8-TCDD	DIOX	0.635	U	N		NG/KG	0.635	U	0.954	1	19
11SS110002	20110426	SO	2,3,7,8-TCDD	DIOX	0.637	U	N		NG/KG	0.637	U	0.957	1	16
11SS110002-D	20110426	SO	2,3,7,8-TCDD	DIOX	0.62	U	N		NG/KG	0.62	U	0.931	1	20
11SS140002	20110426	SO	2,3,7,8-TCDD	DIOX	0.621	U	N		NG/KG	0.621	U	0.933	1	20
11SS180002	20110426	SO	2,3,7,8-TCDD	DIOX	0.633	U	N		NG/KG	0.633	U	0.95	1	19
11SS200002	20110426	SO	2,3,7,8-TCDD	DIOX	0.616	U	N		NG/KG	0.616	U	0.925	1	14
11SS210002	20110426	SO	2,3,7,8-TCDD	DIOX	0.641	U	N		NG/KG	0.641	U	0.962	1	19
11SS210002-D	20110426	SO	2,3,7,8-TCDD	DIOX	0.603	U	N		NG/KG	0.603	U	0.905	1	21
11SS230002	20110426	SO	2,3,7,8-TCDD	DIOX	0.636	U	N		NG/KG	0.636	U	0.956	1	19
11SS240002	20110426	SO	2,3,7,8-TCDD	DIOX	0.622	U	N		NG/KG	0.622	U	0.934	1	17
11SS110002	20110426	SO	2,3,7,8-TCDF	DIOX	0.637	U	N		NG/KG	0.637	U	0.957	1	16
11SS110002-D	20110426	SO	2,3,7,8-TCDF	DIOX	0.62	U	N		NG/KG	0.62	U	0.931	1	20
11SB020002	20110426	SO	TOTAL HPCDF	DIOX	3.28	U	N		NG/KG	3.28	U	4.9	1	20
11SS180002	20110426	SO	TOTAL HPCDF	DIOX	3.17	U	N		NG/KG	3.17	U	4.75	1	19
11SS210002-D	20110426	SO	TOTAL HPCDF	DIOX	3.02	U	N		NG/KG	3.02	U	4.53	1	21
11SS230002	20110426	SO	TOTAL HPCDF	DIOX	3.19	U	N		NG/KG	3.19	U	4.78	1	19
11SS240002	20110426	SO	TOTAL HPCDF	DIOX	3.12	U	N		NG/KG	3.12	U	4.67	1	17
11SS240002	20110426	SO	TOTAL HXCDD	DIOX	3.12	U	N		NG/KG	3.12	U	4.67	1	17
11SS090002	20110426	SO	TOTAL HXCDF	DIOX	3.19	U	N		NG/KG	3.19	U	4.77	1	19
11SS180002	20110426	SO	TOTAL HXCDF	DIOX	3.17	U	N		NG/KG	3.17	U	4.75	1	19
11SS210002-D	20110426	SO	TOTAL HXCDF	DIOX	3.02	U	N		NG/KG	3.02	U	4.53	1	21
11SS230002	20110426	SO	TOTAL HXCDF	DIOX	3.19	U	N		NG/KG	3.19	U	4.78	1	19
11SS240002	20110426	SO	TOTAL HXCDF	DIOX	3.12	U	N		NG/KG	3.12	U	4.67	1	17
11SS090002	20110426	SO	TOTAL PECDD	DIOX	3.19	U	N		NG/KG	3.19	U	4.77	1	19
11SS210002	20110426	SO	TOTAL PECDD	DIOX	3.21	U	N		NG/KG	3.21	U	4.81	1	19
11SS210002-D	20110426	SO	TOTAL PECDD	DIOX	3.02	U	N		NG/KG	3.02	U	4.53	1	21
11SS230002	20110426	SO	TOTAL PECDD	DIOX	3.19	U	N		NG/KG	3.19	U	4.78	1	19
11SS240002	20110426	SO	TOTAL PECDD	DIOX	3.12	U	N		NG/KG	3.12	U	4.67	1	17
11SB020002	20110426	SO	TOTAL PECDF	DIOX	3.28	U	N		NG/KG	3.28	U	4.9	1	20
11SS090002	20110426	SO	TOTAL PECDF	DIOX	3.19	U	N		NG/KG	3.19	U	4.77	1	19

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SS180002	20110426	SO	TOTAL PECDF	DIOX	3.17	U	N		NG/KG	3.17	U	4.75	1	19
11SS190002	20110426	SO	TOTAL PECDF	DIOX	3.18	U	N		NG/KG	3.18	U	4.76	1	18
11SS210002	20110426	SO	TOTAL PECDF	DIOX	3.21	U	N		NG/KG	3.21	U	4.81	1	19
11SS210002-D	20110426	SO	TOTAL PECDF	DIOX	3.02	U	N		NG/KG	3.02	U	4.53	1	21
11SS230002	20110426	SO	TOTAL PECDF	DIOX	3.19	U	N		NG/KG	3.19	U	4.78	1	19
11SS240002	20110426	SO	TOTAL PECDF	DIOX	3.12	U	N		NG/KG	3.12	U	4.67	1	17
11SB020002	20110426	SO	TOTAL TCDD	DIOX	0.653	U	N		NG/KG	0.653	U	0.981	1	20
11SS090002	20110426	SO	TOTAL TCDD	DIOX	0.635	U	N		NG/KG	0.635	U	0.954	1	19
11SS110002-D	20110426	SO	TOTAL TCDD	DIOX	0.62	U	N		NG/KG	0.62	U	0.931	1	20
11SS140002	20110426	SO	TOTAL TCDD	DIOX	0.621	U	N		NG/KG	0.621	U	0.933	1	20
11SS180002	20110426	SO	TOTAL TCDD	DIOX	0.633	U	N		NG/KG	0.633	U	0.95	1	19
11SS190002	20110426	SO	TOTAL TCDD	DIOX	0.634	U	N		NG/KG	0.634	U	0.952	1	18
11SS200002	20110426	SO	TOTAL TCDD	DIOX	0.616	U	N		NG/KG	0.616	U	0.925	1	14
11SS210002	20110426	SO	TOTAL TCDD	DIOX	0.641	U	N		NG/KG	0.641	U	0.962	1	19
11SS210002-D	20110426	SO	TOTAL TCDD	DIOX	0.603	U	N		NG/KG	0.603	U	0.905	1	21
11SS230002	20110426	SO	TOTAL TCDD	DIOX	0.636	U	N		NG/KG	0.636	U	0.956	1	19
11SS240002	20110426	SO	TOTAL TCDD	DIOX	0.622	U	N		NG/KG	0.622	U	0.934	1	17
11SS110002-D	20110426	SO	TOTAL TCDF	DIOX	0.62	U	N		NG/KG	0.62	U	0.931	1	20
11SS210002	20110426	SO	TOTAL TCDF	DIOX	0.641	U	N		NG/KG	0.641	U	0.962	1	19
11SB010002	20110426	SO	ANTIMONY	M	1	U	N		MG/KG	1.25	U	1.25	2	21.1
11SB010002-D	20110426	SO	ANTIMONY	M	0.979	U	N		MG/KG	1.22	U	1.22	2	21
11SB010406	20110426	SO	ANTIMONY	M	0.943	U	N		MG/KG	1.18	U	1.18	2	17.7
11SB010406-D	20110426	SO	ANTIMONY	M	0.998	U	N		MG/KG	1.25	U	1.25	2	19.4
11SB020002	20110426	SO	ANTIMONY	M	0.973	U	N		MG/KG	1.22	U	1.22	2	20.6
11SB020406	20110426	SO	ANTIMONY	M	2.62	U	N		MG/KG	3.27	U	3.27	5	24.3
11SB030002	20110426	SO	ANTIMONY	M	0.98	U	N		MG/KG	1.22	U	1.22	2	18.7
11SB030406	20110426	SO	ANTIMONY	M	0.941	U	N		MG/KG	1.18	U	1.18	2	13.7
11SB040002	20110426	SO	ANTIMONY	M	0.955	U	N		MG/KG	1.19	U	1.19	2	20.9
11SB040406	20110426	SO	ANTIMONY	M	0.895	U	N		MG/KG	1.12	U	1.12	2	12.8
11SS050002	20110426	SO	ANTIMONY	M	0.95	U	N		MG/KG	1.19	U	1.19	2	16.6
11SS060002	20110426	SO	ANTIMONY	M	0.98	U	N		MG/KG	1.23	U	1.23	2	19.2
11SB010002	20110426	SO	CADMIUM	M	0.251	U	N		MG/KG	0.627	UX	0.627	2	21.1
11SB010002-D	20110426	SO	CADMIUM	M	0.245	U	N		MG/KG	0.612	U	0.612	2	21
11SB010406	20110426	SO	CADMIUM	M	0.236	U	N		MG/KG	0.59	UMX	0.59	2	17.7
11SB010406-D	20110426	SO	CADMIUM	M	0.249	U	N		MG/KG	0.623	U	0.623	2	19.4
11SB020002	20110426	SO	CADMIUM	M	0.243	U	N		MG/KG	0.608	UM	0.608	2	20.6
11SB020406	20110426	SO	CADMIUM	M	0.654	U	N		MG/KG	1.63	UM	1.63	5	24.3
11SB030002	20110426	SO	CADMIUM	M	0.245	U	N		MG/KG	0.612	U	0.612	2	18.7
11SB030406	20110426	SO	CADMIUM	M	0.235	U	N		MG/KG	0.588	U	0.588	2	13.7
11SB040002	20110426	SO	CADMIUM	M	0.239	U	N		MG/KG	0.597	U	0.597	2	20.9
11SB040406	20110426	SO	CADMIUM	M	0.224	U	N		MG/KG	0.559	U	0.559	2	12.8
11SS050002	20110426	SO	CADMIUM	M	0.238	U	N		MG/KG	0.594	U	0.594	2	16.6
11SS060002	20110426	SO	CADMIUM	M	0.245	U	N		MG/KG	0.613	U	0.613	2	19.2
11SS170002	20110426	SO	MERCURY	M	0.0296	U	N		MG/KG	0.033	U	0.033	1	16.3
11SS180002	20110426	SO	MERCURY	M	0.0365	U	N		MG/KG	0.0365	U	0.036	1	17.8
11SS300002	20110427	SO	MERCURY	M	0.0402	U	N		MG/KG	0.0402	U	0.04	1	15
11SB010002-D	20110426	SO	SELENIUM	M	0.612	U	N		MG/KG	1.22	U	1.22	2	21
11SB010406	20110426	SO	SELENIUM	M	0.59	U	N		MG/KG	1.18	U	1.18	2	17.7
11SB010406-D	20110426	SO	SELENIUM	M	0.623	U	N		MG/KG	1.25	U	1.25	2	19.4
11SB030002	20110426	SO	SELENIUM	M	0.612	U	N		MG/KG	1.22	U	1.22	2	18.7
11SB030406	20110426	SO	SELENIUM	M	0.588	U	N		MG/KG	1.18	U	1.18	2	13.7
11SB040002	20110426	SO	SELENIUM	M	0.597	U	N		MG/KG	1.19	U	1.19	2	20.9
11SB040406	20110426	SO	SELENIUM	M	0.559	U	N		MG/KG	1.12	U	1.12	2	12.8
11SS070002	20110426	SO	SELENIUM	M	0.622	U	N		MG/KG	1.24	U	1.24	2	21.9
11SS080002	20110426	SO	SELENIUM	M	0.599	U	N		MG/KG	1.2	U	1.2	2	16.9
11SS090002	20110426	SO	SELENIUM	M	0.623	U	N		MG/KG	1.25	U	1.25	2	23.2
11SS100002	20110426	SO	SELENIUM	M	0.649	U	N		MG/KG	1.3	U	1.3	2	27.3
11SS110002	20110426	SO	SELENIUM	M	0.605	U	N		MG/KG	1.21	U	1.21	2	17.8
11SS110002-D	20110426	SO	SELENIUM	M	0.619	U	N		MG/KG	1.24	U	1.24	2	18.8
11SS120002	20110426	SO	SELENIUM	M	0.6	U	N		MG/KG	1.2	U	1.2	2	17
11SS130002	20110426	SO	SELENIUM	M	0.608	U	N		MG/KG	1.22	U	1.22	2	18.2
11SS140002	20110426	SO	SELENIUM	M	0.616	U	N		MG/KG	1.23	U	1.23	2	18.8
11SS170002	20110426	SO	SELENIUM	M	0.58	U	N		MG/KG	1.16	U	1.16	2	16.3
11SS180002	20110426	SO	SELENIUM	M	0.599	U	N		MG/KG	1.2	U	1.2	2	17.8
11SS290002	20110427	SO	SELENIUM	M	0.64	U	N		MG/KG	1.28	U	1.28	2	22.6
11SS300002	20110427	SO	SELENIUM	M	0.577	U	N		MG/KG	1.15	U	1.15	2	15
11SS310002-D	20110427	SO	SELENIUM	M	0.648	U	N		MG/KG	1.3	U	1.3	2	21.7
11SB010002	20110426	SO	SILVER	M	0.251	U	N		MG/KG	1.25	U	1.25	2	21.1
11SB010002-D	20110426	SO	SILVER	M	0.245	U	N		MG/KG	1.22	U	1.22	2	21
11SB010406	20110426	SO	SILVER	M	0.236	U	N		MG/KG	1.18	U	1.18	2	17.7
11SB010406-D	20110426	SO	SILVER	M	0.249	U	N		MG/KG	1.25	U	1.25	2	19.4
11SB020002	20110426	SO	SILVER	M	0.243	U	N		MG/KG	1.22	U	1.22	2	20.6
11SB020406	20110426	SO	SILVER	M	0.654	U	N		MG/KG	3.27	U	3.27	5	24.3
11SB030002	20110426	SO	SILVER	M	0.245	U	N		MG/KG	1.22	U	1.22	2	18.7
11SB030406	20110426	SO	SILVER	M	0.235	U	N		MG/KG	1.18	U	1.18	2	13.7
11SB040002	20110426	SO	SILVER	M	0.239	U	N		MG/KG	1.19	U	1.19	2	20.9
11SB040406	20110426	SO	SILVER	M	0.224	U	N		MG/KG	1.12	UM	1.12	2	12.8
11SS050002	20110426	SO	SILVER	M	0.238	U	N		MG/KG	1.19	UM	1.19	2	16.6
11SS060002	20110426	SO	SILVER	M	0.245	U	N		MG/KG	1.23	U	1.23	2	19.2
11SS070002	20110426	SO	SILVER	M	0.249	U	N		MG/KG	1.24	U	1.24	2	21.9
11SS080002	20110426	SO	SILVER	M	0.239	U	N		MG/KG	1.2	U	1.2	2	16.9

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SS090002	20110426	SO	SILVER	M	0.249	U	N		MG/KG	1.25	U	1.25	2	23.2
11SS100002	20110426	SO	SILVER	M	0.26	U	N		MG/KG	1.3	U	1.3	2	27.3
11SS110002	20110426	SO	SILVER	M	0.242	U	N		MG/KG	1.21	U	1.21	2	17.8
11SS110002-D	20110426	SO	SILVER	M	0.248	U	N		MG/KG	1.24	U	1.24	2	18.8
11SS120002	20110426	SO	SILVER	M	0.24	U	N		MG/KG	1.2	U	1.2	2	17
11SS130002	20110426	SO	SILVER	M	0.243	U	N		MG/KG	1.22	U	1.22	2	18.2
11SS140002	20110426	SO	SILVER	M	0.246	U	N		MG/KG	1.23	U	1.23	2	18.8
11SS150002	20110426	SO	SILVER	M	0.246	U	N		MG/KG	1.23	U	1.23	2	19.4
11SS160002	20110426	SO	SILVER	M	0.261	U	N		MG/KG	1.31	U	1.31	2	22.6
11SS170002	20110426	SO	SILVER	M	0.232	U	N		MG/KG	1.16	U	1.16	2	16.3
11SS180002	20110426	SO	SILVER	M	0.24	U	N		MG/KG	1.2	U	1.2	2	17.8
11SS290002	20110427	SO	SILVER	M	0.256	U	N		MG/KG	1.28	U	1.28	2	22.6
11SS300002	20110427	SO	SILVER	M	0.231	U	N		MG/KG	1.15	UM	1.15	2	15
11SS310002	20110426	SO	SILVER	M	0.24	U	N		MG/KG	1.2	U	1.2	2	19.5
11SS310002-D	20110427	SO	SILVER	M	0.259	U	N		MG/KG	1.3	U	1.3	2	21.7
11SS320002	20110426	SO	SILVER	M	0.238	U	N		MG/KG	1.19	U	1.19	2	20.4
11SB010002	20110426	SO	SODIUM	M	376	U	N		MG/KG	627	UX	627	2	21.1
11SB010406	20110426	SO	SODIUM	M	354	U	N		MG/KG	590	UX	590	2	17.7
11SB010406-D	20110426	SO	SODIUM	M	374	U	N		MG/KG	623	UX	623	2	19.4
11SB020002	20110426	SO	SODIUM	M	365	U	N		MG/KG	608	UX	608	2	20.6
11SB020406	20110426	SO	SODIUM	M	981	U	N		MG/KG	1630	UX	1630	5	24.3
11SB030002	20110426	SO	SODIUM	M	367	U	N		MG/KG	612	UX	612	2	18.7
11SB030406	20110426	SO	SODIUM	M	353	U	N		MG/KG	588	UX	588	2	13.7
11SB040002	20110426	SO	SODIUM	M	358	U	N		MG/KG	597	UX	597	2	20.9
11SB040406	20110426	SO	SODIUM	M	336	U	N		MG/KG	559	UX	559	2	12.8
11SS050002	20110426	SO	SODIUM	M	356	U	N		MG/KG	594	UX	594	2	16.6
11SS060002	20110426	SO	SODIUM	M	368	U	N		MG/KG	613	UX	613	2	19.2
11SS070002	20110426	SO	SODIUM	M	373	U	N		MG/KG	622	UXN	622	2	21.9
11SS080002	20110426	SO	SODIUM	M	359	U	N		MG/KG	599	UXN	599	2	16.9
11SS090002	20110426	SO	SODIUM	M	374	U	N		MG/KG	623	UXN	623	2	23.2
11SS100002	20110426	SO	SODIUM	M	389	U	N		MG/KG	649	UXN	649	2	27.3
11SS110002-D	20110426	SO	SODIUM	M	371	U	N		MG/KG	619	XUN	619	2	18.8
11SS120002	20110426	SO	SODIUM	M	360	U	N		MG/KG	600	XUN	600	2	17
11SS130002	20110426	SO	SODIUM	M	365	U	N		MG/KG	608	XUN	608	2	18.2
11SS170002	20110426	SO	SODIUM	M	348	U	N		MG/KG	580	XUN	580	2	16.3
11SS290002	20110427	SO	SODIUM	M	384	U	N		MG/KG	640	XUN	640	2	22.6
11SS310002	20110426	SO	SODIUM	M	360	U	N		MG/KG	600	XUN	600	2	19.5
11SS310002-D	20110427	SO	SODIUM	M	389	U	N		MG/KG	648	XUN	648	2	21.7
11SS320002	20110426	SO	SODIUM	M	357	U	N		MG/KG	596	XUN	596	2	20.4
11SB010002	20110426	SO	THALLIUM	M	0.502	U	N		MG/KG	1	U	1	2	21.1
11SB010002-D	20110426	SO	THALLIUM	M	0.489	U	N		MG/KG	0.979	U	0.979	2	21
11SB010406	20110426	SO	THALLIUM	M	0.472	U	N		MG/KG	0.943	U	0.943	2	17.7
11SB010406-D	20110426	SO	THALLIUM	M	0.499	U	N		MG/KG	0.998	U	0.998	2	19.4
11SB020002	20110426	SO	THALLIUM	M	0.486	U	N		MG/KG	0.973	U	0.973	2	20.6
11SB020406	20110426	SO	THALLIUM	M	1.31	U	N		MG/KG	2.62	U	2.62	5	24.3
11SB030002	20110426	SO	THALLIUM	M	0.49	U	N		MG/KG	0.98	U	0.98	2	18.7
11SB030406	20110426	SO	THALLIUM	M	0.471	U	N		MG/KG	0.941	U	0.941	2	13.7
11SB040002	20110426	SO	THALLIUM	M	0.477	U	N		MG/KG	0.955	U	0.955	2	20.9
11SB040406	20110426	SO	THALLIUM	M	0.448	U	N		MG/KG	0.895	U	0.895	2	12.8
11SS050002	20110426	SO	THALLIUM	M	0.475	U	N		MG/KG	0.95	U	0.95	2	16.6
11SS060002	20110426	SO	THALLIUM	M	0.49	U	N		MG/KG	0.98	U	0.98	2	19.2
11SS070002	20110426	SO	THALLIUM	M	0.497	U	N		MG/KG	0.995	U	0.995	2	21.9
11SS080002	20110426	SO	THALLIUM	M	0.479	U	N		MG/KG	0.958	U	0.958	2	16.9
11SS090002	20110426	SO	THALLIUM	M	0.499	U	N		MG/KG	0.997	U	0.997	2	23.2
11SS100002	20110426	SO	THALLIUM	M	0.519	U	N		MG/KG	1.04	U	1.04	2	27.3
11SS110002	20110426	SO	THALLIUM	M	0.484	U	N		MG/KG	0.968	U	0.968	2	17.8
11SS110002-D	20110426	SO	THALLIUM	M	0.495	U	N		MG/KG	0.991	U	0.991	2	18.8
11SS120002	20110426	SO	THALLIUM	M	0.48	U	N		MG/KG	0.96	U	0.96	2	17
11SS130002	20110426	SO	THALLIUM	M	0.486	U	N		MG/KG	0.973	U	0.973	2	18.2
11SS140002	20110426	SO	THALLIUM	M	0.492	U	N		MG/KG	0.985	U	0.985	2	18.8
11SS150002	20110426	SO	THALLIUM	M	0.491	U	N		MG/KG	0.982	U	0.982	2	19.4
11SS160002	20110426	SO	THALLIUM	M	0.522	U	N		MG/KG	1.04	U	1.04	2	22.6
11SS170002	20110426	SO	THALLIUM	M	0.464	U	N		MG/KG	0.928	U	0.928	2	16.3
11SS180002	20110426	SO	THALLIUM	M	0.479	U	N		MG/KG	0.959	U	0.959	2	17.8
11SS290002	20110427	SO	THALLIUM	M	0.512	U	N		MG/KG	1.02	U	1.02	2	22.6
11SS300002	20110427	SO	THALLIUM	M	0.461	U	N		MG/KG	0.923	U	0.923	2	15
11SS310002	20110426	SO	THALLIUM	M	0.48	U	N		MG/KG	0.96	U	0.96	2	19.5
11SS310002-D	20110427	SO	THALLIUM	M	0.518	U	N		MG/KG	1.04	U	1.04	2	21.7
11SS320002	20110426	SO	THALLIUM	M	0.476	U	N		MG/KG	0.953	U	0.953	2	20.4
11SB010002	20110426	SO	CYANIDE	MISC	0.317	U	N		MG/KG	0.951	U	0.951	1	21.1
11SB010002-D	20110426	SO	CYANIDE	MISC	0.313	U	N		MG/KG	0.94	U	0.94	1	21
11SB010406	20110426	SO	CYANIDE	MISC	0.298	U	N		MG/KG	0.893	U	0.893	1	17.7
11SB010406-D	20110426	SO	CYANIDE	MISC	0.293	U	N		MG/KG	0.878	U	0.878	1	19.4
11SB020002	20110426	SO	CYANIDE	MISC	0.315	U	N		MG/KG	0.944	U	0.944	1	20.6
11SB020406	20110426	SO	CYANIDE	MISC	0.309	U	N		MG/KG	0.926	U	0.926	1	24.3
11SB030002	20110426	SO	CYANIDE	MISC	0.299	U	N		MG/KG	0.896	U	0.896	1	18.7
11SB030406	20110426	SO	CYANIDE	MISC	0.287	U	N		MG/KG	0.861	U	0.861	1	13.7
11SB040002	20110426	SO	CYANIDE	MISC	0.293	U	N		MG/KG	0.878	U	0.878	1	20.9
11SB040406	20110426	SO	CYANIDE	MISC	0.284	U	N		MG/KG	0.852	U	0.852	1	12.8
11SS050002	20110426	SO	CYANIDE	MISC	0.28	U	N		MG/KG	0.841	U	0.841	1	16.6
11SS060002	20110426	SO	CYANIDE	MISC	0.306	U	N		MG/KG	0.919	U	0.919	1	19.2

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SS070002	20110426	SO	CYANIDE	MISC	0.317	U	N		MG/KG	0.951	U	0.951	1	21.9
11SS080002	20110426	SO	CYANIDE	MISC	0.287	U	N		MG/KG	0.86	U	0.86	1	16.9
11SS090002	20110426	SO	CYANIDE	MISC	0.31	U	N		MG/KG	0.931	U	0.931	1	23.2
11SS100002	20110426	SO	CYANIDE	MISC	0.355	U	N		MG/KG	1.06	U	1.06	1	27.3
11SB010002	20110426	SO	1,1-BIPHENYL	OS	212	U	N		UG/KG	418	U	418	1	21.1
11SB010002-D	20110426	SO	1,1-BIPHENYL	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406	20110426	SO	1,1-BIPHENYL	OS	193	U	N		UG/KG	380	U	380	1	17.7
11SB010406-D	20110426	SO	1,1-BIPHENYL	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020002	20110426	SO	1,1-BIPHENYL	OS	206	U	N		UG/KG	407	U	407	1	20.6
11SB020406	20110426	SO	1,1-BIPHENYL	OS	211	U	N		UG/KG	416	U	416	1	24.3
11SB030002	20110426	SO	1,1-BIPHENYL	OS	200	U	N		UG/KG	396	U	396	1	18.7
11SB030406	20110426	SO	1,1-BIPHENYL	OS	189	U	N		UG/KG	373	U	373	1	13.7
11SB040002	20110426	SO	1,1-BIPHENYL	OS	206	U	N		UG/KG	407	U	407	1	20.9
11SB040406	20110426	SO	1,1-BIPHENYL	OS	189	U	N		UG/KG	373	U	373	1	12.8
11SB270507	20110426	SO	1,1-BIPHENYL	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB280507	20110426	SO	1,1-BIPHENYL	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS050002	20110426	SO	1,1-BIPHENYL	OS	198	U	N		UG/KG	391	U	391	1	16.6
11SS060002	20110426	SO	1,1-BIPHENYL	OS	196	U	N		UG/KG	388	U	388	1	19.2
11SS070002	20110426	SO	1,1-BIPHENYL	OS	207	U	N		UG/KG	409	U	409	1	21.9
11SS080002	20110426	SO	1,1-BIPHENYL	OS	193	U	N		UG/KG	382	U	382	1	16.9
11SS090002	20110426	SO	1,1-BIPHENYL	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS100002	20110426	SO	1,1-BIPHENYL	OS	222	U	N		UG/KG	439	U	439	1	27.3
11SS110002	20110426	SO	1,1-BIPHENYL	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SS110002-D	20110426	SO	1,1-BIPHENYL	OS	204	U	N		UG/KG	404	U	404	1	18.8
11SS120002	20110426	SO	1,1-BIPHENYL	OS	196	U	N		UG/KG	387	U	387	1	17
11SS130002	20110426	SO	1,1-BIPHENYL	OS	193	U	N		UG/KG	380	U	380	1	18.2
11SS140002	20110426	SO	1,1-BIPHENYL	OS	203	U	N		UG/KG	401	U	401	1	18.8
11SS150002	20110426	SO	1,1-BIPHENYL	OS	207	U	N		UG/KG	409	U	409	1	19.4
11SS160002	20110426	SO	1,1-BIPHENYL	OS	214	U	N		UG/KG	424	U	424	1	22.6
11SS170002	20110426	SO	1,1-BIPHENYL	OS	200	U	N		UG/KG	394	U	394	1	16.3
11SS180002	20110426	SO	1,1-BIPHENYL	OS	194	U	N		UG/KG	383	U	383	1	17.8
11SS290002	20110427	SO	1,1-BIPHENYL	OS	213	U	N		UG/KG	421	U	421	1	22.6
11SS300002	20110427	SO	1,1-BIPHENYL	OS	189	U	N		UG/KG	373	U	373	1	15
11SS310002	20110426	SO	1,1-BIPHENYL	OS	203	U	N		UG/KG	402	U	402	1	19.5
11SS310002-D	20110427	SO	1,1-BIPHENYL	OS	210	U	N		UG/KG	416	U	416	1	21.7
11SS320002	20110426	SO	1,1-BIPHENYL	OS	204	U	N		UG/KG	404	U	404	1	20.4
11SB260507	20110427	SO	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	186	U	N		UG/KG	368	U	368	1	14.9
11SB280507	20110426	SO	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS090002	20110426	SO	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS110002	20110426	SO	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SS110002-D	20110426	SO	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	204	U	N		UG/KG	404	U	404	1	18.8
11SS120002	20110426	SO	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	196	U	N		UG/KG	387	U	387	1	17
11SS130002	20110426	SO	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	193	U	N		UG/KG	380	U	380	1	18.2
11SS140002	20110426	SO	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	203	U	N		UG/KG	401	U	401	1	18.8
11SS150002	20110426	SO	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	207	U	N		UG/KG	409	U	409	1	19.4
11SS160002	20110426	SO	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	214	U	N		UG/KG	424	U	424	1	22.6
11SS170002	20110426	SO	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	200	U	N		UG/KG	394	U	394	1	16.3
11SS180002	20110426	SO	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	194	U	N		UG/KG	383	U	383	1	17.8
11SS290002	20110427	SO	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	213	U	N		UG/KG	421	U	421	1	22.6
11SS300002	20110427	SO	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	189	U	N		UG/KG	373	U	373	1	15
11SS310002	20110426	SO	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	203	U	N		UG/KG	402	U	402	1	19.5
11SS310002-D	20110427	SO	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	210	U	N		UG/KG	416	U	416	1	21.7
11SS320002	20110426	SO	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	204	U	N		UG/KG	404	U	404	1	20.4
11SB010002	20110426	SO	2,4,5-TRICHLOROPHENOL	OS	212	U	N		UG/KG	418	U	418	1	21.1
11SB010002-D	20110426	SO	2,4,5-TRICHLOROPHENOL	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406	20110426	SO	2,4,5-TRICHLOROPHENOL	OS	193	U	N		UG/KG	380	U	380	1	17.7
11SB010406-D	20110426	SO	2,4,5-TRICHLOROPHENOL	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020002	20110426	SO	2,4,5-TRICHLOROPHENOL	OS	206	U	N		UG/KG	407	U	407	1	20.6
11SB020406	20110426	SO	2,4,5-TRICHLOROPHENOL	OS	211	U	N		UG/KG	416	U	416	1	24.3
11SB030002	20110426	SO	2,4,5-TRICHLOROPHENOL	OS	200	U	N		UG/KG	396	U	396	1	18.7
11SB030406	20110426	SO	2,4,5-TRICHLOROPHENOL	OS	189	U	N		UG/KG	373	U	373	1	13.7
11SB040002	20110426	SO	2,4,5-TRICHLOROPHENOL	OS	206	U	N		UG/KG	407	U	407	1	20.9
11SB040406	20110426	SO	2,4,5-TRICHLOROPHENOL	OS	189	U	N		UG/KG	373	U	373	1	12.8
11SB260507	20110427	SO	2,4,5-TRICHLOROPHENOL	OS	186	U	N		UG/KG	368	U	368	1	14.9
11SB270507	20110426	SO	2,4,5-TRICHLOROPHENOL	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB280507	20110426	SO	2,4,5-TRICHLOROPHENOL	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS050002	20110426	SO	2,4,5-TRICHLOROPHENOL	OS	198	U	N		UG/KG	391	U	391	1	16.6
11SS060002	20110426	SO	2,4,5-TRICHLOROPHENOL	OS	196	U	N		UG/KG	388	U	388	1	19.2
11SS070002	20110426	SO	2,4,5-TRICHLOROPHENOL	OS	207	U	N		UG/KG	409	U	409	1	21.9
11SS080002	20110426	SO	2,4,5-TRICHLOROPHENOL	OS	193	U	N		UG/KG	382	U	382	1	16.9
11SS090002	20110426	SO	2,4,5-TRICHLOROPHENOL	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS100002	20110426	SO	2,4,5-TRICHLOROPHENOL	OS	222	U	N		UG/KG	439	U	439	1	27.3
11SS110002	20110426	SO	2,4,5-TRICHLOROPHENOL	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SS110002-D	20110426	SO	2,4,5-TRICHLOROPHENOL	OS	204	U	N		UG/KG	404	U	404	1	18.8
11SS120002	20110426	SO	2,4,5-TRICHLOROPHENOL	OS	196	U	N		UG/KG	387	U	387	1	17
11SS130002	20110426	SO	2,4,5-TRICHLOROPHENOL	OS	193	U	N		UG/KG	380	U	380	1	18.2
11SS140002	20110426	SO	2,4,5-TRICHLOROPHENOL	OS	203	U	N		UG/KG	401	U	401	1	18.8
11SS150002	20110426	SO	2,4,5-TRICHLOROPHENOL	OS	207	U	N		UG/KG	409	U	409	1	19.4
11SS160002	20110426	SO	2,4,5-TRICHLOROPHENOL	OS	214	U	N		UG/KG	424	U	424	1	22.6
11SS170002	20110426	SO	2,4,5-TRICHLOROPHENOL	OS	200	U	N		UG/KG	394	U	394	1	16.3
11SS180002	20110426	SO	2,4,5-TRICHLOROPHENOL	OS	194	U	N		UG/KG	383	U	383	1	17.8

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SS290002	20110427	SO	2,4,5-TRICHLOROPHENOL	OS	213	U	N		UG/KG	421	U	421	1	22.6
11SS300002	20110427	SO	2,4,5-TRICHLOROPHENOL	OS	189	U	N		UG/KG	373	U	373	1	15
11SS310002	20110426	SO	2,4,5-TRICHLOROPHENOL	OS	203	U	N		UG/KG	402	U	402	1	19.5
11SS310002-D	20110427	SO	2,4,5-TRICHLOROPHENOL	OS	210	U	N		UG/KG	416	U	416	1	21.7
11SS320002	20110426	SO	2,4,5-TRICHLOROPHENOL	OS	204	U	N		UG/KG	404	U	404	1	20.4
11SB010002	20110426	SO	2,4,6-TRICHLOROPHENOL	OS	212	U	N		UG/KG	418	U	418	1	21.1
11SB010002-D	20110426	SO	2,4,6-TRICHLOROPHENOL	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406	20110426	SO	2,4,6-TRICHLOROPHENOL	OS	193	U	N		UG/KG	380	U	380	1	17.7
11SB010406-D	20110426	SO	2,4,6-TRICHLOROPHENOL	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020002	20110426	SO	2,4,6-TRICHLOROPHENOL	OS	206	U	N		UG/KG	407	U	407	1	20.6
11SB020406	20110426	SO	2,4,6-TRICHLOROPHENOL	OS	211	U	N		UG/KG	416	U	416	1	24.3
11SB030002	20110426	SO	2,4,6-TRICHLOROPHENOL	OS	200	U	N		UG/KG	396	U	396	1	18.7
11SB030406	20110426	SO	2,4,6-TRICHLOROPHENOL	OS	189	U	N		UG/KG	373	U	373	1	13.7
11SB040002	20110426	SO	2,4,6-TRICHLOROPHENOL	OS	206	U	N		UG/KG	407	U	407	1	20.9
11SB040406	20110426	SO	2,4,6-TRICHLOROPHENOL	OS	189	U	N		UG/KG	373	U	373	1	12.8
11SB260507	20110427	SO	2,4,6-TRICHLOROPHENOL	OS	186	U	N		UG/KG	368	U	368	1	14.9
11SB270507	20110426	SO	2,4,6-TRICHLOROPHENOL	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB280507	20110426	SO	2,4,6-TRICHLOROPHENOL	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS050002	20110426	SO	2,4,6-TRICHLOROPHENOL	OS	198	U	N		UG/KG	391	U	391	1	16.6
11SS060002	20110426	SO	2,4,6-TRICHLOROPHENOL	OS	196	U	N		UG/KG	388	U	388	1	19.2
11SS070002	20110426	SO	2,4,6-TRICHLOROPHENOL	OS	207	U	N		UG/KG	409	U	409	1	21.9
11SS080002	20110426	SO	2,4,6-TRICHLOROPHENOL	OS	193	U	N		UG/KG	382	U	382	1	16.9
11SS090002	20110426	SO	2,4,6-TRICHLOROPHENOL	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS100002	20110426	SO	2,4,6-TRICHLOROPHENOL	OS	222	U	N		UG/KG	439	U	439	1	27.3
11SS110002	20110426	SO	2,4,6-TRICHLOROPHENOL	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SS110002-D	20110426	SO	2,4,6-TRICHLOROPHENOL	OS	204	U	N		UG/KG	404	U	404	1	18.8
11SS120002	20110426	SO	2,4,6-TRICHLOROPHENOL	OS	196	U	N		UG/KG	387	U	387	1	17
11SS130002	20110426	SO	2,4,6-TRICHLOROPHENOL	OS	193	U	N		UG/KG	380	U	380	1	18.2
11SS140002	20110426	SO	2,4,6-TRICHLOROPHENOL	OS	203	U	N		UG/KG	401	U	401	1	18.8
11SS150002	20110426	SO	2,4,6-TRICHLOROPHENOL	OS	207	U	N		UG/KG	409	U	409	1	19.4
11SS160002	20110426	SO	2,4,6-TRICHLOROPHENOL	OS	214	U	N		UG/KG	424	U	424	1	22.6
11SS170002	20110426	SO	2,4,6-TRICHLOROPHENOL	OS	200	U	N		UG/KG	394	U	394	1	16.3
11SS180002	20110426	SO	2,4,6-TRICHLOROPHENOL	OS	194	U	N		UG/KG	383	U	383	1	17.8
11SS290002	20110427	SO	2,4,6-TRICHLOROPHENOL	OS	213	U	N		UG/KG	421	U	421	1	22.6
11SS300002	20110427	SO	2,4,6-TRICHLOROPHENOL	OS	189	U	N		UG/KG	373	U	373	1	15
11SS310002	20110426	SO	2,4,6-TRICHLOROPHENOL	OS	203	U	N		UG/KG	402	U	402	1	19.5
11SS310002-D	20110427	SO	2,4,6-TRICHLOROPHENOL	OS	210	U	N		UG/KG	416	U	416	1	21.7
11SS320002	20110426	SO	2,4,6-TRICHLOROPHENOL	OS	204	U	N		UG/KG	404	U	404	1	20.4
11SB010002	20110426	SO	2,4-DICHLOROPHENOL	OS	212	U	N		UG/KG	418	U	418	1	21.1
11SB010002-D	20110426	SO	2,4-DICHLOROPHENOL	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406	20110426	SO	2,4-DICHLOROPHENOL	OS	193	U	N		UG/KG	380	U	380	1	17.7
11SB010406-D	20110426	SO	2,4-DICHLOROPHENOL	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020002	20110426	SO	2,4-DICHLOROPHENOL	OS	206	U	N		UG/KG	407	U	407	1	20.6
11SB020406	20110426	SO	2,4-DICHLOROPHENOL	OS	211	U	N		UG/KG	416	U	416	1	24.3
11SB030002	20110426	SO	2,4-DICHLOROPHENOL	OS	200	U	N		UG/KG	396	U	396	1	18.7
11SB030406	20110426	SO	2,4-DICHLOROPHENOL	OS	189	U	N		UG/KG	373	U	373	1	13.7
11SB040002	20110426	SO	2,4-DICHLOROPHENOL	OS	206	U	N		UG/KG	407	U	407	1	20.9
11SB040406	20110426	SO	2,4-DICHLOROPHENOL	OS	189	U	N		UG/KG	373	U	373	1	12.8
11SB260507	20110427	SO	2,4-DICHLOROPHENOL	OS	186	U	N		UG/KG	368	U	368	1	14.9
11SB270507	20110426	SO	2,4-DICHLOROPHENOL	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB280507	20110426	SO	2,4-DICHLOROPHENOL	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS050002	20110426	SO	2,4-DICHLOROPHENOL	OS	198	U	N		UG/KG	391	U	391	1	16.6
11SS060002	20110426	SO	2,4-DICHLOROPHENOL	OS	196	U	N		UG/KG	388	U	388	1	19.2
11SS070002	20110426	SO	2,4-DICHLOROPHENOL	OS	207	U	N		UG/KG	409	U	409	1	21.9
11SS080002	20110426	SO	2,4-DICHLOROPHENOL	OS	193	U	N		UG/KG	382	U	382	1	16.9
11SS090002	20110426	SO	2,4-DICHLOROPHENOL	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS100002	20110426	SO	2,4-DICHLOROPHENOL	OS	222	U	N		UG/KG	439	U	439	1	27.3
11SS110002	20110426	SO	2,4-DICHLOROPHENOL	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SS110002-D	20110426	SO	2,4-DICHLOROPHENOL	OS	204	U	N		UG/KG	404	U	404	1	18.8
11SS120002	20110426	SO	2,4-DICHLOROPHENOL	OS	196	U	N		UG/KG	387	U	387	1	17
11SS130002	20110426	SO	2,4-DICHLOROPHENOL	OS	193	U	N		UG/KG	380	U	380	1	18.2
11SS140002	20110426	SO	2,4-DICHLOROPHENOL	OS	203	U	N		UG/KG	401	U	401	1	18.8
11SS150002	20110426	SO	2,4-DICHLOROPHENOL	OS	207	U	N		UG/KG	409	U	409	1	19.4
11SS160002	20110426	SO	2,4-DICHLOROPHENOL	OS	214	U	N		UG/KG	424	U	424	1	22.6
11SS170002	20110426	SO	2,4-DICHLOROPHENOL	OS	200	U	N		UG/KG	394	U	394	1	16.3
11SS180002	20110426	SO	2,4-DICHLOROPHENOL	OS	194	U	N		UG/KG	383	U	383	1	17.8
11SS290002	20110427	SO	2,4-DICHLOROPHENOL	OS	213	U	N		UG/KG	421	U	421	1	22.6
11SS300002	20110427	SO	2,4-DICHLOROPHENOL	OS	189	U	N		UG/KG	373	U	373	1	15
11SS310002	20110426	SO	2,4-DICHLOROPHENOL	OS	203	U	N		UG/KG	402	U	402	1	19.5
11SS310002-D	20110427	SO	2,4-DICHLOROPHENOL	OS	210	U	N		UG/KG	416	U	416	1	21.7
11SS320002	20110426	SO	2,4-DICHLOROPHENOL	OS	204	U	N		UG/KG	404	U	404	1	20.4
11SB010002	20110426	SO	2,4-DIMETHYLPHENOL	OS	845	U	N		UG/KG	1650	U	1650	1	21.1
11SB010002-D	20110426	SO	2,4-DIMETHYLPHENOL	OS	823	U	N		UG/KG	1600	U	1600	1	21
11SB010406	20110426	SO	2,4-DIMETHYLPHENOL	OS	769	U	N		UG/KG	1500	U	1500	1	17.7
11SB010406-D	20110426	SO	2,4-DIMETHYLPHENOL	OS	786	U	N		UG/KG	1530	U	1530	1	19.4
11SB020002	20110426	SO	2,4-DIMETHYLPHENOL	OS	823	U	N		UG/KG	1600	U	1600	1	20.6
11SB020406	20110426	SO	2,4-DIMETHYLPHENOL	OS	842	U	N		UG/KG	1640	U	1640	1	24.3
11SB030002	20110426	SO	2,4-DIMETHYLPHENOL	OS	800	U	N		UG/KG	1560	U	1560	1	18.7
11SB030406	20110426	SO	2,4-DIMETHYLPHENOL	OS	753	U	N		UG/KG	1470	U	1470	1	13.7
11SB040002	20110426	SO	2,4-DIMETHYLPHENOL	OS	822	U	N		UG/KG	1600	U	1600	1	20.9
11SB040406	20110426	SO	2,4-DIMETHYLPHENOL	OS	755	U	N		UG/KG	1470	U	1470	1	12.8

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB260507	20110427	SO	2,4-DIMETHYLPHENOL	OS	744	U	N		UG/KG	1450	U	1450	1	14.9
11SB270507	20110426	SO	2,4-DIMETHYLPHENOL	OS	771	U	N		UG/KG	1500	U	1500	1	14.1
11SB280507	20110426	SO	2,4-DIMETHYLPHENOL	OS	902	U	N		UG/KG	1760	U	1760	1	28.9
11SS050002	20110426	SO	2,4-DIMETHYLPHENOL	OS	790	U	N		UG/KG	1540	U	1540	1	16.6
11SS060002	20110426	SO	2,4-DIMETHYLPHENOL	OS	784	U	N		UG/KG	1530	U	1530	1	19.2
11SS070002	20110426	SO	2,4-DIMETHYLPHENOL	OS	827	U	N		UG/KG	1610	U	1610	1	21.9
11SS080002	20110426	SO	2,4-DIMETHYLPHENOL	OS	772	U	N		UG/KG	1500	U	1500	1	16.9
11SS090002	20110426	SO	2,4-DIMETHYLPHENOL	OS	869	U	N		UG/KG	1690	U	1690	1	23.2
11SS100002	20110426	SO	2,4-DIMETHYLPHENOL	OS	888	U	N		UG/KG	1730	U	1730	1	27.3
11SS110002	20110426	SO	2,4-DIMETHYLPHENOL	OS	770	U	N		UG/KG	1500	U	1500	1	17.8
11SS110002-D	20110426	SO	2,4-DIMETHYLPHENOL	OS	816	U	N		UG/KG	1590	U	1590	1	18.8
11SS120002	20110426	SO	2,4-DIMETHYLPHENOL	OS	783	U	N		UG/KG	1530	U	1530	1	17
11SS130002	20110426	SO	2,4-DIMETHYLPHENOL	OS	769	U	N		UG/KG	1500	U	1500	1	18.2
11SS140002	20110426	SO	2,4-DIMETHYLPHENOL	OS	810	U	N		UG/KG	1580	U	1580	1	18.8
11SS150002	20110426	SO	2,4-DIMETHYLPHENOL	OS	827	U	N		UG/KG	1610	U	1610	1	19.4
11SS160002	20110426	SO	2,4-DIMETHYLPHENOL	OS	857	U	N		UG/KG	1670	U	1670	1	22.6
11SS170002	20110426	SO	2,4-DIMETHYLPHENOL	OS	797	U	N		UG/KG	1550	U	1550	1	16.3
11SS180002	20110426	SO	2,4-DIMETHYLPHENOL	OS	775	U	N		UG/KG	1510	U	1510	1	17.8
11SS290002	20110427	SO	2,4-DIMETHYLPHENOL	OS	851	U	N		UG/KG	1660	U	1660	1	22.6
11SS300002	20110427	SO	2,4-DIMETHYLPHENOL	OS	754	U	N		UG/KG	1470	U	1470	1	15
11SS310002	20110426	SO	2,4-DIMETHYLPHENOL	OS	812	U	N		UG/KG	1580	U	1580	1	19.5
11SS310002-D	20110427	SO	2,4-DIMETHYLPHENOL	OS	840	U	N		UG/KG	1640	U	1640	1	21.7
11SS320002	20110426	SO	2,4-DIMETHYLPHENOL	OS	816	U	N		UG/KG	1590	U	1590	1	20.4
11SB010002	20110426	SO	2,4-DINITROPHENOL	OS	2120	U	N		UG/KG	4180	UX	4180	1	21.1
11SB010002-D	20110426	SO	2,4-DINITROPHENOL	OS	2060	U	N		UG/KG	4070	UX	4070	1	21
11SB010406	20110426	SO	2,4-DINITROPHENOL	OS	1930	U	N		UG/KG	3800	UX	3800	1	17.7
11SB010406-D	20110426	SO	2,4-DINITROPHENOL	OS	1970	U	N		UG/KG	3890	UX	3890	1	19.4
11SB020002	20110426	SO	2,4-DINITROPHENOL	OS	2060	U	N		UG/KG	4070	UX	4070	1	20.6
11SB020406	20110426	SO	2,4-DINITROPHENOL	OS	2110	U	N		UG/KG	4160	UX	4160	1	24.3
11SB030002	20110426	SO	2,4-DINITROPHENOL	OS	2000	U	N		UG/KG	3960	UX	3960	1	18.7
11SB030406	20110426	SO	2,4-DINITROPHENOL	OS	1890	U	N		UG/KG	3730	UX	3730	1	13.7
11SB040002	20110426	SO	2,4-DINITROPHENOL	OS	2060	U	N		UG/KG	4070	UX	4070	1	20.9
11SB040406	20110426	SO	2,4-DINITROPHENOL	OS	1890	U	N		UG/KG	3730	UX	3730	1	12.8
11SB260507	20110427	SO	2,4-DINITROPHENOL	OS	1860	U	N		UG/KG	3680	U	3680	1	14.9
11SB270507	20110426	SO	2,4-DINITROPHENOL	OS	1930	U	N		UG/KG	3820	UX	3820	1	14.1
11SB280507	20110426	SO	2,4-DINITROPHENOL	OS	2260	U	N		UG/KG	4460	UX	4460	1	28.9
11SS050002	20110426	SO	2,4-DINITROPHENOL	OS	1980	U	N		UG/KG	3910	UX	3910	1	16.6
11SS060002	20110426	SO	2,4-DINITROPHENOL	OS	1960	U	N		UG/KG	3880	UX	3880	1	19.2
11SS070002	20110426	SO	2,4-DINITROPHENOL	OS	2070	U	N		UG/KG	4090	UX	4090	1	21.9
11SS080002	20110426	SO	2,4-DINITROPHENOL	OS	1930	U	N		UG/KG	3820	UX	3820	1	16.9
11SS090002	20110426	SO	2,4-DINITROPHENOL	OS	2180	U	N		UG/KG	4300	UX	4300	1	23.2
11SS100002	20110426	SO	2,4-DINITROPHENOL	OS	2220	U	N		UG/KG	4390	UX	4390	1	27.3
11SS110002	20110426	SO	2,4-DINITROPHENOL	OS	1930	U	N		UG/KG	3810	UX	3810	1	17.8
11SB010002	20110426	SO	2,4-DINITROTOLUENE	OS	212	U	N		UG/KG	418	U	418	1	21.1
11SB010002-D	20110426	SO	2,4-DINITROTOLUENE	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406	20110426	SO	2,4-DINITROTOLUENE	OS	193	U	N		UG/KG	380	U	380	1	17.7
11SB010406-D	20110426	SO	2,4-DINITROTOLUENE	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020002	20110426	SO	2,4-DINITROTOLUENE	OS	206	U	N		UG/KG	407	U	407	1	20.6
11SB020406	20110426	SO	2,4-DINITROTOLUENE	OS	211	U	N		UG/KG	416	U	416	1	24.3
11SB030002	20110426	SO	2,4-DINITROTOLUENE	OS	200	U	N		UG/KG	396	U	396	1	18.7
11SB030406	20110426	SO	2,4-DINITROTOLUENE	OS	189	U	N		UG/KG	373	U	373	1	13.7
11SB040002	20110426	SO	2,4-DINITROTOLUENE	OS	206	U	N		UG/KG	407	U	407	1	20.9
11SB040406	20110426	SO	2,4-DINITROTOLUENE	OS	189	U	N		UG/KG	373	U	373	1	12.8
11SB260507	20110427	SO	2,4-DINITROTOLUENE	OS	186	U	N		UG/KG	368	U	368	1	14.9
11SB270507	20110426	SO	2,4-DINITROTOLUENE	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB280507	20110426	SO	2,4-DINITROTOLUENE	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS050002	20110426	SO	2,4-DINITROTOLUENE	OS	198	U	N		UG/KG	391	U	391	1	16.6
11SS060002	20110426	SO	2,4-DINITROTOLUENE	OS	196	U	N		UG/KG	388	U	388	1	19.2
11SS070002	20110426	SO	2,4-DINITROTOLUENE	OS	207	U	N		UG/KG	409	U	409	1	21.9
11SS080002	20110426	SO	2,4-DINITROTOLUENE	OS	193	U	N		UG/KG	382	U	382	1	16.9
11SS090002	20110426	SO	2,4-DINITROTOLUENE	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS100002	20110426	SO	2,4-DINITROTOLUENE	OS	222	U	N		UG/KG	439	U	439	1	27.3
11SS110002	20110426	SO	2,4-DINITROTOLUENE	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SS110002-D	20110426	SO	2,4-DINITROTOLUENE	OS	204	U	N		UG/KG	404	U	404	1	18.8
11SS120002	20110426	SO	2,4-DINITROTOLUENE	OS	196	U	N		UG/KG	387	U	387	1	17
11SS130002	20110426	SO	2,4-DINITROTOLUENE	OS	193	U	N		UG/KG	380	U	380	1	18.2
11SS140002	20110426	SO	2,4-DINITROTOLUENE	OS	203	U	N		UG/KG	401	U	401	1	18.8
11SS150002	20110426	SO	2,4-DINITROTOLUENE	OS	207	U	N		UG/KG	409	U	409	1	19.4
11SS160002	20110426	SO	2,4-DINITROTOLUENE	OS	214	U	N		UG/KG	424	U	424	1	22.6
11SS170002	20110426	SO	2,4-DINITROTOLUENE	OS	200	U	N		UG/KG	394	U	394	1	16.3
11SS180002	20110426	SO	2,4-DINITROTOLUENE	OS	194	U	N		UG/KG	383	U	383	1	17.8
11SS290002	20110427	SO	2,4-DINITROTOLUENE	OS	213	U	N		UG/KG	421	U	421	1	22.6
11SS300002	20110427	SO	2,4-DINITROTOLUENE	OS	189	U	N		UG/KG	373	U	373	1	15
11SS310002	20110426	SO	2,4-DINITROTOLUENE	OS	203	U	N		UG/KG	402	U	402	1	19.5
11SS310002-D	20110427	SO	2,4-DINITROTOLUENE	OS	210	U	N		UG/KG	416	U	416	1	21.7
11SS320002	20110426	SO	2,4-DINITROTOLUENE	OS	204	U	N		UG/KG	404	U	404	1	20.4
11SB010002	20110426	SO	2,6-DINITROTOLUENE	OS	212	U	N		UG/KG	418	U	418	1	21.1
11SB010002-D	20110426	SO	2,6-DINITROTOLUENE	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406	20110426	SO	2,6-DINITROTOLUENE	OS	193	U	N		UG/KG	380	U	380	1	17.7
11SB010406-D	20110426	SO	2,6-DINITROTOLUENE	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020002	20110426	SO	2,6-DINITROTOLUENE	OS	206	U	N		UG/KG	407	U	407	1	20.6

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB020406	20110426	SO	2,6-DINITROTOLUENE	OS	211	U	N		UG/KG	416	U	416	1	24.3
11SB030002	20110426	SO	2,6-DINITROTOLUENE	OS	200	U	N		UG/KG	396	U	396	1	18.7
11SB030406	20110426	SO	2,6-DINITROTOLUENE	OS	189	U	N		UG/KG	373	U	373	1	13.7
11SB040002	20110426	SO	2,6-DINITROTOLUENE	OS	206	U	N		UG/KG	407	U	407	1	20.9
11SB040406	20110426	SO	2,6-DINITROTOLUENE	OS	189	U	N		UG/KG	373	U	373	1	12.8
11SB260507	20110427	SO	2,6-DINITROTOLUENE	OS	186	U	N		UG/KG	368	U	368	1	14.9
11SB270507	20110426	SO	2,6-DINITROTOLUENE	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB280507	20110426	SO	2,6-DINITROTOLUENE	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS050002	20110426	SO	2,6-DINITROTOLUENE	OS	198	U	N		UG/KG	391	U	391	1	16.6
11SS060002	20110426	SO	2,6-DINITROTOLUENE	OS	196	U	N		UG/KG	388	U	388	1	19.2
11SS070002	20110426	SO	2,6-DINITROTOLUENE	OS	207	U	N		UG/KG	409	U	409	1	21.9
11SS080002	20110426	SO	2,6-DINITROTOLUENE	OS	193	U	N		UG/KG	382	U	382	1	16.9
11SS090002	20110426	SO	2,6-DINITROTOLUENE	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS100002	20110426	SO	2,6-DINITROTOLUENE	OS	222	U	N		UG/KG	439	U	439	1	27.3
11SS110002	20110426	SO	2,6-DINITROTOLUENE	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SS110002-D	20110426	SO	2,6-DINITROTOLUENE	OS	204	U	N		UG/KG	404	U	404	1	18.8
11SS120002	20110426	SO	2,6-DINITROTOLUENE	OS	196	U	N		UG/KG	387	U	387	1	17
11SS130002	20110426	SO	2,6-DINITROTOLUENE	OS	193	U	N		UG/KG	380	U	380	1	18.2
11SS140002	20110426	SO	2,6-DINITROTOLUENE	OS	203	U	N		UG/KG	401	U	401	1	18.8
11SS150002	20110426	SO	2,6-DINITROTOLUENE	OS	207	U	N		UG/KG	409	U	409	1	19.4
11SS160002	20110426	SO	2,6-DINITROTOLUENE	OS	214	U	N		UG/KG	424	U	424	1	22.6
11SS170002	20110426	SO	2,6-DINITROTOLUENE	OS	200	U	N		UG/KG	394	U	394	1	16.3
11SS180002	20110426	SO	2,6-DINITROTOLUENE	OS	194	U	N		UG/KG	383	U	383	1	17.8
11SS290002	20110427	SO	2,6-DINITROTOLUENE	OS	213	U	N		UG/KG	421	U	421	1	22.6
11SS300002	20110427	SO	2,6-DINITROTOLUENE	OS	189	U	N		UG/KG	373	U	373	1	15
11SS310002	20110426	SO	2,6-DINITROTOLUENE	OS	203	U	N		UG/KG	402	U	402	1	19.5
11SS310002-D	20110427	SO	2,6-DINITROTOLUENE	OS	210	U	N		UG/KG	416	U	416	1	21.7
11SS320002	20110426	SO	2,6-DINITROTOLUENE	OS	204	U	N		UG/KG	404	U	404	1	20.4
11SB010002-D	20110426	SO	2-CHLORONAPHTHALENE	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406	20110426	SO	2-CHLORONAPHTHALENE	OS	193	U	N		UG/KG	380	U	380	1	17.7
11SB010406-D	20110426	SO	2-CHLORONAPHTHALENE	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020002	20110426	SO	2-CHLORONAPHTHALENE	OS	206	U	N		UG/KG	407	U	407	1	20.6
11SB030406	20110426	SO	2-CHLORONAPHTHALENE	OS	189	U	N		UG/KG	373	U	373	1	13.7
11SB040002	20110426	SO	2-CHLORONAPHTHALENE	OS	206	U	N		UG/KG	407	U	407	1	20.9
11SB040406	20110426	SO	2-CHLORONAPHTHALENE	OS	189	U	N		UG/KG	373	U	373	1	12.8
11SB270507	20110426	SO	2-CHLORONAPHTHALENE	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB280507	20110426	SO	2-CHLORONAPHTHALENE	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS090002	20110426	SO	2-CHLORONAPHTHALENE	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS110002	20110426	SO	2-CHLORONAPHTHALENE	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SB010002	20110426	SO	2-CHLOROPHENOL	OS	212	U	N		UG/KG	418	U	418	1	21.1
11SB010002-D	20110426	SO	2-CHLOROPHENOL	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406	20110426	SO	2-CHLOROPHENOL	OS	193	U	N		UG/KG	380	U	380	1	17.7
11SB010406-D	20110426	SO	2-CHLOROPHENOL	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020002	20110426	SO	2-CHLOROPHENOL	OS	206	U	N		UG/KG	407	U	407	1	20.6
11SB020406	20110426	SO	2-CHLOROPHENOL	OS	211	U	N		UG/KG	416	U	416	1	24.3
11SB030002	20110426	SO	2-CHLOROPHENOL	OS	200	U	N		UG/KG	396	U	396	1	18.7
11SB030406	20110426	SO	2-CHLOROPHENOL	OS	189	U	N		UG/KG	373	U	373	1	13.7
11SB040002	20110426	SO	2-CHLOROPHENOL	OS	206	U	N		UG/KG	407	U	407	1	20.9
11SB040406	20110426	SO	2-CHLOROPHENOL	OS	189	U	N		UG/KG	373	U	373	1	12.8
11SB260507	20110427	SO	2-CHLOROPHENOL	OS	186	U	N		UG/KG	368	U	368	1	14.9
11SB270507	20110426	SO	2-CHLOROPHENOL	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB280507	20110426	SO	2-CHLOROPHENOL	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS050002	20110426	SO	2-CHLOROPHENOL	OS	198	U	N		UG/KG	391	U	391	1	16.6
11SS060002	20110426	SO	2-CHLOROPHENOL	OS	196	U	N		UG/KG	388	U	388	1	19.2
11SS070002	20110426	SO	2-CHLOROPHENOL	OS	207	U	N		UG/KG	409	U	409	1	21.9
11SS080002	20110426	SO	2-CHLOROPHENOL	OS	193	U	N		UG/KG	382	U	382	1	16.9
11SS090002	20110426	SO	2-CHLOROPHENOL	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS100002	20110426	SO	2-CHLOROPHENOL	OS	222	U	N		UG/KG	439	U	439	1	27.3
11SS110002	20110426	SO	2-CHLOROPHENOL	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SS110002-D	20110426	SO	2-CHLOROPHENOL	OS	204	U	N		UG/KG	404	U	404	1	18.8
11SS120002	20110426	SO	2-CHLOROPHENOL	OS	196	U	N		UG/KG	387	U	387	1	17
11SS130002	20110426	SO	2-CHLOROPHENOL	OS	193	U	N		UG/KG	380	U	380	1	18.2
11SS140002	20110426	SO	2-CHLOROPHENOL	OS	203	U	N		UG/KG	401	U	401	1	18.8
11SS150002	20110426	SO	2-CHLOROPHENOL	OS	207	U	N		UG/KG	409	U	409	1	19.4
11SS160002	20110426	SO	2-CHLOROPHENOL	OS	214	U	N		UG/KG	424	U	424	1	22.6
11SS170002	20110426	SO	2-CHLOROPHENOL	OS	200	U	N		UG/KG	394	U	394	1	16.3
11SS180002	20110426	SO	2-CHLOROPHENOL	OS	194	U	N		UG/KG	383	U	383	1	17.8
11SS290002	20110427	SO	2-CHLOROPHENOL	OS	213	U	N		UG/KG	421	U	421	1	22.6
11SS300002	20110427	SO	2-CHLOROPHENOL	OS	189	U	N		UG/KG	373	U	373	1	15
11SS310002	20110426	SO	2-CHLOROPHENOL	OS	203	U	N		UG/KG	402	U	402	1	19.5
11SS310002-D	20110427	SO	2-CHLOROPHENOL	OS	210	U	N		UG/KG	416	U	416	1	21.7
11SS320002	20110426	SO	2-CHLOROPHENOL	OS	204	U	N		UG/KG	404	U	404	1	20.4
11SB010002	20110426	SO	2-METHYLPHENOL	OS	212	U	N		UG/KG	418	U	418	1	21.1
11SB010002-D	20110426	SO	2-METHYLPHENOL	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406	20110426	SO	2-METHYLPHENOL	OS	193	U	N		UG/KG	380	U	380	1	17.7
11SB010406-D	20110426	SO	2-METHYLPHENOL	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020002	20110426	SO	2-METHYLPHENOL	OS	206	U	N		UG/KG	407	U	407	1	20.6
11SB020406	20110426	SO	2-METHYLPHENOL	OS	211	U	N		UG/KG	416	U	416	1	24.3
11SB030002	20110426	SO	2-METHYLPHENOL	OS	200	U	N		UG/KG	396	U	396	1	18.7
11SB030406	20110426	SO	2-METHYLPHENOL	OS	189	U	N		UG/KG	373	U	373	1	13.7
11SB040002	20110426	SO	2-METHYLPHENOL	OS	206	U	N		UG/KG	407	U	407	1	20.9

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB040406	20110426	SO	2-METHYLPHENOL	OS	189	U	N		UG/KG	373	U	373	1	12.8
11SB260507	20110427	SO	2-METHYLPHENOL	OS	186	U	N		UG/KG	368	U	368	1	14.9
11SB270507	20110426	SO	2-METHYLPHENOL	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB280507	20110426	SO	2-METHYLPHENOL	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS050002	20110426	SO	2-METHYLPHENOL	OS	198	U	N		UG/KG	391	U	391	1	16.6
11SS060002	20110426	SO	2-METHYLPHENOL	OS	196	U	N		UG/KG	388	U	388	1	19.2
11SS070002	20110426	SO	2-METHYLPHENOL	OS	207	U	N		UG/KG	409	U	409	1	21.9
11SS080002	20110426	SO	2-METHYLPHENOL	OS	193	U	N		UG/KG	382	U	382	1	16.9
11SS090002	20110426	SO	2-METHYLPHENOL	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS100002	20110426	SO	2-METHYLPHENOL	OS	222	U	N		UG/KG	439	U	439	1	27.3
11SS110002	20110426	SO	2-METHYLPHENOL	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SS110002-D	20110426	SO	2-METHYLPHENOL	OS	204	U	N		UG/KG	404	U	404	1	18.8
11SS120002	20110426	SO	2-METHYLPHENOL	OS	196	U	N		UG/KG	387	U	387	1	17
11SS130002	20110426	SO	2-METHYLPHENOL	OS	193	U	N		UG/KG	380	U	380	1	18.2
11SS140002	20110426	SO	2-METHYLPHENOL	OS	203	U	N		UG/KG	401	U	401	1	18.8
11SS150002	20110426	SO	2-METHYLPHENOL	OS	207	U	N		UG/KG	409	U	409	1	19.4
11SS160002	20110426	SO	2-METHYLPHENOL	OS	214	U	N		UG/KG	424	U	424	1	22.6
11SS170002	20110426	SO	2-METHYLPHENOL	OS	200	U	N		UG/KG	394	U	394	1	16.3
11SS180002	20110426	SO	2-METHYLPHENOL	OS	194	U	N		UG/KG	383	U	383	1	17.8
11SS290002	20110427	SO	2-METHYLPHENOL	OS	213	U	N		UG/KG	421	U	421	1	22.6
11SS300002	20110427	SO	2-METHYLPHENOL	OS	189	U	N		UG/KG	373	U	373	1	15
11SS310002	20110426	SO	2-METHYLPHENOL	OS	203	U	N		UG/KG	402	U	402	1	19.5
11SS310002-D	20110427	SO	2-METHYLPHENOL	OS	210	U	N		UG/KG	416	U	416	1	21.7
11SS320002	20110426	SO	2-METHYLPHENOL	OS	204	U	N		UG/KG	404	U	404	1	20.4
11SB010002	20110426	SO	2-NITROANILINE	OS	845	U	N		UG/KG	1650	U	1650	1	21.1
11SB010002-D	20110426	SO	2-NITROANILINE	OS	823	U	N		UG/KG	1600	U	1600	1	21
11SB010406	20110426	SO	2-NITROANILINE	OS	769	U	N		UG/KG	1500	U	1500	1	17.7
11SB010406-D	20110426	SO	2-NITROANILINE	OS	786	U	N		UG/KG	1530	U	1530	1	19.4
11SB020002	20110426	SO	2-NITROANILINE	OS	823	U	N		UG/KG	1600	U	1600	1	20.6
11SB020406	20110426	SO	2-NITROANILINE	OS	842	U	N		UG/KG	1640	U	1640	1	24.3
11SB030002	20110426	SO	2-NITROANILINE	OS	800	U	N		UG/KG	1560	U	1560	1	18.7
11SB030406	20110426	SO	2-NITROANILINE	OS	753	U	N		UG/KG	1470	U	1470	1	13.7
11SB040002	20110426	SO	2-NITROANILINE	OS	822	U	N		UG/KG	1600	U	1600	1	20.9
11SB040406	20110426	SO	2-NITROANILINE	OS	755	U	N		UG/KG	1470	U	1470	1	12.8
11SB260507	20110427	SO	2-NITROANILINE	OS	744	U	N		UG/KG	1450	U	1450	1	14.9
11SB270507	20110426	SO	2-NITROANILINE	OS	771	U	N		UG/KG	1500	U	1500	1	14.1
11SB280507	20110426	SO	2-NITROANILINE	OS	902	U	N		UG/KG	1760	U	1760	1	28.9
11SS050002	20110426	SO	2-NITROANILINE	OS	790	U	N		UG/KG	1540	U	1540	1	16.6
11SS060002	20110426	SO	2-NITROANILINE	OS	784	U	N		UG/KG	1530	U	1530	1	19.2
11SS070002	20110426	SO	2-NITROANILINE	OS	827	U	N		UG/KG	1610	U	1610	1	21.9
11SS080002	20110426	SO	2-NITROANILINE	OS	772	U	N		UG/KG	1500	U	1500	1	16.9
11SS090002	20110426	SO	2-NITROANILINE	OS	869	U	N		UG/KG	1690	U	1690	1	23.2
11SS100002	20110426	SO	2-NITROANILINE	OS	888	U	N		UG/KG	1730	U	1730	1	27.3
11SS110002	20110426	SO	2-NITROANILINE	OS	770	U	N		UG/KG	1500	U	1500	1	17.8
11SS110002-D	20110426	SO	2-NITROANILINE	OS	816	U	N		UG/KG	1590	U	1590	1	18.8
11SS120002	20110426	SO	2-NITROANILINE	OS	783	U	N		UG/KG	1530	U	1530	1	17
11SS130002	20110426	SO	2-NITROANILINE	OS	769	U	N		UG/KG	1500	U	1500	1	18.2
11SS140002	20110426	SO	2-NITROANILINE	OS	810	U	N		UG/KG	1580	U	1580	1	18.8
11SS150002	20110426	SO	2-NITROANILINE	OS	827	U	N		UG/KG	1610	U	1610	1	19.4
11SS160002	20110426	SO	2-NITROANILINE	OS	857	U	N		UG/KG	1670	U	1670	1	22.6
11SS170002	20110426	SO	2-NITROANILINE	OS	797	U	N		UG/KG	1550	U	1550	1	16.3
11SS180002	20110426	SO	2-NITROANILINE	OS	775	U	N		UG/KG	1510	U	1510	1	17.8
11SS290002	20110427	SO	2-NITROANILINE	OS	851	U	N		UG/KG	1660	U	1660	1	22.6
11SS300002	20110427	SO	2-NITROANILINE	OS	754	U	N		UG/KG	1470	U	1470	1	15
11SS310002	20110426	SO	2-NITROANILINE	OS	812	U	N		UG/KG	1580	U	1580	1	19.5
11SS310002-D	20110427	SO	2-NITROANILINE	OS	840	U	N		UG/KG	1640	U	1640	1	21.7
11SS320002	20110426	SO	2-NITROANILINE	OS	816	U	N		UG/KG	1590	U	1590	1	20.4
11SB010002	20110426	SO	2-NITROPHENOL	OS	212	U	N		UG/KG	418	U	418	1	21.1
11SB010002-D	20110426	SO	2-NITROPHENOL	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406	20110426	SO	2-NITROPHENOL	OS	193	U	N		UG/KG	380	U	380	1	17.7
11SB010406-D	20110426	SO	2-NITROPHENOL	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020002	20110426	SO	2-NITROPHENOL	OS	206	U	N		UG/KG	407	U	407	1	20.6
11SB020406	20110426	SO	2-NITROPHENOL	OS	211	U	N		UG/KG	416	U	416	1	24.3
11SB030002	20110426	SO	2-NITROPHENOL	OS	200	U	N		UG/KG	396	U	396	1	18.7
11SB030406	20110426	SO	2-NITROPHENOL	OS	189	U	N		UG/KG	373	U	373	1	13.7
11SB040002	20110426	SO	2-NITROPHENOL	OS	206	U	N		UG/KG	407	U	407	1	20.9
11SB040406	20110426	SO	2-NITROPHENOL	OS	189	U	N		UG/KG	373	U	373	1	12.8
11SB260507	20110427	SO	2-NITROPHENOL	OS	186	U	N		UG/KG	368	U	368	1	14.9
11SB270507	20110426	SO	2-NITROPHENOL	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB280507	20110426	SO	2-NITROPHENOL	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS050002	20110426	SO	2-NITROPHENOL	OS	198	U	N		UG/KG	391	U	391	1	16.6
11SS060002	20110426	SO	2-NITROPHENOL	OS	196	U	N		UG/KG	388	U	388	1	19.2
11SS070002	20110426	SO	2-NITROPHENOL	OS	207	U	N		UG/KG	409	U	409	1	21.9
11SS080002	20110426	SO	2-NITROPHENOL	OS	193	U	N		UG/KG	382	U	382	1	16.9
11SS090002	20110426	SO	2-NITROPHENOL	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS100002	20110426	SO	2-NITROPHENOL	OS	222	U	N		UG/KG	439	U	439	1	27.3
11SS110002	20110426	SO	2-NITROPHENOL	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SS110002-D	20110426	SO	2-NITROPHENOL	OS	204	U	N		UG/KG	404	U	404	1	18.8
11SS120002	20110426	SO	2-NITROPHENOL	OS	196	U	N		UG/KG	387	U	387	1	17
11SS130002	20110426	SO	2-NITROPHENOL	OS	193	U	N		UG/KG	380	U	380	1	18.2
11SS140002	20110426	SO	2-NITROPHENOL	OS	203	U	N		UG/KG	401	U	401	1	18.8

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SS150002	20110426	SO	2-NITROPHENOL	OS	207	U	N		UG/KG	409	U	409	1	19.4
11SS160002	20110426	SO	2-NITROPHENOL	OS	214	U	N		UG/KG	424	U	424	1	22.6
11SS170002	20110426	SO	2-NITROPHENOL	OS	200	U	N		UG/KG	394	U	394	1	16.3
11SS180002	20110426	SO	2-NITROPHENOL	OS	194	U	N		UG/KG	383	U	383	1	17.8
11SS290002	20110427	SO	2-NITROPHENOL	OS	213	U	N		UG/KG	421	U	421	1	22.6
11SS300002	20110427	SO	2-NITROPHENOL	OS	189	U	N		UG/KG	373	U	373	1	15
11SS310002	20110426	SO	2-NITROPHENOL	OS	203	U	N		UG/KG	402	U	402	1	19.5
11SS310002-D	20110427	SO	2-NITROPHENOL	OS	210	U	N		UG/KG	416	U	416	1	21.7
11SS320002	20110426	SO	2-NITROPHENOL	OS	204	U	N		UG/KG	404	U	404	1	20.4
11SB260507	20110427	SO	3,3'-DICHLOROBENZIDINE	OS	186	U	N		UG/KG	368	U	368	1	14.9
11SB280507	20110426	SO	3,3'-DICHLOROBENZIDINE	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS090002	20110426	SO	3,3'-DICHLOROBENZIDINE	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS110002	20110426	SO	3,3'-DICHLOROBENZIDINE	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SS110002-D	20110426	SO	3,3'-DICHLOROBENZIDINE	OS	204	U	N		UG/KG	404	U	404	1	18.8
11SS120002	20110426	SO	3,3'-DICHLOROBENZIDINE	OS	196	U	N		UG/KG	387	U	387	1	17
11SS130002	20110426	SO	3,3'-DICHLOROBENZIDINE	OS	193	U	N		UG/KG	380	U	380	1	18.2
11SS140002	20110426	SO	3,3'-DICHLOROBENZIDINE	OS	203	U	N		UG/KG	401	U	401	1	18.8
11SS150002	20110426	SO	3,3'-DICHLOROBENZIDINE	OS	207	U	N		UG/KG	409	U	409	1	19.4
11SS160002	20110426	SO	3,3'-DICHLOROBENZIDINE	OS	214	U	N		UG/KG	424	U	424	1	22.6
11SS170002	20110426	SO	3,3'-DICHLOROBENZIDINE	OS	200	U	N		UG/KG	394	U	394	1	16.3
11SS180002	20110426	SO	3,3'-DICHLOROBENZIDINE	OS	194	U	N		UG/KG	383	U	383	1	17.8
11SS290002	20110427	SO	3,3'-DICHLOROBENZIDINE	OS	213	U	N		UG/KG	421	U	421	1	22.6
11SS300002	20110427	SO	3,3'-DICHLOROBENZIDINE	OS	189	U	N		UG/KG	373	U	373	1	15
11SS310002	20110426	SO	3,3'-DICHLOROBENZIDINE	OS	203	U	N		UG/KG	402	U	402	1	19.5
11SS310002-D	20110427	SO	3,3'-DICHLOROBENZIDINE	OS	210	U	N		UG/KG	416	U	416	1	21.7
11SS320002	20110426	SO	3,3'-DICHLOROBENZIDINE	OS	204	U	N		UG/KG	404	U	404	1	20.4
11SB010002	20110426	SO	3-NITROANILINE	OS	845	U	N		UG/KG	1650	U	1650	1	21.1
11SB010002-D	20110426	SO	3-NITROANILINE	OS	823	U	N		UG/KG	1600	U	1600	1	21
11SB010406	20110426	SO	3-NITROANILINE	OS	769	U	N		UG/KG	1500	U	1500	1	17.7
11SB010406-D	20110426	SO	3-NITROANILINE	OS	786	U	N		UG/KG	1530	U	1530	1	19.4
11SB020002	20110426	SO	3-NITROANILINE	OS	823	U	N		UG/KG	1600	U	1600	1	20.6
11SB020406	20110426	SO	3-NITROANILINE	OS	842	U	N		UG/KG	1640	U	1640	1	24.3
11SB030002	20110426	SO	3-NITROANILINE	OS	800	U	N		UG/KG	1560	U	1560	1	18.7
11SB030406	20110426	SO	3-NITROANILINE	OS	753	U	N		UG/KG	1470	U	1470	1	13.7
11SB040002	20110426	SO	3-NITROANILINE	OS	822	U	N		UG/KG	1600	U	1600	1	20.9
11SB040406	20110426	SO	3-NITROANILINE	OS	755	U	N		UG/KG	1470	U	1470	1	12.8
11SB260507	20110427	SO	3-NITROANILINE	OS	744	U	N		UG/KG	1450	U	1450	1	14.9
11SB270507	20110426	SO	3-NITROANILINE	OS	771	U	N		UG/KG	1500	U	1500	1	14.1
11SB280507	20110426	SO	3-NITROANILINE	OS	902	U	N		UG/KG	1760	U	1760	1	28.9
11SS050002	20110426	SO	3-NITROANILINE	OS	790	U	N		UG/KG	1540	U	1540	1	16.6
11SS060002	20110426	SO	3-NITROANILINE	OS	784	U	N		UG/KG	1530	U	1530	1	19.2
11SS070002	20110426	SO	3-NITROANILINE	OS	827	U	N		UG/KG	1610	U	1610	1	21.9
11SS080002	20110426	SO	3-NITROANILINE	OS	772	U	N		UG/KG	1500	U	1500	1	16.9
11SS090002	20110426	SO	3-NITROANILINE	OS	869	U	N		UG/KG	1690	U	1690	1	23.2
11SS100002	20110426	SO	3-NITROANILINE	OS	888	U	N		UG/KG	1730	U	1730	1	27.3
11SS110002	20110426	SO	3-NITROANILINE	OS	770	U	N		UG/KG	1500	U	1500	1	17.8
11SS110002-D	20110426	SO	3-NITROANILINE	OS	816	U	N		UG/KG	1590	U	1590	1	18.8
11SS120002	20110426	SO	3-NITROANILINE	OS	783	U	N		UG/KG	1530	U	1530	1	17
11SS130002	20110426	SO	3-NITROANILINE	OS	769	U	N		UG/KG	1500	U	1500	1	18.2
11SS140002	20110426	SO	3-NITROANILINE	OS	810	U	N		UG/KG	1580	U	1580	1	18.8
11SS150002	20110426	SO	3-NITROANILINE	OS	827	U	N		UG/KG	1610	U	1610	1	19.4
11SS160002	20110426	SO	3-NITROANILINE	OS	857	U	N		UG/KG	1670	U	1670	1	22.6
11SS170002	20110426	SO	3-NITROANILINE	OS	797	U	N		UG/KG	1550	U	1550	1	16.3
11SS180002	20110426	SO	3-NITROANILINE	OS	775	U	N		UG/KG	1510	U	1510	1	17.8
11SS290002	20110427	SO	3-NITROANILINE	OS	851	U	N		UG/KG	1660	U	1660	1	22.6
11SS300002	20110427	SO	3-NITROANILINE	OS	754	U	N		UG/KG	1470	U	1470	1	15
11SS310002	20110426	SO	3-NITROANILINE	OS	812	U	N		UG/KG	1580	U	1580	1	19.5
11SS310002-D	20110427	SO	3-NITROANILINE	OS	840	U	N		UG/KG	1640	U	1640	1	21.7
11SS320002	20110426	SO	3-NITROANILINE	OS	816	U	N		UG/KG	1590	U	1590	1	20.4
11SB010002	20110426	SO	4,6-DINITRO-2-METHYLPHENOL	OS	2120	U	N		UG/KG	4180	U	4180	1	21.1
11SB020406	20110426	SO	4,6-DINITRO-2-METHYLPHENOL	OS	2110	U	N		UG/KG	4160	U	4160	1	24.3
11SB030002	20110426	SO	4,6-DINITRO-2-METHYLPHENOL	OS	2000	U	N		UG/KG	3960	U	3960	1	18.7
11SB260507	20110427	SO	4,6-DINITRO-2-METHYLPHENOL	OS	1860	U	N		UG/KG	3680	U	3680	1	14.9
11SB280507	20110426	SO	4,6-DINITRO-2-METHYLPHENOL	OS	2260	U	N		UG/KG	4460	U	4460	1	28.9
11SS050002	20110426	SO	4,6-DINITRO-2-METHYLPHENOL	OS	1980	U	N		UG/KG	3910	U	3910	1	16.6
11SS060002	20110426	SO	4,6-DINITRO-2-METHYLPHENOL	OS	1960	U	N		UG/KG	3880	U	3880	1	19.2
11SS070002	20110426	SO	4,6-DINITRO-2-METHYLPHENOL	OS	2070	U	N		UG/KG	4090	U	4090	1	21.9
11SS080002	20110426	SO	4,6-DINITRO-2-METHYLPHENOL	OS	1930	U	N		UG/KG	3820	U	3820	1	16.9
11SS090002	20110426	SO	4,6-DINITRO-2-METHYLPHENOL	OS	2180	U	N		UG/KG	4300	U	4300	1	23.2
11SS100002	20110426	SO	4,6-DINITRO-2-METHYLPHENOL	OS	2220	U	N		UG/KG	4390	U	4390	1	27.3
11SS110002	20110426	SO	4,6-DINITRO-2-METHYLPHENOL	OS	1930	U	N		UG/KG	3810	U	3810	1	17.8
11SB010002	20110426	SO	4-BROMOPHENYL PHENYL ETHER	OS	212	U	N		UG/KG	418	U	418	1	21.1
11SB010002-D	20110426	SO	4-BROMOPHENYL PHENYL ETHER	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406	20110426	SO	4-BROMOPHENYL PHENYL ETHER	OS	193	U	N		UG/KG	380	U	380	1	17.7
11SB010406-D	20110426	SO	4-BROMOPHENYL PHENYL ETHER	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020002	20110426	SO	4-BROMOPHENYL PHENYL ETHER	OS	206	U	N		UG/KG	407	U	407	1	20.6
11SB020406	20110426	SO	4-BROMOPHENYL PHENYL ETHER	OS	211	U	N		UG/KG	416	U	416	1	24.3
11SB030002	20110426	SO	4-BROMOPHENYL PHENYL ETHER	OS	200	U	N		UG/KG	396	U	396	1	18.7
11SB030406	20110426	SO	4-BROMOPHENYL PHENYL ETHER	OS	189	U	N		UG/KG	373	U	373	1	13.7
11SB040002	20110426	SO	4-BROMOPHENYL PHENYL ETHER	OS	206	U	N		UG/KG	407	U	407	1	20.9
11SB040406	20110426	SO	4-BROMOPHENYL PHENYL ETHER	OS	189	U	N		UG/KG	373	U	373	1	12.8

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB260507	20110427	SO	4-BROMOPHENYL PHENYL ETHER	OS	186	U	N		UG/KG	368	U	368	1	14.9
11SB270507	20110426	SO	4-BROMOPHENYL PHENYL ETHER	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB280507	20110426	SO	4-BROMOPHENYL PHENYL ETHER	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS050002	20110426	SO	4-BROMOPHENYL PHENYL ETHER	OS	198	U	N		UG/KG	391	U	391	1	16.6
11SS060002	20110426	SO	4-BROMOPHENYL PHENYL ETHER	OS	196	U	N		UG/KG	388	U	388	1	19.2
11SS070002	20110426	SO	4-BROMOPHENYL PHENYL ETHER	OS	207	U	N		UG/KG	409	U	409	1	21.9
11SS080002	20110426	SO	4-BROMOPHENYL PHENYL ETHER	OS	193	U	N		UG/KG	382	U	382	1	16.9
11SS090002	20110426	SO	4-BROMOPHENYL PHENYL ETHER	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS100002	20110426	SO	4-BROMOPHENYL PHENYL ETHER	OS	222	U	N		UG/KG	439	U	439	1	27.3
11SS110002	20110426	SO	4-BROMOPHENYL PHENYL ETHER	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SS110002-D	20110426	SO	4-BROMOPHENYL PHENYL ETHER	OS	204	U	N		UG/KG	404	U	404	1	18.8
11SS120002	20110426	SO	4-BROMOPHENYL PHENYL ETHER	OS	196	U	N		UG/KG	387	U	387	1	17
11SS130002	20110426	SO	4-BROMOPHENYL PHENYL ETHER	OS	193	U	N		UG/KG	380	U	380	1	18.2
11SS140002	20110426	SO	4-BROMOPHENYL PHENYL ETHER	OS	203	U	N		UG/KG	401	U	401	1	18.8
11SS150002	20110426	SO	4-BROMOPHENYL PHENYL ETHER	OS	207	U	N		UG/KG	409	U	409	1	19.4
11SS160002	20110426	SO	4-BROMOPHENYL PHENYL ETHER	OS	214	U	N		UG/KG	424	U	424	1	22.6
11SS170002	20110426	SO	4-BROMOPHENYL PHENYL ETHER	OS	200	U	N		UG/KG	394	U	394	1	16.3
11SS180002	20110426	SO	4-BROMOPHENYL PHENYL ETHER	OS	194	U	N		UG/KG	383	U	383	1	17.8
11SS290002	20110427	SO	4-BROMOPHENYL PHENYL ETHER	OS	213	U	N		UG/KG	421	U	421	1	22.6
11SS300002	20110427	SO	4-BROMOPHENYL PHENYL ETHER	OS	189	U	N		UG/KG	373	U	373	1	15
11SS310002	20110426	SO	4-BROMOPHENYL PHENYL ETHER	OS	203	U	N		UG/KG	402	U	402	1	19.5
11SS310002-D	20110427	SO	4-BROMOPHENYL PHENYL ETHER	OS	210	U	N		UG/KG	416	U	416	1	21.7
11SS320002	20110426	SO	4-BROMOPHENYL PHENYL ETHER	OS	204	U	N		UG/KG	404	U	404	1	20.4
11SB010002	20110426	SO	4-CHLORO-3-METHYLPHENOL	OS	212	U	N		UG/KG	418	U	418	1	21.1
11SB010002-D	20110426	SO	4-CHLORO-3-METHYLPHENOL	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406	20110426	SO	4-CHLORO-3-METHYLPHENOL	OS	193	U	N		UG/KG	380	U	380	1	17.7
11SB010406-D	20110426	SO	4-CHLORO-3-METHYLPHENOL	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020002	20110426	SO	4-CHLORO-3-METHYLPHENOL	OS	206	U	N		UG/KG	407	U	407	1	20.6
11SB020406	20110426	SO	4-CHLORO-3-METHYLPHENOL	OS	211	U	N		UG/KG	416	U	416	1	24.3
11SB030002	20110426	SO	4-CHLORO-3-METHYLPHENOL	OS	200	U	N		UG/KG	396	U	396	1	18.7
11SB030406	20110426	SO	4-CHLORO-3-METHYLPHENOL	OS	189	U	N		UG/KG	373	U	373	1	13.7
11SB040002	20110426	SO	4-CHLORO-3-METHYLPHENOL	OS	206	U	N		UG/KG	407	U	407	1	20.9
11SB040406	20110426	SO	4-CHLORO-3-METHYLPHENOL	OS	189	U	N		UG/KG	373	U	373	1	12.8
11SB260507	20110427	SO	4-CHLORO-3-METHYLPHENOL	OS	186	U	N		UG/KG	368	U	368	1	14.9
11SB270507	20110426	SO	4-CHLORO-3-METHYLPHENOL	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB280507	20110426	SO	4-CHLORO-3-METHYLPHENOL	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS050002	20110426	SO	4-CHLORO-3-METHYLPHENOL	OS	198	U	N		UG/KG	391	U	391	1	16.6
11SS060002	20110426	SO	4-CHLORO-3-METHYLPHENOL	OS	196	U	N		UG/KG	388	U	388	1	19.2
11SS070002	20110426	SO	4-CHLORO-3-METHYLPHENOL	OS	207	U	N		UG/KG	409	U	409	1	21.9
11SS080002	20110426	SO	4-CHLORO-3-METHYLPHENOL	OS	193	U	N		UG/KG	382	U	382	1	16.9
11SS090002	20110426	SO	4-CHLORO-3-METHYLPHENOL	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS100002	20110426	SO	4-CHLORO-3-METHYLPHENOL	OS	222	U	N		UG/KG	439	U	439	1	27.3
11SS110002	20110426	SO	4-CHLORO-3-METHYLPHENOL	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SS110002-D	20110426	SO	4-CHLORO-3-METHYLPHENOL	OS	204	U	N		UG/KG	404	U	404	1	18.8
11SS120002	20110426	SO	4-CHLORO-3-METHYLPHENOL	OS	196	U	N		UG/KG	387	U	387	1	17
11SS130002	20110426	SO	4-CHLORO-3-METHYLPHENOL	OS	193	U	N		UG/KG	380	U	380	1	18.2
11SS140002	20110426	SO	4-CHLORO-3-METHYLPHENOL	OS	203	U	N		UG/KG	401	U	401	1	18.8
11SS150002	20110426	SO	4-CHLORO-3-METHYLPHENOL	OS	207	U	N		UG/KG	409	U	409	1	19.4
11SS160002	20110426	SO	4-CHLORO-3-METHYLPHENOL	OS	214	U	N		UG/KG	424	U	424	1	22.6
11SS170002	20110426	SO	4-CHLORO-3-METHYLPHENOL	OS	200	U	N		UG/KG	394	U	394	1	16.3
11SS180002	20110426	SO	4-CHLORO-3-METHYLPHENOL	OS	194	U	N		UG/KG	383	U	383	1	17.8
11SS290002	20110427	SO	4-CHLORO-3-METHYLPHENOL	OS	213	U	N		UG/KG	421	U	421	1	22.6
11SS300002	20110427	SO	4-CHLORO-3-METHYLPHENOL	OS	189	U	N		UG/KG	373	U	373	1	15
11SS310002	20110426	SO	4-CHLORO-3-METHYLPHENOL	OS	203	U	N		UG/KG	402	U	402	1	19.5
11SS310002-D	20110427	SO	4-CHLORO-3-METHYLPHENOL	OS	210	U	N		UG/KG	416	U	416	1	21.7
11SS320002	20110426	SO	4-CHLORO-3-METHYLPHENOL	OS	204	U	N		UG/KG	404	U	404	1	20.4
11SB010002	20110426	SO	4-CHLOROANILINE	OS	212	U	N		UG/KG	418	U	418	1	21.1
11SB010002-D	20110426	SO	4-CHLOROANILINE	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406	20110426	SO	4-CHLOROANILINE	OS	193	U	N		UG/KG	380	U	380	1	17.7
11SB010406-D	20110426	SO	4-CHLOROANILINE	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020002	20110426	SO	4-CHLOROANILINE	OS	206	U	N		UG/KG	407	U	407	1	20.6
11SB020406	20110426	SO	4-CHLOROANILINE	OS	211	U	N		UG/KG	416	U	416	1	24.3
11SB030002	20110426	SO	4-CHLOROANILINE	OS	200	U	N		UG/KG	396	U	396	1	18.7
11SB030406	20110426	SO	4-CHLOROANILINE	OS	189	U	N		UG/KG	373	U	373	1	13.7
11SB040002	20110426	SO	4-CHLOROANILINE	OS	206	U	N		UG/KG	407	U	407	1	20.9
11SB040406	20110426	SO	4-CHLOROANILINE	OS	189	U	N		UG/KG	373	U	373	1	12.8
11SB260507	20110427	SO	4-CHLOROANILINE	OS	186	U	N		UG/KG	368	U	368	1	14.9
11SB270507	20110426	SO	4-CHLOROANILINE	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB280507	20110426	SO	4-CHLOROANILINE	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS050002	20110426	SO	4-CHLOROANILINE	OS	198	U	N		UG/KG	391	U	391	1	16.6
11SS060002	20110426	SO	4-CHLOROANILINE	OS	196	U	N		UG/KG	388	U	388	1	19.2
11SS070002	20110426	SO	4-CHLOROANILINE	OS	207	U	N		UG/KG	409	U	409	1	21.9
11SS080002	20110426	SO	4-CHLOROANILINE	OS	193	U	N		UG/KG	382	U	382	1	16.9
11SS090002	20110426	SO	4-CHLOROANILINE	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS100002	20110426	SO	4-CHLOROANILINE	OS	222	U	N		UG/KG	439	U	439	1	27.3
11SS110002	20110426	SO	4-CHLOROANILINE	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SS110002-D	20110426	SO	4-CHLOROANILINE	OS	204	U	N		UG/KG	404	U	404	1	18.8
11SS120002	20110426	SO	4-CHLOROANILINE	OS	196	U	N		UG/KG	387	U	387	1	17
11SS130002	20110426	SO	4-CHLOROANILINE	OS	193	U	N		UG/KG	380	U	380	1	18.2
11SS140002	20110426	SO	4-CHLOROANILINE	OS	203	U	N		UG/KG	401	U	401	1	18.8
11SS150002	20110426	SO	4-CHLOROANILINE	OS	207	U	N		UG/KG	409	U	409	1	19.4

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SS160002	20110426	SO	4-CHLOROANILINE	OS	214	U	N		UG/KG	424	U	424	1	22.6
11SS170002	20110426	SO	4-CHLOROANILINE	OS	200	U	N		UG/KG	394	U	394	1	16.3
11SS180002	20110426	SO	4-CHLOROANILINE	OS	194	U	N		UG/KG	383	U	383	1	17.8
11SS290002	20110427	SO	4-CHLOROANILINE	OS	213	U	N		UG/KG	421	U	421	1	22.6
11SS300002	20110427	SO	4-CHLOROANILINE	OS	189	U	N		UG/KG	373	U	373	1	15
11SS310002	20110426	SO	4-CHLOROANILINE	OS	203	U	N		UG/KG	402	U	402	1	19.5
11SS310002-D	20110427	SO	4-CHLOROANILINE	OS	210	U	N		UG/KG	416	U	416	1	21.7
11SS320002	20110426	SO	4-CHLOROANILINE	OS	204	U	N		UG/KG	404	U	404	1	20.4
11SB010002	20110426	SO	4-CHLOROPHENYL PHENYL ETHER	OS	212	U	N		UG/KG	418	U	418	1	21.1
11SB010002-D	20110426	SO	4-CHLOROPHENYL PHENYL ETHER	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406	20110426	SO	4-CHLOROPHENYL PHENYL ETHER	OS	193	U	N		UG/KG	380	U	380	1	17.7
11SB010406-D	20110426	SO	4-CHLOROPHENYL PHENYL ETHER	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020002	20110426	SO	4-CHLOROPHENYL PHENYL ETHER	OS	206	U	N		UG/KG	407	U	407	1	20.6
11SB020406	20110426	SO	4-CHLOROPHENYL PHENYL ETHER	OS	211	U	N		UG/KG	416	U	416	1	24.3
11SB030002	20110426	SO	4-CHLOROPHENYL PHENYL ETHER	OS	200	U	N		UG/KG	396	U	396	1	18.7
11SB030406	20110426	SO	4-CHLOROPHENYL PHENYL ETHER	OS	189	U	N		UG/KG	373	U	373	1	13.7
11SB040002	20110426	SO	4-CHLOROPHENYL PHENYL ETHER	OS	206	U	N		UG/KG	407	U	407	1	20.9
11SB040406	20110426	SO	4-CHLOROPHENYL PHENYL ETHER	OS	189	U	N		UG/KG	373	U	373	1	12.8
11SB260507	20110427	SO	4-CHLOROPHENYL PHENYL ETHER	OS	186	U	N		UG/KG	368	U	368	1	14.9
11SB270507	20110426	SO	4-CHLOROPHENYL PHENYL ETHER	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB280507	20110426	SO	4-CHLOROPHENYL PHENYL ETHER	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS050002	20110426	SO	4-CHLOROPHENYL PHENYL ETHER	OS	198	U	N		UG/KG	391	U	391	1	16.6
11SS060002	20110426	SO	4-CHLOROPHENYL PHENYL ETHER	OS	196	U	N		UG/KG	388	U	388	1	19.2
11SS070002	20110426	SO	4-CHLOROPHENYL PHENYL ETHER	OS	207	U	N		UG/KG	409	U	409	1	21.9
11SS080002	20110426	SO	4-CHLOROPHENYL PHENYL ETHER	OS	193	U	N		UG/KG	382	U	382	1	16.9
11SS090002	20110426	SO	4-CHLOROPHENYL PHENYL ETHER	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS100002	20110426	SO	4-CHLOROPHENYL PHENYL ETHER	OS	222	U	N		UG/KG	439	U	439	1	27.3
11SS110002	20110426	SO	4-CHLOROPHENYL PHENYL ETHER	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SB010002	20110426	SO	4-METHYLPHENOL	OS	212	U	N		UG/KG	418	U	418	1	21.1
11SB010002-D	20110426	SO	4-METHYLPHENOL	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406	20110426	SO	4-METHYLPHENOL	OS	193	U	N		UG/KG	380	U	380	1	17.7
11SB010406-D	20110426	SO	4-METHYLPHENOL	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020002	20110426	SO	4-METHYLPHENOL	OS	206	U	N		UG/KG	407	U	407	1	20.6
11SB020406	20110426	SO	4-METHYLPHENOL	OS	211	U	N		UG/KG	416	U	416	1	24.3
11SB030002	20110426	SO	4-METHYLPHENOL	OS	200	U	N		UG/KG	396	U	396	1	18.7
11SB030406	20110426	SO	4-METHYLPHENOL	OS	189	U	N		UG/KG	373	U	373	1	13.7
11SB040002	20110426	SO	4-METHYLPHENOL	OS	206	U	N		UG/KG	407	U	407	1	20.9
11SB040406	20110426	SO	4-METHYLPHENOL	OS	189	U	N		UG/KG	373	U	373	1	12.8
11SB260507	20110427	SO	4-METHYLPHENOL	OS	186	U	N		UG/KG	368	U	368	1	14.9
11SB270507	20110426	SO	4-METHYLPHENOL	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB280507	20110426	SO	4-METHYLPHENOL	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS050002	20110426	SO	4-METHYLPHENOL	OS	198	U	N		UG/KG	391	U	391	1	16.6
11SS060002	20110426	SO	4-METHYLPHENOL	OS	196	U	N		UG/KG	388	U	388	1	19.2
11SS070002	20110426	SO	4-METHYLPHENOL	OS	207	U	N		UG/KG	409	U	409	1	21.9
11SS080002	20110426	SO	4-METHYLPHENOL	OS	193	U	N		UG/KG	382	U	382	1	16.9
11SS090002	20110426	SO	4-METHYLPHENOL	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS100002	20110426	SO	4-METHYLPHENOL	OS	222	U	N		UG/KG	439	U	439	1	27.3
11SS110002	20110426	SO	4-METHYLPHENOL	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SS110002-D	20110426	SO	4-METHYLPHENOL	OS	204	U	N		UG/KG	404	U	404	1	18.8
11SS120002	20110426	SO	4-METHYLPHENOL	OS	196	U	N		UG/KG	387	U	387	1	17
11SS130002	20110426	SO	4-METHYLPHENOL	OS	193	U	N		UG/KG	380	U	380	1	18.2
11SS140002	20110426	SO	4-METHYLPHENOL	OS	203	U	N		UG/KG	401	U	401	1	18.8
11SS150002	20110426	SO	4-METHYLPHENOL	OS	207	U	N		UG/KG	409	U	409	1	19.4
11SS160002	20110426	SO	4-METHYLPHENOL	OS	214	U	N		UG/KG	424	U	424	1	22.6
11SS170002	20110426	SO	4-METHYLPHENOL	OS	200	U	N		UG/KG	394	U	394	1	16.3
11SS180002	20110426	SO	4-METHYLPHENOL	OS	194	U	N		UG/KG	383	U	383	1	17.8
11SS290002	20110427	SO	4-METHYLPHENOL	OS	213	U	N		UG/KG	421	U	421	1	22.6
11SS300002	20110427	SO	4-METHYLPHENOL	OS	189	U	N		UG/KG	373	U	373	1	15
11SS310002	20110426	SO	4-METHYLPHENOL	OS	203	U	N		UG/KG	402	U	402	1	19.5
11SS310002-D	20110427	SO	4-METHYLPHENOL	OS	210	U	N		UG/KG	416	U	416	1	21.7
11SS320002	20110426	SO	4-METHYLPHENOL	OS	204	U	N		UG/KG	404	U	404	1	20.4
11SB010002	20110426	SO	4-NITROANILINE	OS	845	U	N		UG/KG	1650	U	1650	1	21.1
11SB010002-D	20110426	SO	4-NITROANILINE	OS	823	U	N		UG/KG	1600	U	1600	1	21
11SB010406	20110426	SO	4-NITROANILINE	OS	769	U	N		UG/KG	1500	U	1500	1	17.7
11SB010406-D	20110426	SO	4-NITROANILINE	OS	786	U	N		UG/KG	1530	U	1530	1	19.4
11SB020002	20110426	SO	4-NITROANILINE	OS	823	U	N		UG/KG	1600	U	1600	1	20.6
11SB020406	20110426	SO	4-NITROANILINE	OS	842	U	N		UG/KG	1640	U	1640	1	24.3
11SB030002	20110426	SO	4-NITROANILINE	OS	800	U	N		UG/KG	1560	U	1560	1	18.7
11SB030406	20110426	SO	4-NITROANILINE	OS	753	U	N		UG/KG	1470	U	1470	1	13.7
11SB040002	20110426	SO	4-NITROANILINE	OS	822	U	N		UG/KG	1600	U	1600	1	20.9
11SB040406	20110426	SO	4-NITROANILINE	OS	755	U	N		UG/KG	1470	U	1470	1	12.8
11SB270507	20110426	SO	4-NITROANILINE	OS	771	U	N		UG/KG	1500	U	1500	1	14.1
11SB280507	20110426	SO	4-NITROANILINE	OS	902	U	N		UG/KG	1760	U	1760	1	28.9
11SS050002	20110426	SO	4-NITROANILINE	OS	790	U	N		UG/KG	1540	U	1540	1	16.6
11SS060002	20110426	SO	4-NITROANILINE	OS	784	U	N		UG/KG	1530	U	1530	1	19.2
11SS070002	20110426	SO	4-NITROANILINE	OS	827	U	N		UG/KG	1610	U	1610	1	21.9
11SS080002	20110426	SO	4-NITROANILINE	OS	772	U	N		UG/KG	1500	U	1500	1	16.9
11SS090002	20110426	SO	4-NITROANILINE	OS	869	U	N		UG/KG	1690	U	1690	1	23.2
11SS100002	20110426	SO	4-NITROANILINE	OS	888	U	N		UG/KG	1730	U	1730	1	27.3
11SS110002	20110426	SO	4-NITROANILINE	OS	770	U	N		UG/KG	1500	U	1500	1	17.8
11SB010002	20110426	SO	4-NITROPHENOL	OS	845	U	N		UG/KG	1650	U	1650	1	21.1

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB010002-D	20110426	SO	4-NITROPHENOL	OS	823	U	N		UG/KG	1600	U	1600	1	21
11SB010406	20110426	SO	4-NITROPHENOL	OS	769	U	N		UG/KG	1500	U	1500	1	17.7
11SB010406-D	20110426	SO	4-NITROPHENOL	OS	786	U	N		UG/KG	1530	U	1530	1	19.4
11SB020002	20110426	SO	4-NITROPHENOL	OS	823	U	N		UG/KG	1600	U	1600	1	20.6
11SB020406	20110426	SO	4-NITROPHENOL	OS	842	U	N		UG/KG	1640	U	1640	1	24.3
11SB030002	20110426	SO	4-NITROPHENOL	OS	800	U	N		UG/KG	1560	U	1560	1	18.7
11SB030406	20110426	SO	4-NITROPHENOL	OS	753	U	N		UG/KG	1470	U	1470	1	13.7
11SB040002	20110426	SO	4-NITROPHENOL	OS	822	U	N		UG/KG	1600	U	1600	1	20.9
11SB040406	20110426	SO	4-NITROPHENOL	OS	755	U	N		UG/KG	1470	U	1470	1	12.8
11SB260507	20110427	SO	4-NITROPHENOL	OS	744	U	N		UG/KG	1450	U	1450	1	14.9
11SB270507	20110426	SO	4-NITROPHENOL	OS	771	U	N		UG/KG	1500	U	1500	1	14.1
11SS050002	20110426	SO	4-NITROPHENOL	OS	790	U	N		UG/KG	1540	U	1540	1	16.6
11SS060002	20110426	SO	4-NITROPHENOL	OS	784	U	N		UG/KG	1530	U	1530	1	19.2
11SS070002	20110426	SO	4-NITROPHENOL	OS	827	U	N		UG/KG	1610	U	1610	1	21.9
11SS080002	20110426	SO	4-NITROPHENOL	OS	772	U	N		UG/KG	1500	U	1500	1	16.9
11SS100002	20110426	SO	4-NITROPHENOL	OS	888	U	N		UG/KG	1730	U	1730	1	27.3
11SS110002-D	20110426	SO	4-NITROPHENOL	OS	816	U	N		UG/KG	1590	U	1590	1	18.8
11SS120002	20110426	SO	4-NITROPHENOL	OS	783	U	N		UG/KG	1530	U	1530	1	17
11SS130002	20110426	SO	4-NITROPHENOL	OS	769	U	N		UG/KG	1500	U	1500	1	18.2
11SS140002	20110426	SO	4-NITROPHENOL	OS	810	U	N		UG/KG	1580	U	1580	1	18.8
11SS150002	20110426	SO	4-NITROPHENOL	OS	827	U	N		UG/KG	1610	U	1610	1	19.4
11SS160002	20110426	SO	4-NITROPHENOL	OS	857	U	N		UG/KG	1670	U	1670	1	22.6
11SS170002	20110426	SO	4-NITROPHENOL	OS	797	U	N		UG/KG	1550	U	1550	1	16.3
11SS180002	20110426	SO	4-NITROPHENOL	OS	775	U	N		UG/KG	1510	U	1510	1	17.8
11SS290002	20110427	SO	4-NITROPHENOL	OS	851	U	N		UG/KG	1660	U	1660	1	22.6
11SS300002	20110427	SO	4-NITROPHENOL	OS	754	U	N		UG/KG	1470	U	1470	1	15
11SS310002	20110426	SO	4-NITROPHENOL	OS	812	U	N		UG/KG	1580	U	1580	1	19.5
11SS310002-D	20110427	SO	4-NITROPHENOL	OS	840	U	N		UG/KG	1640	U	1640	1	21.7
11SS320002	20110426	SO	4-NITROPHENOL	OS	816	U	N		UG/KG	1590	U	1590	1	20.4
11SB010002	20110426	SO	ACETOPHENONE	OS	212	U	N		UG/KG	418	U	418	1	21.1
11SB010002-D	20110426	SO	ACETOPHENONE	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406	20110426	SO	ACETOPHENONE	OS	193	U	N		UG/KG	380	U	380	1	17.7
11SB010406-D	20110426	SO	ACETOPHENONE	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020002	20110426	SO	ACETOPHENONE	OS	206	U	N		UG/KG	407	U	407	1	20.6
11SB020406	20110426	SO	ACETOPHENONE	OS	211	U	N		UG/KG	416	U	416	1	24.3
11SB030002	20110426	SO	ACETOPHENONE	OS	200	U	N		UG/KG	396	U	396	1	18.7
11SB030406	20110426	SO	ACETOPHENONE	OS	189	U	N		UG/KG	373	U	373	1	13.7
11SB040002	20110426	SO	ACETOPHENONE	OS	206	U	N		UG/KG	407	U	407	1	20.9
11SB040406	20110426	SO	ACETOPHENONE	OS	189	U	N		UG/KG	373	U	373	1	12.8
11SB270507	20110426	SO	ACETOPHENONE	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB280507	20110426	SO	ACETOPHENONE	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS050002	20110426	SO	ACETOPHENONE	OS	198	U	N		UG/KG	391	U	391	1	16.6
11SS060002	20110426	SO	ACETOPHENONE	OS	196	U	N		UG/KG	388	U	388	1	19.2
11SS070002	20110426	SO	ACETOPHENONE	OS	207	U	N		UG/KG	409	U	409	1	21.9
11SS080002	20110426	SO	ACETOPHENONE	OS	193	U	N		UG/KG	382	U	382	1	16.9
11SS090002	20110426	SO	ACETOPHENONE	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS100002	20110426	SO	ACETOPHENONE	OS	222	U	N		UG/KG	439	U	439	1	27.3
11SS110002	20110426	SO	ACETOPHENONE	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SS110002-D	20110426	SO	ACETOPHENONE	OS	204	U	N		UG/KG	404	U	404	1	18.8
11SS120002	20110426	SO	ACETOPHENONE	OS	196	U	N		UG/KG	387	U	387	1	17
11SS130002	20110426	SO	ACETOPHENONE	OS	193	U	N		UG/KG	380	U	380	1	18.2
11SS140002	20110426	SO	ACETOPHENONE	OS	203	U	N		UG/KG	401	U	401	1	18.8
11SS150002	20110426	SO	ACETOPHENONE	OS	207	U	N		UG/KG	409	U	409	1	19.4
11SS160002	20110426	SO	ACETOPHENONE	OS	214	U	N		UG/KG	424	U	424	1	22.6
11SS170002	20110426	SO	ACETOPHENONE	OS	200	U	N		UG/KG	394	U	394	1	16.3
11SS180002	20110426	SO	ACETOPHENONE	OS	194	U	N		UG/KG	383	U	383	1	17.8
11SS290002	20110427	SO	ACETOPHENONE	OS	213	U	N		UG/KG	421	U	421	1	22.6
11SS300002	20110427	SO	ACETOPHENONE	OS	189	U	N		UG/KG	373	U	373	1	15
11SS310002	20110426	SO	ACETOPHENONE	OS	203	U	N		UG/KG	402	U	402	1	19.5
11SS310002-D	20110427	SO	ACETOPHENONE	OS	210	U	N		UG/KG	416	U	416	1	21.7
11SS320002	20110426	SO	ACETOPHENONE	OS	204	U	N		UG/KG	404	U	404	1	20.4
11SB010002	20110426	SO	ATRAZINE	OS	212	U	N		UG/KG	418	U	418	1	21.1
11SB010002-D	20110426	SO	ATRAZINE	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406	20110426	SO	ATRAZINE	OS	193	U	N		UG/KG	380	U	380	1	17.7
11SB010406-D	20110426	SO	ATRAZINE	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020002	20110426	SO	ATRAZINE	OS	206	U	N		UG/KG	407	U	407	1	20.6
11SB020406	20110426	SO	ATRAZINE	OS	211	U	N		UG/KG	416	U	416	1	24.3
11SB030002	20110426	SO	ATRAZINE	OS	200	U	N		UG/KG	396	U	396	1	18.7
11SB030406	20110426	SO	ATRAZINE	OS	189	U	N		UG/KG	373	U	373	1	13.7
11SB040002	20110426	SO	ATRAZINE	OS	206	U	N		UG/KG	407	U	407	1	20.9
11SB040406	20110426	SO	ATRAZINE	OS	189	U	N		UG/KG	373	U	373	1	12.8
11SB260507	20110427	SO	ATRAZINE	OS	186	U	N		UG/KG	368	U	368	1	14.9
11SB270507	20110426	SO	ATRAZINE	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB280507	20110426	SO	ATRAZINE	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS050002	20110426	SO	ATRAZINE	OS	198	U	N		UG/KG	391	U	391	1	16.6
11SS060002	20110426	SO	ATRAZINE	OS	196	U	N		UG/KG	388	U	388	1	19.2
11SS070002	20110426	SO	ATRAZINE	OS	207	U	N		UG/KG	409	U	409	1	21.9
11SS080002	20110426	SO	ATRAZINE	OS	193	U	N		UG/KG	382	U	382	1	16.9
11SS090002	20110426	SO	ATRAZINE	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS100002	20110426	SO	ATRAZINE	OS	222	U	N		UG/KG	439	U	439	1	27.3
11SS110002	20110426	SO	ATRAZINE	OS	193	U	N		UG/KG	381	U	381	1	17.8

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SS110002-D	20110426	SO	ATRAZINE	OS	204	U	N		UG/KG	404	U	404	1	18.8
11SS120002	20110426	SO	ATRAZINE	OS	196	U	N		UG/KG	387	U	387	1	17
11SS130002	20110426	SO	ATRAZINE	OS	193	U	N		UG/KG	380	U	380	1	18.2
11SS140002	20110426	SO	ATRAZINE	OS	203	U	N		UG/KG	401	U	401	1	18.8
11SS150002	20110426	SO	ATRAZINE	OS	207	U	N		UG/KG	409	U	409	1	19.4
11SS160002	20110426	SO	ATRAZINE	OS	214	U	N		UG/KG	424	U	424	1	22.6
11SS170002	20110426	SO	ATRAZINE	OS	200	U	N		UG/KG	394	U	394	1	16.3
11SS180002	20110426	SO	ATRAZINE	OS	194	U	N		UG/KG	383	U	383	1	17.8
11SS290002	20110427	SO	ATRAZINE	OS	213	U	N		UG/KG	421	U	421	1	22.6
11SS300002	20110427	SO	ATRAZINE	OS	189	U	N		UG/KG	373	U	373	1	15
11SS310002	20110426	SO	ATRAZINE	OS	203	U	N		UG/KG	402	U	402	1	19.5
11SS310002-D	20110427	SO	ATRAZINE	OS	210	U	N		UG/KG	416	U	416	1	21.7
11SS320002	20110426	SO	ATRAZINE	OS	204	U	N		UG/KG	404	U	404	1	20.4
11SB010002-D	20110426	SO	BENZALDEHYDE	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406	20110426	SO	BENZALDEHYDE	OS	193	U	N		UG/KG	380	U	380	1	17.7
11SB010406-D	20110426	SO	BENZALDEHYDE	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020002	20110426	SO	BENZALDEHYDE	OS	206	U	N		UG/KG	407	U	407	1	20.6
11SB030406	20110426	SO	BENZALDEHYDE	OS	189	U	N		UG/KG	373	U	373	1	13.7
11SB040002	20110426	SO	BENZALDEHYDE	OS	206	U	N		UG/KG	407	U	407	1	20.9
11SB040406	20110426	SO	BENZALDEHYDE	OS	189	U	N		UG/KG	373	U	373	1	12.8
11SB260507	20110427	SO	BENZALDEHYDE	OS	186	U	N		UG/KG	368	U	368	1	14.9
11SB270507	20110426	SO	BENZALDEHYDE	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB010002	20110426	SO	BIS(2-CHLOROETHOXY)METHANE	OS	212	U	N		UG/KG	418	U	418	1	21.1
11SB010002-D	20110426	SO	BIS(2-CHLOROETHOXY)METHANE	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406	20110426	SO	BIS(2-CHLOROETHOXY)METHANE	OS	193	U	N		UG/KG	380	U	380	1	17.7
11SB010406-D	20110426	SO	BIS(2-CHLOROETHOXY)METHANE	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020002	20110426	SO	BIS(2-CHLOROETHOXY)METHANE	OS	206	U	N		UG/KG	407	U	407	1	20.6
11SB020406	20110426	SO	BIS(2-CHLOROETHOXY)METHANE	OS	211	U	N		UG/KG	416	U	416	1	24.3
11SB030002	20110426	SO	BIS(2-CHLOROETHOXY)METHANE	OS	200	U	N		UG/KG	396	U	396	1	18.7
11SB030406	20110426	SO	BIS(2-CHLOROETHOXY)METHANE	OS	189	U	N		UG/KG	373	U	373	1	13.7
11SB040002	20110426	SO	BIS(2-CHLOROETHOXY)METHANE	OS	206	U	N		UG/KG	407	U	407	1	20.9
11SB040406	20110426	SO	BIS(2-CHLOROETHOXY)METHANE	OS	189	U	N		UG/KG	373	U	373	1	12.8
11SB260507	20110427	SO	BIS(2-CHLOROETHOXY)METHANE	OS	186	U	N		UG/KG	368	U	368	1	14.9
11SB270507	20110426	SO	BIS(2-CHLOROETHOXY)METHANE	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB280507	20110426	SO	BIS(2-CHLOROETHOXY)METHANE	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS050002	20110426	SO	BIS(2-CHLOROETHOXY)METHANE	OS	198	U	N		UG/KG	391	U	391	1	16.6
11SS060002	20110426	SO	BIS(2-CHLOROETHOXY)METHANE	OS	196	U	N		UG/KG	388	U	388	1	19.2
11SS070002	20110426	SO	BIS(2-CHLOROETHOXY)METHANE	OS	207	U	N		UG/KG	409	U	409	1	21.9
11SS080002	20110426	SO	BIS(2-CHLOROETHOXY)METHANE	OS	193	U	N		UG/KG	382	U	382	1	16.9
11SS090002	20110426	SO	BIS(2-CHLOROETHOXY)METHANE	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS100002	20110426	SO	BIS(2-CHLOROETHOXY)METHANE	OS	222	U	N		UG/KG	439	U	439	1	27.3
11SS110002	20110426	SO	BIS(2-CHLOROETHOXY)METHANE	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SS110002-D	20110426	SO	BIS(2-CHLOROETHOXY)METHANE	OS	204	U	N		UG/KG	404	U	404	1	18.8
11SS120002	20110426	SO	BIS(2-CHLOROETHOXY)METHANE	OS	196	U	N		UG/KG	387	U	387	1	17
11SS130002	20110426	SO	BIS(2-CHLOROETHOXY)METHANE	OS	193	U	N		UG/KG	380	U	380	1	18.2
11SS140002	20110426	SO	BIS(2-CHLOROETHOXY)METHANE	OS	203	U	N		UG/KG	401	U	401	1	18.8
11SS150002	20110426	SO	BIS(2-CHLOROETHOXY)METHANE	OS	207	U	N		UG/KG	409	U	409	1	19.4
11SS160002	20110426	SO	BIS(2-CHLOROETHOXY)METHANE	OS	214	U	N		UG/KG	424	U	424	1	22.6
11SS170002	20110426	SO	BIS(2-CHLOROETHOXY)METHANE	OS	200	U	N		UG/KG	394	U	394	1	16.3
11SS180002	20110426	SO	BIS(2-CHLOROETHOXY)METHANE	OS	194	U	N		UG/KG	383	U	383	1	17.8
11SS290002	20110427	SO	BIS(2-CHLOROETHOXY)METHANE	OS	213	U	N		UG/KG	421	U	421	1	22.6
11SS300002	20110427	SO	BIS(2-CHLOROETHOXY)METHANE	OS	189	U	N		UG/KG	373	U	373	1	15
11SS310002	20110426	SO	BIS(2-CHLOROETHOXY)METHANE	OS	203	U	N		UG/KG	402	U	402	1	19.5
11SS310002-D	20110427	SO	BIS(2-CHLOROETHOXY)METHANE	OS	210	U	N		UG/KG	416	U	416	1	21.7
11SS320002	20110426	SO	BIS(2-CHLOROETHOXY)METHANE	OS	204	U	N		UG/KG	404	U	404	1	20.4
11SB010002	20110426	SO	BIS(2-CHLOROETHYL)ETHER	OS	212	U	N		UG/KG	418	U	418	1	21.1
11SB010002-D	20110426	SO	BIS(2-CHLOROETHYL)ETHER	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406	20110426	SO	BIS(2-CHLOROETHYL)ETHER	OS	193	U	N		UG/KG	380	U	380	1	17.7
11SB010406-D	20110426	SO	BIS(2-CHLOROETHYL)ETHER	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020002	20110426	SO	BIS(2-CHLOROETHYL)ETHER	OS	206	U	N		UG/KG	407	U	407	1	20.6
11SB020406	20110426	SO	BIS(2-CHLOROETHYL)ETHER	OS	211	U	N		UG/KG	416	U	416	1	24.3
11SB030002	20110426	SO	BIS(2-CHLOROETHYL)ETHER	OS	200	U	N		UG/KG	396	U	396	1	18.7
11SB030406	20110426	SO	BIS(2-CHLOROETHYL)ETHER	OS	189	U	N		UG/KG	373	U	373	1	13.7
11SB040002	20110426	SO	BIS(2-CHLOROETHYL)ETHER	OS	206	U	N		UG/KG	407	U	407	1	20.9
11SB040406	20110426	SO	BIS(2-CHLOROETHYL)ETHER	OS	189	U	N		UG/KG	373	U	373	1	12.8
11SB260507	20110427	SO	BIS(2-CHLOROETHYL)ETHER	OS	186	U	N		UG/KG	368	U	368	1	14.9
11SB270507	20110426	SO	BIS(2-CHLOROETHYL)ETHER	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB280507	20110426	SO	BIS(2-CHLOROETHYL)ETHER	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS050002	20110426	SO	BIS(2-CHLOROETHYL)ETHER	OS	198	U	N		UG/KG	391	U	391	1	16.6
11SS060002	20110426	SO	BIS(2-CHLOROETHYL)ETHER	OS	196	U	N		UG/KG	388	U	388	1	19.2
11SS070002	20110426	SO	BIS(2-CHLOROETHYL)ETHER	OS	207	U	N		UG/KG	409	U	409	1	21.9
11SS080002	20110426	SO	BIS(2-CHLOROETHYL)ETHER	OS	193	U	N		UG/KG	382	U	382	1	16.9
11SS090002	20110426	SO	BIS(2-CHLOROETHYL)ETHER	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS100002	20110426	SO	BIS(2-CHLOROETHYL)ETHER	OS	222	U	N		UG/KG	439	U	439	1	27.3
11SS110002	20110426	SO	BIS(2-CHLOROETHYL)ETHER	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SS110002-D	20110426	SO	BIS(2-CHLOROETHYL)ETHER	OS	204	U	N		UG/KG	404	U	404	1	18.8
11SS120002	20110426	SO	BIS(2-CHLOROETHYL)ETHER	OS	196	U	N		UG/KG	387	U	387	1	17
11SS130002	20110426	SO	BIS(2-CHLOROETHYL)ETHER	OS	193	U	N		UG/KG	380	U	380	1	18.2
11SS140002	20110426	SO	BIS(2-CHLOROETHYL)ETHER	OS	203	U	N		UG/KG	401	U	401	1	18.8
11SS150002	20110426	SO	BIS(2-CHLOROETHYL)ETHER	OS	207	U	N		UG/KG	409	U	409	1	19.4
11SS160002	20110426	SO	BIS(2-CHLOROETHYL)ETHER	OS	214	U	N		UG/KG	424	U	424	1	22.6

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SS170002	20110426	SO	BIS(2-CHLOROETHYL)ETHER	OS	200	U	N		UG/KG	394	U	394	1	16.3
11SS180002	20110426	SO	BIS(2-CHLOROETHYL)ETHER	OS	194	U	N		UG/KG	383	U	383	1	17.8
11SS290002	20110427	SO	BIS(2-CHLOROETHYL)ETHER	OS	213	U	N		UG/KG	421	U	421	1	22.6
11SS300002	20110427	SO	BIS(2-CHLOROETHYL)ETHER	OS	189	U	N		UG/KG	373	U	373	1	15
11SS310002	20110426	SO	BIS(2-CHLOROETHYL)ETHER	OS	203	U	N		UG/KG	402	U	402	1	19.5
11SS310002-D	20110427	SO	BIS(2-CHLOROETHYL)ETHER	OS	210	U	N		UG/KG	416	U	416	1	21.7
11SS320002	20110426	SO	BIS(2-CHLOROETHYL)ETHER	OS	204	U	N		UG/KG	404	U	404	1	20.4
11SB010002	20110426	SO	BIS(2-ETHYLHEXYL)PHTHALATE	OS	212	U	N		UG/KG	418	U	418	1	21.1
11SB010002-D	20110426	SO	BIS(2-ETHYLHEXYL)PHTHALATE	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406	20110426	SO	BIS(2-ETHYLHEXYL)PHTHALATE	OS	193	U	N		UG/KG	380	U	380	1	17.7
11SB010406-D	20110426	SO	BIS(2-ETHYLHEXYL)PHTHALATE	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020002	20110426	SO	BIS(2-ETHYLHEXYL)PHTHALATE	OS	206	U	N		UG/KG	407	U	407	1	20.6
11SB020406	20110426	SO	BIS(2-ETHYLHEXYL)PHTHALATE	OS	211	U	N		UG/KG	416	U	416	1	24.3
11SB030002	20110426	SO	BIS(2-ETHYLHEXYL)PHTHALATE	OS	200	U	N		UG/KG	396	U	396	1	18.7
11SB030406	20110426	SO	BIS(2-ETHYLHEXYL)PHTHALATE	OS	189	U	N		UG/KG	373	U	373	1	13.7
11SB040002	20110426	SO	BIS(2-ETHYLHEXYL)PHTHALATE	OS	206	U	N		UG/KG	407	U	407	1	20.9
11SB040406	20110426	SO	BIS(2-ETHYLHEXYL)PHTHALATE	OS	189	U	N		UG/KG	373	U	373	1	12.8
11SB260507	20110427	SO	BIS(2-ETHYLHEXYL)PHTHALATE	OS	186	U	N		UG/KG	368	U	368	1	14.9
11SB270507	20110426	SO	BIS(2-ETHYLHEXYL)PHTHALATE	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB280507	20110426	SO	BIS(2-ETHYLHEXYL)PHTHALATE	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS050002	20110426	SO	BIS(2-ETHYLHEXYL)PHTHALATE	OS	198	U	N		UG/KG	391	U	391	1	16.6
11SS060002	20110426	SO	BIS(2-ETHYLHEXYL)PHTHALATE	OS	196	U	N		UG/KG	388	U	388	1	19.2
11SS070002	20110426	SO	BIS(2-ETHYLHEXYL)PHTHALATE	OS	207	U	N		UG/KG	409	U	409	1	21.9
11SS080002	20110426	SO	BIS(2-ETHYLHEXYL)PHTHALATE	OS	193	U	N		UG/KG	382	U	382	1	16.9
11SS090002	20110426	SO	BIS(2-ETHYLHEXYL)PHTHALATE	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS100002	20110426	SO	BIS(2-ETHYLHEXYL)PHTHALATE	OS	222	U	N		UG/KG	439	U	439	1	27.3
11SS110002	20110426	SO	BIS(2-ETHYLHEXYL)PHTHALATE	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SS110002-D	20110426	SO	BIS(2-ETHYLHEXYL)PHTHALATE	OS	204	U	N		UG/KG	404	U	404	1	18.8
11SS120002	20110426	SO	BIS(2-ETHYLHEXYL)PHTHALATE	OS	196	U	N		UG/KG	387	U	387	1	17
11SS130002	20110426	SO	BIS(2-ETHYLHEXYL)PHTHALATE	OS	193	U	N		UG/KG	380	U	380	1	18.2
11SS140002	20110426	SO	BIS(2-ETHYLHEXYL)PHTHALATE	OS	203	U	N		UG/KG	401	U	401	1	18.8
11SS150002	20110426	SO	BIS(2-ETHYLHEXYL)PHTHALATE	OS	207	U	N		UG/KG	409	U	409	1	19.4
11SS160002	20110426	SO	BIS(2-ETHYLHEXYL)PHTHALATE	OS	214	U	N		UG/KG	424	U	424	1	22.6
11SS170002	20110426	SO	BIS(2-ETHYLHEXYL)PHTHALATE	OS	200	U	N		UG/KG	394	U	394	1	16.3
11SS180002	20110426	SO	BIS(2-ETHYLHEXYL)PHTHALATE	OS	194	U	N		UG/KG	383	U	383	1	17.8
11SS290002	20110427	SO	BIS(2-ETHYLHEXYL)PHTHALATE	OS	213	U	N		UG/KG	421	U	421	1	22.6
11SS300002	20110427	SO	BIS(2-ETHYLHEXYL)PHTHALATE	OS	189	U	N		UG/KG	373	U	373	1	15
11SS310002	20110426	SO	BIS(2-ETHYLHEXYL)PHTHALATE	OS	203	U	N		UG/KG	402	U	402	1	19.5
11SS310002-D	20110427	SO	BIS(2-ETHYLHEXYL)PHTHALATE	OS	210	U	N		UG/KG	416	U	416	1	21.7
11SS320002	20110426	SO	BIS(2-ETHYLHEXYL)PHTHALATE	OS	204	U	N		UG/KG	404	U	404	1	20.4
11SB010002	20110426	SO	BUTYL BENZYL PHTHALATE	OS	212	U	N		UG/KG	418	U	418	1	21.1
11SB010002-D	20110426	SO	BUTYL BENZYL PHTHALATE	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406	20110426	SO	BUTYL BENZYL PHTHALATE	OS	193	U	N		UG/KG	380	U	380	1	17.7
11SB010406-D	20110426	SO	BUTYL BENZYL PHTHALATE	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020002	20110426	SO	BUTYL BENZYL PHTHALATE	OS	206	U	N		UG/KG	407	U	407	1	20.6
11SB020406	20110426	SO	BUTYL BENZYL PHTHALATE	OS	211	U	N		UG/KG	416	U	416	1	24.3
11SB030002	20110426	SO	BUTYL BENZYL PHTHALATE	OS	200	U	N		UG/KG	396	U	396	1	18.7
11SB030406	20110426	SO	BUTYL BENZYL PHTHALATE	OS	189	U	N		UG/KG	373	U	373	1	13.7
11SB040002	20110426	SO	BUTYL BENZYL PHTHALATE	OS	206	U	N		UG/KG	407	U	407	1	20.9
11SB040406	20110426	SO	BUTYL BENZYL PHTHALATE	OS	189	U	N		UG/KG	373	U	373	1	12.8
11SB260507	20110427	SO	BUTYL BENZYL PHTHALATE	OS	186	U	N		UG/KG	368	U	368	1	14.9
11SB270507	20110426	SO	BUTYL BENZYL PHTHALATE	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB280507	20110426	SO	BUTYL BENZYL PHTHALATE	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS050002	20110426	SO	BUTYL BENZYL PHTHALATE	OS	198	U	N		UG/KG	391	U	391	1	16.6
11SS060002	20110426	SO	BUTYL BENZYL PHTHALATE	OS	196	U	N		UG/KG	388	U	388	1	19.2
11SS070002	20110426	SO	BUTYL BENZYL PHTHALATE	OS	207	U	N		UG/KG	409	U	409	1	21.9
11SS080002	20110426	SO	BUTYL BENZYL PHTHALATE	OS	193	U	N		UG/KG	382	U	382	1	16.9
11SS090002	20110426	SO	BUTYL BENZYL PHTHALATE	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS100002	20110426	SO	BUTYL BENZYL PHTHALATE	OS	222	U	N		UG/KG	439	U	439	1	27.3
11SS110002	20110426	SO	BUTYL BENZYL PHTHALATE	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SS110002-D	20110426	SO	BUTYL BENZYL PHTHALATE	OS	204	U	N		UG/KG	404	U	404	1	18.8
11SS120002	20110426	SO	BUTYL BENZYL PHTHALATE	OS	196	U	N		UG/KG	387	U	387	1	17
11SS130002	20110426	SO	BUTYL BENZYL PHTHALATE	OS	193	U	N		UG/KG	380	U	380	1	18.2
11SS140002	20110426	SO	BUTYL BENZYL PHTHALATE	OS	203	U	N		UG/KG	401	U	401	1	18.8
11SS150002	20110426	SO	BUTYL BENZYL PHTHALATE	OS	207	U	N		UG/KG	409	U	409	1	19.4
11SS160002	20110426	SO	BUTYL BENZYL PHTHALATE	OS	214	U	N		UG/KG	424	U	424	1	22.6
11SS170002	20110426	SO	BUTYL BENZYL PHTHALATE	OS	200	U	N		UG/KG	394	U	394	1	16.3
11SS180002	20110426	SO	BUTYL BENZYL PHTHALATE	OS	194	U	N		UG/KG	383	U	383	1	17.8
11SS290002	20110427	SO	BUTYL BENZYL PHTHALATE	OS	213	U	N		UG/KG	421	U	421	1	22.6
11SS300002	20110427	SO	BUTYL BENZYL PHTHALATE	OS	189	U	N		UG/KG	373	U	373	1	15
11SS310002	20110426	SO	BUTYL BENZYL PHTHALATE	OS	203	U	N		UG/KG	402	U	402	1	19.5
11SS310002-D	20110427	SO	BUTYL BENZYL PHTHALATE	OS	210	U	N		UG/KG	416	U	416	1	21.7
11SS320002	20110426	SO	BUTYL BENZYL PHTHALATE	OS	204	U	N		UG/KG	404	U	404	1	20.4
11SB010002	20110426	SO	CAPROLACTAM	OS	212	U	N		UG/KG	418	U	418	1	21.1
11SB010002-D	20110426	SO	CAPROLACTAM	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406	20110426	SO	CAPROLACTAM	OS	193	U	N		UG/KG	380	U	380	1	17.7
11SB010406-D	20110426	SO	CAPROLACTAM	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020002	20110426	SO	CAPROLACTAM	OS	206	U	N		UG/KG	407	U	407	1	20.6
11SB020406	20110426	SO	CAPROLACTAM	OS	211	U	N		UG/KG	416	U	416	1	24.3
11SB030002	20110426	SO	CAPROLACTAM	OS	200	U	N		UG/KG	396	U	396	1	18.7
11SB030406	20110426	SO	CAPROLACTAM	OS	189	U	N		UG/KG	373	U	373	1	13.7

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB040002	20110426	SO	CAPROLACTAM	OS	206	U	N		UG/KG	407	U	407	1	20.9
11SB040406	20110426	SO	CAPROLACTAM	OS	189	U	N		UG/KG	373	U	373	1	12.8
11SB260507	20110427	SO	CAPROLACTAM	OS	186	U	N		UG/KG	368	U	368	1	14.9
11SB270507	20110426	SO	CAPROLACTAM	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB280507	20110426	SO	CAPROLACTAM	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS050002	20110426	SO	CAPROLACTAM	OS	198	U	N		UG/KG	391	U	391	1	16.6
11SS060002	20110426	SO	CAPROLACTAM	OS	196	U	N		UG/KG	388	U	388	1	19.2
11SS070002	20110426	SO	CAPROLACTAM	OS	207	U	N		UG/KG	409	U	409	1	21.9
11SS080002	20110426	SO	CAPROLACTAM	OS	193	U	N		UG/KG	382	U	382	1	16.9
11SS090002	20110426	SO	CAPROLACTAM	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS100002	20110426	SO	CAPROLACTAM	OS	222	U	N		UG/KG	439	U	439	1	27.3
11SS110002	20110426	SO	CAPROLACTAM	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SS110002-D	20110426	SO	CAPROLACTAM	OS	204	U	N		UG/KG	404	U	404	1	18.8
11SS120002	20110426	SO	CAPROLACTAM	OS	196	U	N		UG/KG	387	U	387	1	17
11SS130002	20110426	SO	CAPROLACTAM	OS	193	U	N		UG/KG	380	U	380	1	18.2
11SS140002	20110426	SO	CAPROLACTAM	OS	203	U	N		UG/KG	401	U	401	1	18.8
11SS150002	20110426	SO	CAPROLACTAM	OS	207	U	N		UG/KG	409	U	409	1	19.4
11SS160002	20110426	SO	CAPROLACTAM	OS	214	U	N		UG/KG	424	U	424	1	22.6
11SS170002	20110426	SO	CAPROLACTAM	OS	200	U	N		UG/KG	394	U	394	1	16.3
11SS180002	20110426	SO	CAPROLACTAM	OS	194	U	N		UG/KG	383	U	383	1	17.8
11SS290002	20110427	SO	CAPROLACTAM	OS	213	U	N		UG/KG	421	U	421	1	22.6
11SS300002	20110427	SO	CAPROLACTAM	OS	189	U	N		UG/KG	373	U	373	1	15
11SS310002	20110426	SO	CAPROLACTAM	OS	203	U	N		UG/KG	402	U	402	1	19.5
11SS310002-D	20110427	SO	CAPROLACTAM	OS	210	U	N		UG/KG	416	U	416	1	21.7
11SS320002	20110426	SO	CAPROLACTAM	OS	204	U	N		UG/KG	404	U	404	1	20.4
11SB010002	20110426	SO	CARBAZOLE	OS	212	U	N		UG/KG	418	U	418	1	21.1
11SB010002-D	20110426	SO	CARBAZOLE	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406	20110426	SO	CARBAZOLE	OS	193	U	N		UG/KG	380	U	380	1	17.7
11SB010406-D	20110426	SO	CARBAZOLE	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020002	20110426	SO	CARBAZOLE	OS	206	U	N		UG/KG	407	U	407	1	20.6
11SB020406	20110426	SO	CARBAZOLE	OS	211	U	N		UG/KG	416	U	416	1	24.3
11SB030002	20110426	SO	CARBAZOLE	OS	200	U	N		UG/KG	396	U	396	1	18.7
11SB030406	20110426	SO	CARBAZOLE	OS	189	U	N		UG/KG	373	U	373	1	13.7
11SB040002	20110426	SO	CARBAZOLE	OS	206	U	N		UG/KG	407	U	407	1	20.9
11SB040406	20110426	SO	CARBAZOLE	OS	189	U	N		UG/KG	373	U	373	1	12.8
11SB260507	20110427	SO	CARBAZOLE	OS	186	U	N		UG/KG	368	U	368	1	14.9
11SB270507	20110426	SO	CARBAZOLE	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB280507	20110426	SO	CARBAZOLE	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS050002	20110426	SO	CARBAZOLE	OS	198	U	N		UG/KG	391	U	391	1	16.6
11SS060002	20110426	SO	CARBAZOLE	OS	196	U	N		UG/KG	388	U	388	1	19.2
11SS070002	20110426	SO	CARBAZOLE	OS	207	U	N		UG/KG	409	U	409	1	21.9
11SS080002	20110426	SO	CARBAZOLE	OS	193	U	N		UG/KG	382	U	382	1	16.9
11SS090002	20110426	SO	CARBAZOLE	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS100002	20110426	SO	CARBAZOLE	OS	222	U	N		UG/KG	439	U	439	1	27.3
11SS110002	20110426	SO	CARBAZOLE	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SS110002-D	20110426	SO	CARBAZOLE	OS	204	U	N		UG/KG	404	U	404	1	18.8
11SS120002	20110426	SO	CARBAZOLE	OS	196	U	N		UG/KG	387	U	387	1	17
11SS130002	20110426	SO	CARBAZOLE	OS	193	U	N		UG/KG	380	U	380	1	18.2
11SS140002	20110426	SO	CARBAZOLE	OS	203	U	N		UG/KG	401	U	401	1	18.8
11SS150002	20110426	SO	CARBAZOLE	OS	207	U	N		UG/KG	409	U	409	1	19.4
11SS160002	20110426	SO	CARBAZOLE	OS	214	U	N		UG/KG	424	U	424	1	22.6
11SS170002	20110426	SO	CARBAZOLE	OS	200	U	N		UG/KG	394	U	394	1	16.3
11SS180002	20110426	SO	CARBAZOLE	OS	194	U	N		UG/KG	383	U	383	1	17.8
11SS290002	20110427	SO	CARBAZOLE	OS	213	U	N		UG/KG	421	U	421	1	22.6
11SS300002	20110427	SO	CARBAZOLE	OS	189	U	N		UG/KG	373	U	373	1	15
11SS310002	20110426	SO	CARBAZOLE	OS	203	U	N		UG/KG	402	U	402	1	19.5
11SS310002-D	20110427	SO	CARBAZOLE	OS	210	U	N		UG/KG	416	U	416	1	21.7
11SS320002	20110426	SO	CARBAZOLE	OS	204	U	N		UG/KG	404	U	404	1	20.4
11SB010002	20110426	SO	DIBENZOFURAN	OS	212	U	N		UG/KG	418	U	418	1	21.1
11SB010002-D	20110426	SO	DIBENZOFURAN	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406	20110426	SO	DIBENZOFURAN	OS	193	U	N		UG/KG	380	U	380	1	17.7
11SB010406-D	20110426	SO	DIBENZOFURAN	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020002	20110426	SO	DIBENZOFURAN	OS	206	U	N		UG/KG	407	U	407	1	20.6
11SB020406	20110426	SO	DIBENZOFURAN	OS	211	U	N		UG/KG	416	U	416	1	24.3
11SB030002	20110426	SO	DIBENZOFURAN	OS	200	U	N		UG/KG	396	U	396	1	18.7
11SB030406	20110426	SO	DIBENZOFURAN	OS	189	U	N		UG/KG	373	U	373	1	13.7
11SB040002	20110426	SO	DIBENZOFURAN	OS	206	U	N		UG/KG	407	U	407	1	20.9
11SB040406	20110426	SO	DIBENZOFURAN	OS	189	U	N		UG/KG	373	U	373	1	12.8
11SB260507	20110427	SO	DIBENZOFURAN	OS	186	U	N		UG/KG	368	U	368	1	14.9
11SB270507	20110426	SO	DIBENZOFURAN	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB280507	20110426	SO	DIBENZOFURAN	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS050002	20110426	SO	DIBENZOFURAN	OS	198	U	N		UG/KG	391	U	391	1	16.6
11SS060002	20110426	SO	DIBENZOFURAN	OS	196	U	N		UG/KG	388	U	388	1	19.2
11SS070002	20110426	SO	DIBENZOFURAN	OS	207	U	N		UG/KG	409	U	409	1	21.9
11SS080002	20110426	SO	DIBENZOFURAN	OS	193	U	N		UG/KG	382	U	382	1	16.9
11SS090002	20110426	SO	DIBENZOFURAN	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS100002	20110426	SO	DIBENZOFURAN	OS	222	U	N		UG/KG	439	U	439	1	27.3
11SS110002	20110426	SO	DIBENZOFURAN	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SS110002-D	20110426	SO	DIBENZOFURAN	OS	204	U	N		UG/KG	404	U	404	1	18.8
11SS120002	20110426	SO	DIBENZOFURAN	OS	196	U	N		UG/KG	387	U	387	1	17
11SS130002	20110426	SO	DIBENZOFURAN	OS	193	U	N		UG/KG	380	U	380	1	18.2

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SS140002	20110426	SO	DIBENZOFURAN	OS	203	U	N		UG/KG	401	U	401	1	18.8
11SS150002	20110426	SO	DIBENZOFURAN	OS	207	U	N		UG/KG	409	U	409	1	19.4
11SS160002	20110426	SO	DIBENZOFURAN	OS	214	U	N		UG/KG	424	U	424	1	22.6
11SS170002	20110426	SO	DIBENZOFURAN	OS	200	U	N		UG/KG	394	U	394	1	16.3
11SS180002	20110426	SO	DIBENZOFURAN	OS	194	U	N		UG/KG	383	U	383	1	17.8
11SS290002	20110427	SO	DIBENZOFURAN	OS	213	U	N		UG/KG	421	U	421	1	22.6
11SS300002	20110427	SO	DIBENZOFURAN	OS	189	U	N		UG/KG	373	U	373	1	15
11SS310002	20110426	SO	DIBENZOFURAN	OS	203	U	N		UG/KG	402	U	402	1	19.5
11SS310002-D	20110427	SO	DIBENZOFURAN	OS	210	U	N		UG/KG	416	U	416	1	21.7
11SS320002	20110426	SO	DIBENZOFURAN	OS	204	U	N		UG/KG	404	U	404	1	20.4
11SB010002	20110426	SO	DIETHYL PHTHALATE	OS	212	U	N		UG/KG	418	U	418	1	21.1
11SB010002-D	20110426	SO	DIETHYL PHTHALATE	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406-D	20110426	SO	DIETHYL PHTHALATE	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020406	20110426	SO	DIETHYL PHTHALATE	OS	211	U	N		UG/KG	416	UN	416	1	24.3
11SB030002	20110426	SO	DIETHYL PHTHALATE	OS	200	U	N		UG/KG	396	U	396	1	18.7
11SB030406	20110426	SO	DIETHYL PHTHALATE	OS	189	U	N		UG/KG	373	U	373	1	13.7
11SB040002	20110426	SO	DIETHYL PHTHALATE	OS	206	U	N		UG/KG	407	U	407	1	20.9
11SB040406	20110426	SO	DIETHYL PHTHALATE	OS	189	U	N		UG/KG	373	U	373	1	12.8
11SB260507	20110427	SO	DIETHYL PHTHALATE	OS	186	U	N		UG/KG	368	U	368	1	14.9
11SB270507	20110426	SO	DIETHYL PHTHALATE	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB280507	20110426	SO	DIETHYL PHTHALATE	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS050002	20110426	SO	DIETHYL PHTHALATE	OS	198	U	N		UG/KG	391	U	391	1	16.6
11SS060002	20110426	SO	DIETHYL PHTHALATE	OS	196	U	N		UG/KG	388	U	388	1	19.2
11SS070002	20110426	SO	DIETHYL PHTHALATE	OS	207	U	N		UG/KG	409	U	409	1	21.9
11SS080002	20110426	SO	DIETHYL PHTHALATE	OS	193	U	N		UG/KG	382	U	382	1	16.9
11SS090002	20110426	SO	DIETHYL PHTHALATE	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS100002	20110426	SO	DIETHYL PHTHALATE	OS	222	U	N		UG/KG	439	U	439	1	27.3
11SS110002	20110426	SO	DIETHYL PHTHALATE	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SS110002-D	20110426	SO	DIETHYL PHTHALATE	OS	204	U	N		UG/KG	404	U	404	1	18.8
11SS120002	20110426	SO	DIETHYL PHTHALATE	OS	196	U	N		UG/KG	387	U	387	1	17
11SS130002	20110426	SO	DIETHYL PHTHALATE	OS	193	U	N		UG/KG	380	U	380	1	18.2
11SS140002	20110426	SO	DIETHYL PHTHALATE	OS	203	U	N		UG/KG	401	U	401	1	18.8
11SS150002	20110426	SO	DIETHYL PHTHALATE	OS	207	U	N		UG/KG	409	U	409	1	19.4
11SS160002	20110426	SO	DIETHYL PHTHALATE	OS	214	U	N		UG/KG	424	U	424	1	22.6
11SS170002	20110426	SO	DIETHYL PHTHALATE	OS	200	U	N		UG/KG	394	U	394	1	16.3
11SS180002	20110426	SO	DIETHYL PHTHALATE	OS	194	U	N		UG/KG	383	U	383	1	17.8
11SS290002	20110427	SO	DIETHYL PHTHALATE	OS	213	U	N		UG/KG	421	U	421	1	22.6
11SS300002	20110427	SO	DIETHYL PHTHALATE	OS	189	U	N		UG/KG	373	U	373	1	15
11SS310002	20110426	SO	DIETHYL PHTHALATE	OS	203	U	N		UG/KG	402	U	402	1	19.5
11SS310002-D	20110427	SO	DIETHYL PHTHALATE	OS	210	U	N		UG/KG	416	U	416	1	21.7
11SS320002	20110426	SO	DIETHYL PHTHALATE	OS	204	U	N		UG/KG	404	U	404	1	20.4
11SB010002	20110426	SO	DIMETHYL PHTHALATE	OS	212	U	N		UG/KG	418	U	418	1	21.1
11SB010002-D	20110426	SO	DIMETHYL PHTHALATE	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406	20110426	SO	DIMETHYL PHTHALATE	OS	193	U	N		UG/KG	380	U	380	1	17.7
11SB010406-D	20110426	SO	DIMETHYL PHTHALATE	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020002	20110426	SO	DIMETHYL PHTHALATE	OS	206	U	N		UG/KG	407	U	407	1	20.6
11SB020406	20110426	SO	DIMETHYL PHTHALATE	OS	211	U	N		UG/KG	416	U	416	1	24.3
11SB030002	20110426	SO	DIMETHYL PHTHALATE	OS	200	U	N		UG/KG	396	U	396	1	18.7
11SB030406	20110426	SO	DIMETHYL PHTHALATE	OS	189	U	N		UG/KG	373	U	373	1	13.7
11SB040002	20110426	SO	DIMETHYL PHTHALATE	OS	206	U	N		UG/KG	407	U	407	1	20.9
11SB040406	20110426	SO	DIMETHYL PHTHALATE	OS	189	U	N		UG/KG	373	U	373	1	12.8
11SB260507	20110427	SO	DIMETHYL PHTHALATE	OS	186	U	N		UG/KG	368	U	368	1	14.9
11SB270507	20110426	SO	DIMETHYL PHTHALATE	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB280507	20110426	SO	DIMETHYL PHTHALATE	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS050002	20110426	SO	DIMETHYL PHTHALATE	OS	198	U	N		UG/KG	391	U	391	1	16.6
11SS060002	20110426	SO	DIMETHYL PHTHALATE	OS	196	U	N		UG/KG	388	U	388	1	19.2
11SS070002	20110426	SO	DIMETHYL PHTHALATE	OS	207	U	N		UG/KG	409	U	409	1	21.9
11SS080002	20110426	SO	DIMETHYL PHTHALATE	OS	193	U	N		UG/KG	382	U	382	1	16.9
11SS090002	20110426	SO	DIMETHYL PHTHALATE	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS100002	20110426	SO	DIMETHYL PHTHALATE	OS	222	U	N		UG/KG	439	U	439	1	27.3
11SS110002	20110426	SO	DIMETHYL PHTHALATE	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SS110002-D	20110426	SO	DIMETHYL PHTHALATE	OS	204	U	N		UG/KG	404	U	404	1	18.8
11SS120002	20110426	SO	DIMETHYL PHTHALATE	OS	196	U	N		UG/KG	387	U	387	1	17
11SS130002	20110426	SO	DIMETHYL PHTHALATE	OS	193	U	N		UG/KG	380	U	380	1	18.2
11SS140002	20110426	SO	DIMETHYL PHTHALATE	OS	203	U	N		UG/KG	401	U	401	1	18.8
11SS150002	20110426	SO	DIMETHYL PHTHALATE	OS	207	U	N		UG/KG	409	U	409	1	19.4
11SS160002	20110426	SO	DIMETHYL PHTHALATE	OS	214	U	N		UG/KG	424	U	424	1	22.6
11SS170002	20110426	SO	DIMETHYL PHTHALATE	OS	200	U	N		UG/KG	394	U	394	1	16.3
11SS180002	20110426	SO	DIMETHYL PHTHALATE	OS	194	U	N		UG/KG	383	U	383	1	17.8
11SS290002	20110427	SO	DIMETHYL PHTHALATE	OS	213	U	N		UG/KG	421	U	421	1	22.6
11SS300002	20110427	SO	DIMETHYL PHTHALATE	OS	189	U	N		UG/KG	373	U	373	1	15
11SS310002	20110426	SO	DIMETHYL PHTHALATE	OS	203	U	N		UG/KG	402	U	402	1	19.5
11SS310002-D	20110427	SO	DIMETHYL PHTHALATE	OS	210	U	N		UG/KG	416	U	416	1	21.7
11SS320002	20110426	SO	DIMETHYL PHTHALATE	OS	204	U	N		UG/KG	404	U	404	1	20.4
11SB010002	20110426	SO	DI-N-BUTYL PHTHALATE	OS	212	U	N		UG/KG	418	U	418	1	21.1
11SB010002-D	20110426	SO	DI-N-BUTYL PHTHALATE	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406	20110426	SO	DI-N-BUTYL PHTHALATE	OS	193	U	N		UG/KG	380	U	380	1	17.7
11SB010406-D	20110426	SO	DI-N-BUTYL PHTHALATE	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020002	20110426	SO	DI-N-BUTYL PHTHALATE	OS	206	U	N		UG/KG	407	U	407	1	20.6
11SB020406	20110426	SO	DI-N-BUTYL PHTHALATE	OS	211	U	N		UG/KG	416	U	416	1	24.3
11SB030002	20110426	SO	DI-N-BUTYL PHTHALATE	OS	200	U	N		UG/KG	396	U	396	1	18.7

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB030406	20110426	SO	DI-N-BUTYL PHTHALATE	OS	189	U	N		UG/KG	373	U	373	1	13.7
11SB040002	20110426	SO	DI-N-BUTYL PHTHALATE	OS	206	U	N		UG/KG	407	U	407	1	20.9
11SB040406	20110426	SO	DI-N-BUTYL PHTHALATE	OS	189	U	N		UG/KG	373	U	373	1	12.8
11SB260507	20110427	SO	DI-N-BUTYL PHTHALATE	OS	186	U	N		UG/KG	368	U	368	1	14.9
11SB270507	20110426	SO	DI-N-BUTYL PHTHALATE	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB280507	20110426	SO	DI-N-BUTYL PHTHALATE	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS050002	20110426	SO	DI-N-BUTYL PHTHALATE	OS	198	U	N		UG/KG	391	U	391	1	16.6
11SS060002	20110426	SO	DI-N-BUTYL PHTHALATE	OS	196	U	N		UG/KG	388	U	388	1	19.2
11SS070002	20110426	SO	DI-N-BUTYL PHTHALATE	OS	207	U	N		UG/KG	409	U	409	1	21.9
11SS080002	20110426	SO	DI-N-BUTYL PHTHALATE	OS	193	U	N		UG/KG	382	U	382	1	16.9
11SS090002	20110426	SO	DI-N-BUTYL PHTHALATE	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS100002	20110426	SO	DI-N-BUTYL PHTHALATE	OS	222	U	N		UG/KG	439	U	439	1	27.3
11SS110002	20110426	SO	DI-N-BUTYL PHTHALATE	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SS110002-D	20110426	SO	DI-N-BUTYL PHTHALATE	OS	204	U	N		UG/KG	404	U	404	1	18.8
11SS120002	20110426	SO	DI-N-BUTYL PHTHALATE	OS	196	U	N		UG/KG	387	U	387	1	17
11SS130002	20110426	SO	DI-N-BUTYL PHTHALATE	OS	193	U	N		UG/KG	380	U	380	1	18.2
11SS140002	20110426	SO	DI-N-BUTYL PHTHALATE	OS	203	U	N		UG/KG	401	U	401	1	18.8
11SS150002	20110426	SO	DI-N-BUTYL PHTHALATE	OS	207	U	N		UG/KG	409	U	409	1	19.4
11SS160002	20110426	SO	DI-N-BUTYL PHTHALATE	OS	214	U	N		UG/KG	424	U	424	1	22.6
11SS170002	20110426	SO	DI-N-BUTYL PHTHALATE	OS	200	U	N		UG/KG	394	U	394	1	16.3
11SS180002	20110426	SO	DI-N-BUTYL PHTHALATE	OS	194	U	N		UG/KG	383	U	383	1	17.8
11SS290002	20110427	SO	DI-N-BUTYL PHTHALATE	OS	213	U	N		UG/KG	421	U	421	1	22.6
11SS300002	20110427	SO	DI-N-BUTYL PHTHALATE	OS	189	U	N		UG/KG	373	U	373	1	15
11SS310002	20110426	SO	DI-N-BUTYL PHTHALATE	OS	203	U	N		UG/KG	402	U	402	1	19.5
11SS310002-D	20110427	SO	DI-N-BUTYL PHTHALATE	OS	210	U	N		UG/KG	416	U	416	1	21.7
11SS320002	20110426	SO	DI-N-BUTYL PHTHALATE	OS	204	U	N		UG/KG	404	U	404	1	20.4
11SB010002	20110426	SO	DI-N-OCTYL PHTHALATE	OS	212	U	N		UG/KG	418	U	418	1	21.1
11SB010002-D	20110426	SO	DI-N-OCTYL PHTHALATE	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406	20110426	SO	DI-N-OCTYL PHTHALATE	OS	193	U	N		UG/KG	380	U	380	1	17.7
11SB010406-D	20110426	SO	DI-N-OCTYL PHTHALATE	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020002	20110426	SO	DI-N-OCTYL PHTHALATE	OS	206	U	N		UG/KG	407	U	407	1	20.6
11SB020406	20110426	SO	DI-N-OCTYL PHTHALATE	OS	211	U	N		UG/KG	416	U	416	1	24.3
11SB030002	20110426	SO	DI-N-OCTYL PHTHALATE	OS	200	U	N		UG/KG	396	U	396	1	18.7
11SB030406	20110426	SO	DI-N-OCTYL PHTHALATE	OS	189	U	N		UG/KG	373	U	373	1	13.7
11SB040002	20110426	SO	DI-N-OCTYL PHTHALATE	OS	206	U	N		UG/KG	407	U	407	1	20.9
11SB040406	20110426	SO	DI-N-OCTYL PHTHALATE	OS	189	U	N		UG/KG	373	U	373	1	12.8
11SB260507	20110427	SO	DI-N-OCTYL PHTHALATE	OS	186	U	N		UG/KG	368	U	368	1	14.9
11SB270507	20110426	SO	DI-N-OCTYL PHTHALATE	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB280507	20110426	SO	DI-N-OCTYL PHTHALATE	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS050002	20110426	SO	DI-N-OCTYL PHTHALATE	OS	198	U	N		UG/KG	391	U	391	1	16.6
11SS060002	20110426	SO	DI-N-OCTYL PHTHALATE	OS	196	U	N		UG/KG	388	U	388	1	19.2
11SS070002	20110426	SO	DI-N-OCTYL PHTHALATE	OS	207	U	N		UG/KG	409	U	409	1	21.9
11SS080002	20110426	SO	DI-N-OCTYL PHTHALATE	OS	193	U	N		UG/KG	382	U	382	1	16.9
11SS090002	20110426	SO	DI-N-OCTYL PHTHALATE	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS100002	20110426	SO	DI-N-OCTYL PHTHALATE	OS	222	U	N		UG/KG	439	U	439	1	27.3
11SS110002	20110426	SO	DI-N-OCTYL PHTHALATE	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SS110002-D	20110426	SO	DI-N-OCTYL PHTHALATE	OS	204	U	N		UG/KG	404	U	404	1	18.8
11SS120002	20110426	SO	DI-N-OCTYL PHTHALATE	OS	196	U	N		UG/KG	387	U	387	1	17
11SS130002	20110426	SO	DI-N-OCTYL PHTHALATE	OS	193	U	N		UG/KG	380	U	380	1	18.2
11SS140002	20110426	SO	DI-N-OCTYL PHTHALATE	OS	203	U	N		UG/KG	401	U	401	1	18.8
11SS150002	20110426	SO	DI-N-OCTYL PHTHALATE	OS	207	U	N		UG/KG	409	U	409	1	19.4
11SS160002	20110426	SO	DI-N-OCTYL PHTHALATE	OS	214	U	N		UG/KG	424	U	424	1	22.6
11SS170002	20110426	SO	DI-N-OCTYL PHTHALATE	OS	200	U	N		UG/KG	394	U	394	1	16.3
11SS180002	20110426	SO	DI-N-OCTYL PHTHALATE	OS	194	U	N		UG/KG	383	U	383	1	17.8
11SS290002	20110427	SO	DI-N-OCTYL PHTHALATE	OS	213	U	N		UG/KG	421	U	421	1	22.6
11SS300002	20110427	SO	DI-N-OCTYL PHTHALATE	OS	189	U	N		UG/KG	373	U	373	1	15
11SS310002	20110426	SO	DI-N-OCTYL PHTHALATE	OS	203	U	N		UG/KG	402	U	402	1	19.5
11SS310002-D	20110427	SO	DI-N-OCTYL PHTHALATE	OS	210	U	N		UG/KG	416	U	416	1	21.7
11SS320002	20110426	SO	DI-N-OCTYL PHTHALATE	OS	204	U	N		UG/KG	404	U	404	1	20.4
11SB010002	20110426	SO	HEXACHLOROBENZENE	OS	212	U	N		UG/KG	418	U	418	1	21.1
11SB010002-D	20110426	SO	HEXACHLOROBENZENE	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406	20110426	SO	HEXACHLOROBENZENE	OS	193	U	N		UG/KG	380	U	380	1	17.7
11SB010406-D	20110426	SO	HEXACHLOROBENZENE	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020002	20110426	SO	HEXACHLOROBENZENE	OS	206	U	N		UG/KG	407	U	407	1	20.6
11SB020406	20110426	SO	HEXACHLOROBENZENE	OS	211	U	N		UG/KG	416	U	416	1	24.3
11SB030002	20110426	SO	HEXACHLOROBENZENE	OS	200	U	N		UG/KG	396	U	396	1	18.7
11SB030406	20110426	SO	HEXACHLOROBENZENE	OS	189	U	N		UG/KG	373	U	373	1	13.7
11SB040002	20110426	SO	HEXACHLOROBENZENE	OS	206	U	N		UG/KG	407	U	407	1	20.9
11SB040406	20110426	SO	HEXACHLOROBENZENE	OS	189	U	N		UG/KG	373	U	373	1	12.8
11SB260507	20110427	SO	HEXACHLOROBENZENE	OS	186	U	N		UG/KG	368	U	368	1	14.9
11SB270507	20110426	SO	HEXACHLOROBENZENE	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB280507	20110426	SO	HEXACHLOROBENZENE	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS050002	20110426	SO	HEXACHLOROBENZENE	OS	198	U	N		UG/KG	391	U	391	1	16.6
11SS060002	20110426	SO	HEXACHLOROBENZENE	OS	196	U	N		UG/KG	388	U	388	1	19.2
11SS070002	20110426	SO	HEXACHLOROBENZENE	OS	207	U	N		UG/KG	409	U	409	1	21.9
11SS080002	20110426	SO	HEXACHLOROBENZENE	OS	193	U	N		UG/KG	382	U	382	1	16.9
11SS090002	20110426	SO	HEXACHLOROBENZENE	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS100002	20110426	SO	HEXACHLOROBENZENE	OS	222	U	N		UG/KG	439	U	439	1	27.3
11SS110002	20110426	SO	HEXACHLOROBENZENE	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SS110002-D	20110426	SO	HEXACHLOROBENZENE	OS	204	U	N		UG/KG	404	U	404	1	18.8
11SS120002	20110426	SO	HEXACHLOROBENZENE	OS	196	U	N		UG/KG	387	U	387	1	17

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SS130002	20110426	SO	HEXACHLOROBENZENE	OS	193	U	N		UG/KG	380	U	380	1	18.2
11SS140002	20110426	SO	HEXACHLOROBENZENE	OS	203	U	N		UG/KG	401	U	401	1	18.8
11SS150002	20110426	SO	HEXACHLOROBENZENE	OS	207	U	N		UG/KG	409	U	409	1	19.4
11SS160002	20110426	SO	HEXACHLOROBENZENE	OS	214	U	N		UG/KG	424	U	424	1	22.6
11SS170002	20110426	SO	HEXACHLOROBENZENE	OS	200	U	N		UG/KG	394	U	394	1	16.3
11SS180002	20110426	SO	HEXACHLOROBENZENE	OS	194	U	N		UG/KG	383	U	383	1	17.8
11SS290002	20110427	SO	HEXACHLOROBENZENE	OS	213	U	N		UG/KG	421	U	421	1	22.6
11SS300002	20110427	SO	HEXACHLOROBENZENE	OS	189	U	N		UG/KG	373	U	373	1	15
11SS310002	20110426	SO	HEXACHLOROBENZENE	OS	203	U	N		UG/KG	402	U	402	1	19.5
11SS310002-D	20110427	SO	HEXACHLOROBENZENE	OS	210	U	N		UG/KG	416	U	416	1	21.7
11SS320002	20110426	SO	HEXACHLOROBENZENE	OS	204	U	N		UG/KG	404	U	404	1	20.4
11SB010002	20110426	SO	HEXACHLOROBUTADIENE	OS	212	U	N		UG/KG	418	U	418	1	21.1
11SB010002-D	20110426	SO	HEXACHLOROBUTADIENE	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406	20110426	SO	HEXACHLOROBUTADIENE	OS	193	U	N		UG/KG	380	U	380	1	17.7
11SB010406-D	20110426	SO	HEXACHLOROBUTADIENE	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020002	20110426	SO	HEXACHLOROBUTADIENE	OS	206	U	N		UG/KG	407	U	407	1	20.6
11SB020406	20110426	SO	HEXACHLOROBUTADIENE	OS	211	U	N		UG/KG	416	U	416	1	24.3
11SB030002	20110426	SO	HEXACHLOROBUTADIENE	OS	200	U	N		UG/KG	396	U	396	1	18.7
11SB030406	20110426	SO	HEXACHLOROBUTADIENE	OS	189	U	N		UG/KG	373	U	373	1	13.7
11SB040002	20110426	SO	HEXACHLOROBUTADIENE	OS	206	U	N		UG/KG	407	U	407	1	20.9
11SB040406	20110426	SO	HEXACHLOROBUTADIENE	OS	189	U	N		UG/KG	373	U	373	1	12.8
11SB260507	20110427	SO	HEXACHLOROBUTADIENE	OS	186	U	N		UG/KG	368	U	368	1	14.9
11SB270507	20110426	SO	HEXACHLOROBUTADIENE	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB280507	20110426	SO	HEXACHLOROBUTADIENE	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS050002	20110426	SO	HEXACHLOROBUTADIENE	OS	198	U	N		UG/KG	391	U	391	1	16.6
11SS060002	20110426	SO	HEXACHLOROBUTADIENE	OS	196	U	N		UG/KG	388	U	388	1	19.2
11SS070002	20110426	SO	HEXACHLOROBUTADIENE	OS	207	U	N		UG/KG	409	U	409	1	21.9
11SS080002	20110426	SO	HEXACHLOROBUTADIENE	OS	193	U	N		UG/KG	382	U	382	1	16.9
11SS090002	20110426	SO	HEXACHLOROBUTADIENE	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS100002	20110426	SO	HEXACHLOROBUTADIENE	OS	222	U	N		UG/KG	439	U	439	1	27.3
11SS110002	20110426	SO	HEXACHLOROBUTADIENE	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SS110002-D	20110426	SO	HEXACHLOROBUTADIENE	OS	204	U	N		UG/KG	404	U	404	1	18.8
11SS120002	20110426	SO	HEXACHLOROBUTADIENE	OS	196	U	N		UG/KG	387	U	387	1	17
11SS130002	20110426	SO	HEXACHLOROBUTADIENE	OS	193	U	N		UG/KG	380	U	380	1	18.2
11SS140002	20110426	SO	HEXACHLOROBUTADIENE	OS	203	U	N		UG/KG	401	U	401	1	18.8
11SS150002	20110426	SO	HEXACHLOROBUTADIENE	OS	207	U	N		UG/KG	409	U	409	1	19.4
11SS160002	20110426	SO	HEXACHLOROBUTADIENE	OS	214	U	N		UG/KG	424	U	424	1	22.6
11SS170002	20110426	SO	HEXACHLOROBUTADIENE	OS	200	U	N		UG/KG	394	U	394	1	16.3
11SS180002	20110426	SO	HEXACHLOROBUTADIENE	OS	194	U	N		UG/KG	383	U	383	1	17.8
11SS290002	20110427	SO	HEXACHLOROBUTADIENE	OS	213	U	N		UG/KG	421	U	421	1	22.6
11SS300002	20110427	SO	HEXACHLOROBUTADIENE	OS	189	U	N		UG/KG	373	U	373	1	15
11SS310002	20110426	SO	HEXACHLOROBUTADIENE	OS	203	U	N		UG/KG	402	U	402	1	19.5
11SS310002-D	20110427	SO	HEXACHLOROBUTADIENE	OS	210	U	N		UG/KG	416	U	416	1	21.7
11SS320002	20110426	SO	HEXACHLOROBUTADIENE	OS	204	U	N		UG/KG	404	U	404	1	20.4
11SB010002	20110426	SO	HEXACHLOROCYCLOPENTADIENE	OS	212	U	N		UG/KG	418	U	418	1	21.1
11SB010002-D	20110426	SO	HEXACHLOROCYCLOPENTADIENE	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406	20110426	SO	HEXACHLOROCYCLOPENTADIENE	OS	193	U	N		UG/KG	380	U	380	1	17.7
11SB010406-D	20110426	SO	HEXACHLOROCYCLOPENTADIENE	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020002	20110426	SO	HEXACHLOROCYCLOPENTADIENE	OS	206	U	N		UG/KG	407	U	407	1	20.6
11SB020406	20110426	SO	HEXACHLOROCYCLOPENTADIENE	OS	211	U	N		UG/KG	416	U	416	1	24.3
11SB030002	20110426	SO	HEXACHLOROCYCLOPENTADIENE	OS	200	U	N		UG/KG	396	U	396	1	18.7
11SB030406	20110426	SO	HEXACHLOROCYCLOPENTADIENE	OS	189	U	N		UG/KG	373	U	373	1	13.7
11SB040002	20110426	SO	HEXACHLOROCYCLOPENTADIENE	OS	206	U	N		UG/KG	407	U	407	1	20.9
11SB040406	20110426	SO	HEXACHLOROCYCLOPENTADIENE	OS	189	U	N		UG/KG	373	U	373	1	12.8
11SB260507	20110427	SO	HEXACHLOROCYCLOPENTADIENE	OS	186	U	N		UG/KG	368	U	368	1	14.9
11SB270507	20110426	SO	HEXACHLOROCYCLOPENTADIENE	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB280507	20110426	SO	HEXACHLOROCYCLOPENTADIENE	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS050002	20110426	SO	HEXACHLOROCYCLOPENTADIENE	OS	198	U	N		UG/KG	391	U	391	1	16.6
11SS060002	20110426	SO	HEXACHLOROCYCLOPENTADIENE	OS	196	U	N		UG/KG	388	U	388	1	19.2
11SS070002	20110426	SO	HEXACHLOROCYCLOPENTADIENE	OS	207	U	N		UG/KG	409	U	409	1	21.9
11SS080002	20110426	SO	HEXACHLOROCYCLOPENTADIENE	OS	193	U	N		UG/KG	382	U	382	1	16.9
11SS090002	20110426	SO	HEXACHLOROCYCLOPENTADIENE	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS100002	20110426	SO	HEXACHLOROCYCLOPENTADIENE	OS	222	U	N		UG/KG	439	U	439	1	27.3
11SS110002	20110426	SO	HEXACHLOROCYCLOPENTADIENE	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SB010002	20110426	SO	HEXACHLOROETHANE	OS	212	U	N		UG/KG	418	U	418	1	21.1
11SB010002-D	20110426	SO	HEXACHLOROETHANE	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406	20110426	SO	HEXACHLOROETHANE	OS	193	U	N		UG/KG	380	U	380	1	17.7
11SB010406-D	20110426	SO	HEXACHLOROETHANE	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020002	20110426	SO	HEXACHLOROETHANE	OS	206	U	N		UG/KG	407	U	407	1	20.6
11SB020406	20110426	SO	HEXACHLOROETHANE	OS	211	U	N		UG/KG	416	U	416	1	24.3
11SB030002	20110426	SO	HEXACHLOROETHANE	OS	200	U	N		UG/KG	396	U	396	1	18.7
11SB030406	20110426	SO	HEXACHLOROETHANE	OS	189	U	N		UG/KG	373	U	373	1	13.7
11SB040002	20110426	SO	HEXACHLOROETHANE	OS	206	U	N		UG/KG	407	U	407	1	20.9
11SB040406	20110426	SO	HEXACHLOROETHANE	OS	189	U	N		UG/KG	373	U	373	1	12.8
11SB260507	20110427	SO	HEXACHLOROETHANE	OS	186	U	N		UG/KG	368	U	368	1	14.9
11SB270507	20110426	SO	HEXACHLOROETHANE	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB280507	20110426	SO	HEXACHLOROETHANE	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS050002	20110426	SO	HEXACHLOROETHANE	OS	198	U	N		UG/KG	391	U	391	1	16.6
11SS060002	20110426	SO	HEXACHLOROETHANE	OS	196	U	N		UG/KG	388	U	388	1	19.2
11SS070002	20110426	SO	HEXACHLOROETHANE	OS	207	U	N		UG/KG	409	U	409	1	21.9
11SS080002	20110426	SO	HEXACHLOROETHANE	OS	193	U	N		UG/KG	382	U	382	1	16.9

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SS090002	20110426	SO	HEXACHLOROETHANE	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS100002	20110426	SO	HEXACHLOROETHANE	OS	222	U	N		UG/KG	439	U	439	1	27.3
11SS110002	20110426	SO	HEXACHLOROETHANE	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SS110002-D	20110426	SO	HEXACHLOROETHANE	OS	204	U	N		UG/KG	404	U	404	1	18.8
11SS120002	20110426	SO	HEXACHLOROETHANE	OS	196	U	N		UG/KG	387	U	387	1	17
11SS130002	20110426	SO	HEXACHLOROETHANE	OS	193	U	N		UG/KG	380	U	380	1	18.2
11SS140002	20110426	SO	HEXACHLOROETHANE	OS	203	U	N		UG/KG	401	U	401	1	18.8
11SS150002	20110426	SO	HEXACHLOROETHANE	OS	207	U	N		UG/KG	409	U	409	1	19.4
11SS160002	20110426	SO	HEXACHLOROETHANE	OS	214	U	N		UG/KG	424	U	424	1	22.6
11SS170002	20110426	SO	HEXACHLOROETHANE	OS	200	U	N		UG/KG	394	U	394	1	16.3
11SS180002	20110426	SO	HEXACHLOROETHANE	OS	194	U	N		UG/KG	383	U	383	1	17.8
11SS290002	20110427	SO	HEXACHLOROETHANE	OS	213	U	N		UG/KG	421	U	421	1	22.6
11SS300002	20110427	SO	HEXACHLOROETHANE	OS	189	U	N		UG/KG	373	U	373	1	15
11SS310002	20110426	SO	HEXACHLOROETHANE	OS	203	U	N		UG/KG	402	U	402	1	19.5
11SS310002-D	20110427	SO	HEXACHLOROETHANE	OS	210	U	N		UG/KG	416	U	416	1	21.7
11SS320002	20110426	SO	HEXACHLOROETHANE	OS	204	U	N		UG/KG	404	U	404	1	20.4
11SB010002	20110426	SO	ISOPHORONE	OS	212	U	N		UG/KG	418	U	418	1	21.1
11SB010002-D	20110426	SO	ISOPHORONE	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406	20110426	SO	ISOPHORONE	OS	193	U	N		UG/KG	380	U	380	1	17.7
11SB010406-D	20110426	SO	ISOPHORONE	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020002	20110426	SO	ISOPHORONE	OS	206	U	N		UG/KG	407	U	407	1	20.6
11SB020406	20110426	SO	ISOPHORONE	OS	211	U	N		UG/KG	416	U	416	1	24.3
11SB030002	20110426	SO	ISOPHORONE	OS	200	U	N		UG/KG	396	U	396	1	18.7
11SB030406	20110426	SO	ISOPHORONE	OS	189	U	N		UG/KG	373	U	373	1	13.7
11SB040002	20110426	SO	ISOPHORONE	OS	206	U	N		UG/KG	407	U	407	1	20.9
11SB040406	20110426	SO	ISOPHORONE	OS	189	U	N		UG/KG	373	U	373	1	12.8
11SB260507	20110427	SO	ISOPHORONE	OS	186	U	N		UG/KG	368	U	368	1	14.9
11SB270507	20110426	SO	ISOPHORONE	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB280507	20110426	SO	ISOPHORONE	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS050002	20110426	SO	ISOPHORONE	OS	198	U	N		UG/KG	391	U	391	1	16.6
11SS060002	20110426	SO	ISOPHORONE	OS	196	U	N		UG/KG	388	U	388	1	19.2
11SS070002	20110426	SO	ISOPHORONE	OS	207	U	N		UG/KG	409	U	409	1	21.9
11SS080002	20110426	SO	ISOPHORONE	OS	193	U	N		UG/KG	382	U	382	1	16.9
11SS090002	20110426	SO	ISOPHORONE	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS100002	20110426	SO	ISOPHORONE	OS	222	U	N		UG/KG	439	U	439	1	27.3
11SS110002	20110426	SO	ISOPHORONE	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SS110002-D	20110426	SO	ISOPHORONE	OS	204	U	N		UG/KG	404	U	404	1	18.8
11SS120002	20110426	SO	ISOPHORONE	OS	196	U	N		UG/KG	387	U	387	1	17
11SS130002	20110426	SO	ISOPHORONE	OS	193	U	N		UG/KG	380	U	380	1	18.2
11SS140002	20110426	SO	ISOPHORONE	OS	203	U	N		UG/KG	401	U	401	1	18.8
11SS150002	20110426	SO	ISOPHORONE	OS	207	U	N		UG/KG	409	U	409	1	19.4
11SS160002	20110426	SO	ISOPHORONE	OS	214	U	N		UG/KG	424	U	424	1	22.6
11SS170002	20110426	SO	ISOPHORONE	OS	200	U	N		UG/KG	394	U	394	1	16.3
11SS180002	20110426	SO	ISOPHORONE	OS	194	U	N		UG/KG	383	U	383	1	17.8
11SS290002	20110427	SO	ISOPHORONE	OS	213	U	N		UG/KG	421	U	421	1	22.6
11SS300002	20110427	SO	ISOPHORONE	OS	189	U	N		UG/KG	373	U	373	1	15
11SS310002	20110426	SO	ISOPHORONE	OS	203	U	N		UG/KG	402	U	402	1	19.5
11SS310002-D	20110427	SO	ISOPHORONE	OS	210	U	N		UG/KG	416	U	416	1	21.7
11SS320002	20110426	SO	ISOPHORONE	OS	204	U	N		UG/KG	404	U	404	1	20.4
11SB010002	20110426	SO	NITROBENZENE	OS	212	U	N		UG/KG	418	U	418	1	21.1
11SB010002-D	20110426	SO	NITROBENZENE	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406	20110426	SO	NITROBENZENE	OS	193	U	N		UG/KG	380	U	380	1	17.7
11SB010406-D	20110426	SO	NITROBENZENE	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020002	20110426	SO	NITROBENZENE	OS	206	U	N		UG/KG	407	U	407	1	20.6
11SB020406	20110426	SO	NITROBENZENE	OS	211	U	N		UG/KG	416	U	416	1	24.3
11SB030002	20110426	SO	NITROBENZENE	OS	200	U	N		UG/KG	396	U	396	1	18.7
11SB030406	20110426	SO	NITROBENZENE	OS	189	U	N		UG/KG	373	U	373	1	13.7
11SB040002	20110426	SO	NITROBENZENE	OS	206	U	N		UG/KG	407	U	407	1	20.9
11SB040406	20110426	SO	NITROBENZENE	OS	189	U	N		UG/KG	373	U	373	1	12.8
11SB260507	20110427	SO	NITROBENZENE	OS	186	U	N		UG/KG	368	U	368	1	14.9
11SB270507	20110426	SO	NITROBENZENE	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB280507	20110426	SO	NITROBENZENE	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS050002	20110426	SO	NITROBENZENE	OS	198	U	N		UG/KG	391	U	391	1	16.6
11SS060002	20110426	SO	NITROBENZENE	OS	196	U	N		UG/KG	388	U	388	1	19.2
11SS070002	20110426	SO	NITROBENZENE	OS	207	U	N		UG/KG	409	U	409	1	21.9
11SS080002	20110426	SO	NITROBENZENE	OS	193	U	N		UG/KG	382	U	382	1	16.9
11SS090002	20110426	SO	NITROBENZENE	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS100002	20110426	SO	NITROBENZENE	OS	222	U	N		UG/KG	439	U	439	1	27.3
11SS110002	20110426	SO	NITROBENZENE	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SS110002-D	20110426	SO	NITROBENZENE	OS	204	U	N		UG/KG	404	U	404	1	18.8
11SS120002	20110426	SO	NITROBENZENE	OS	196	U	N		UG/KG	387	U	387	1	17
11SS130002	20110426	SO	NITROBENZENE	OS	193	U	N		UG/KG	380	U	380	1	18.2
11SS140002	20110426	SO	NITROBENZENE	OS	203	U	N		UG/KG	401	U	401	1	18.8
11SS150002	20110426	SO	NITROBENZENE	OS	207	U	N		UG/KG	409	U	409	1	19.4
11SS160002	20110426	SO	NITROBENZENE	OS	214	U	N		UG/KG	424	U	424	1	22.6
11SS170002	20110426	SO	NITROBENZENE	OS	200	U	N		UG/KG	394	U	394	1	16.3
11SS180002	20110426	SO	NITROBENZENE	OS	194	U	N		UG/KG	383	U	383	1	17.8
11SS290002	20110427	SO	NITROBENZENE	OS	213	U	N		UG/KG	421	U	421	1	22.6
11SS300002	20110427	SO	NITROBENZENE	OS	189	U	N		UG/KG	373	U	373	1	15
11SS310002	20110426	SO	NITROBENZENE	OS	203	U	N		UG/KG	402	U	402	1	19.5
11SS310002-D	20110427	SO	NITROBENZENE	OS	210	U	N		UG/KG	416	U	416	1	21.7

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SS320002	20110426	SO	NITROBENZENE	OS	204	U	N		UG/KG	404	U	404	1	20.4
11SB010002-D	20110426	SO	N-NITROSO-DI-N-PROPYLAMINE	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406	20110426	SO	N-NITROSO-DI-N-PROPYLAMINE	OS	193	U	N		UG/KG	380	U	380	1	17.7
11SB010406-D	20110426	SO	N-NITROSO-DI-N-PROPYLAMINE	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020002	20110426	SO	N-NITROSO-DI-N-PROPYLAMINE	OS	206	U	N		UG/KG	407	U	407	1	20.6
11SB030406	20110426	SO	N-NITROSO-DI-N-PROPYLAMINE	OS	189	U	N		UG/KG	373	U	373	1	13.7
11SB040002	20110426	SO	N-NITROSO-DI-N-PROPYLAMINE	OS	206	U	N		UG/KG	407	U	407	1	20.9
11SB040406	20110426	SO	N-NITROSO-DI-N-PROPYLAMINE	OS	189	U	N		UG/KG	373	U	373	1	12.8
11SB260507	20110427	SO	N-NITROSO-DI-N-PROPYLAMINE	OS	186	U	N		UG/KG	368	U	368	1	14.9
11SB270507	20110426	SO	N-NITROSO-DI-N-PROPYLAMINE	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB280507	20110426	SO	N-NITROSO-DI-N-PROPYLAMINE	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS090002	20110426	SO	N-NITROSO-DI-N-PROPYLAMINE	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS110002	20110426	SO	N-NITROSO-DI-N-PROPYLAMINE	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SS110002-D	20110426	SO	N-NITROSO-DI-N-PROPYLAMINE	OS	204	U	N		UG/KG	404	U	404	1	18.8
11SS120002	20110426	SO	N-NITROSO-DI-N-PROPYLAMINE	OS	196	U	N		UG/KG	387	U	387	1	17
11SS130002	20110426	SO	N-NITROSO-DI-N-PROPYLAMINE	OS	193	U	N		UG/KG	380	U	380	1	18.2
11SS140002	20110426	SO	N-NITROSO-DI-N-PROPYLAMINE	OS	203	U	N		UG/KG	401	U	401	1	18.8
11SS150002	20110426	SO	N-NITROSO-DI-N-PROPYLAMINE	OS	207	U	N		UG/KG	409	U	409	1	19.4
11SS160002	20110426	SO	N-NITROSO-DI-N-PROPYLAMINE	OS	214	U	N		UG/KG	424	U	424	1	22.6
11SS170002	20110426	SO	N-NITROSO-DI-N-PROPYLAMINE	OS	200	U	N		UG/KG	394	U	394	1	16.3
11SS180002	20110426	SO	N-NITROSO-DI-N-PROPYLAMINE	OS	194	U	N		UG/KG	383	U	383	1	17.8
11SS290002	20110427	SO	N-NITROSO-DI-N-PROPYLAMINE	OS	213	U	N		UG/KG	421	U	421	1	22.6
11SS300002	20110427	SO	N-NITROSO-DI-N-PROPYLAMINE	OS	189	U	N		UG/KG	373	U	373	1	15
11SS310002	20110426	SO	N-NITROSO-DI-N-PROPYLAMINE	OS	203	U	N		UG/KG	402	U	402	1	19.5
11SS310002-D	20110427	SO	N-NITROSO-DI-N-PROPYLAMINE	OS	210	U	N		UG/KG	416	U	416	1	21.7
11SS320002	20110426	SO	N-NITROSO-DI-N-PROPYLAMINE	OS	204	U	N		UG/KG	404	U	404	1	20.4
11SB010002	20110426	SO	N-NITROSODIPHENYLAMINE	OS	212	U	N		UG/KG	418	U	418	1	21.1
11SB010002-D	20110426	SO	N-NITROSODIPHENYLAMINE	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406	20110426	SO	N-NITROSODIPHENYLAMINE	OS	193	U	N		UG/KG	380	U	380	1	17.7
11SB010406-D	20110426	SO	N-NITROSODIPHENYLAMINE	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020002	20110426	SO	N-NITROSODIPHENYLAMINE	OS	206	U	N		UG/KG	407	U	407	1	20.6
11SB020406	20110426	SO	N-NITROSODIPHENYLAMINE	OS	211	U	N		UG/KG	416	UN	416	1	24.3
11SB030002	20110426	SO	N-NITROSODIPHENYLAMINE	OS	200	U	N		UG/KG	396	U	396	1	18.7
11SB030406	20110426	SO	N-NITROSODIPHENYLAMINE	OS	189	U	N		UG/KG	373	U	373	1	13.7
11SB040002	20110426	SO	N-NITROSODIPHENYLAMINE	OS	206	U	N		UG/KG	407	U	407	1	20.9
11SB040406	20110426	SO	N-NITROSODIPHENYLAMINE	OS	189	U	N		UG/KG	373	U	373	1	12.8
11SB270507	20110426	SO	N-NITROSODIPHENYLAMINE	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB280507	20110426	SO	N-NITROSODIPHENYLAMINE	OS	226	U	N		UG/KG	446	UN	446	1	28.9
11SS050002	20110426	SO	N-NITROSODIPHENYLAMINE	OS	198	U	N		UG/KG	391	U	391	1	16.6
11SS060002	20110426	SO	N-NITROSODIPHENYLAMINE	OS	196	U	N		UG/KG	388	U	388	1	19.2
11SS070002	20110426	SO	N-NITROSODIPHENYLAMINE	OS	207	U	N		UG/KG	409	U	409	1	21.9
11SS080002	20110426	SO	N-NITROSODIPHENYLAMINE	OS	193	U	N		UG/KG	382	U	382	1	16.9
11SS090002	20110426	SO	N-NITROSODIPHENYLAMINE	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS100002	20110426	SO	N-NITROSODIPHENYLAMINE	OS	222	U	N		UG/KG	439	U	439	1	27.3
11SS110002	20110426	SO	N-NITROSODIPHENYLAMINE	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SB010002	20110426	SO	PENTACHLOROPHENOL	OS	845	U	N		UG/KG	1650	U	1650	1	21.1
11SB010002-D	20110426	SO	PENTACHLOROPHENOL	OS	823	U	N		UG/KG	1600	U	1600	1	21
11SB010406	20110426	SO	PENTACHLOROPHENOL	OS	769	U	N		UG/KG	1500	U	1500	1	17.7
11SB010406-D	20110426	SO	PENTACHLOROPHENOL	OS	786	U	N		UG/KG	1530	U	1530	1	19.4
11SB020002	20110426	SO	PENTACHLOROPHENOL	OS	823	U	N		UG/KG	1600	U	1600	1	20.6
11SB020406	20110426	SO	PENTACHLOROPHENOL	OS	842	U	N		UG/KG	1640	U	1640	1	24.3
11SB030002	20110426	SO	PENTACHLOROPHENOL	OS	800	U	N		UG/KG	1560	U	1560	1	18.7
11SB030406	20110426	SO	PENTACHLOROPHENOL	OS	753	U	N		UG/KG	1470	U	1470	1	13.7
11SB040002	20110426	SO	PENTACHLOROPHENOL	OS	822	U	N		UG/KG	1600	U	1600	1	20.9
11SB040406	20110426	SO	PENTACHLOROPHENOL	OS	755	U	N		UG/KG	1470	U	1470	1	12.8
11SB260507	20110427	SO	PENTACHLOROPHENOL	OS	744	U	N		UG/KG	1450	U	1450	1	14.9
11SB270507	20110426	SO	PENTACHLOROPHENOL	OS	771	U	N		UG/KG	1500	U	1500	1	14.1
11SB280507	20110426	SO	PENTACHLOROPHENOL	OS	902	U	N		UG/KG	1760	U	1760	1	28.9
11SS050002	20110426	SO	PENTACHLOROPHENOL	OS	790	U	N		UG/KG	1540	U	1540	1	16.6
11SS060002	20110426	SO	PENTACHLOROPHENOL	OS	784	U	N		UG/KG	1530	U	1530	1	19.2
11SS070002	20110426	SO	PENTACHLOROPHENOL	OS	827	U	N		UG/KG	1610	U	1610	1	21.9
11SS080002	20110426	SO	PENTACHLOROPHENOL	OS	772	U	N		UG/KG	1500	U	1500	1	16.9
11SS090002	20110426	SO	PENTACHLOROPHENOL	OS	869	U	N		UG/KG	1690	U	1690	1	23.2
11SS100002	20110426	SO	PENTACHLOROPHENOL	OS	888	U	N		UG/KG	1730	U	1730	1	27.3
11SS110002	20110426	SO	PENTACHLOROPHENOL	OS	770	U	N		UG/KG	1500	U	1500	1	17.8
11SB010002	20110426	SO	PHENOL	OS	212	U	N		UG/KG	418	U	418	1	21.1
11SB010002-D	20110426	SO	PHENOL	OS	206	U	N		UG/KG	407	U	407	1	21
11SB010406	20110426	SO	PHENOL	OS	193	U	N		UG/KG	380	U	380	1	17.7
11SB010406-D	20110426	SO	PHENOL	OS	197	U	N		UG/KG	389	U	389	1	19.4
11SB020002	20110426	SO	PHENOL	OS	206	U	N		UG/KG	407	U	407	1	20.6
11SB020406	20110426	SO	PHENOL	OS	211	U	N		UG/KG	416	U	416	1	24.3
11SB030002	20110426	SO	PHENOL	OS	200	U	N		UG/KG	396	U	396	1	18.7
11SB030406	20110426	SO	PHENOL	OS	189	U	N		UG/KG	373	U	373	1	13.7
11SB040002	20110426	SO	PHENOL	OS	206	U	N		UG/KG	407	U	407	1	20.9
11SB040406	20110426	SO	PHENOL	OS	189	U	N		UG/KG	373	U	373	1	12.8
11SB260507	20110427	SO	PHENOL	OS	186	U	N		UG/KG	368	U	368	1	14.9
11SB270507	20110426	SO	PHENOL	OS	193	U	N		UG/KG	382	U	382	1	14.1
11SB280507	20110426	SO	PHENOL	OS	226	U	N		UG/KG	446	U	446	1	28.9
11SS050002	20110426	SO	PHENOL	OS	198	U	N		UG/KG	391	U	391	1	16.6
11SS060002	20110426	SO	PHENOL	OS	196	U	N		UG/KG	388	U	388	1	19.2
11SS070002	20110426	SO	PHENOL	OS	207	U	N		UG/KG	409	U	409	1	21.9

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SS080002	20110426	SO	PHENOL	OS	193	U	N		UG/KG	382	U	382	1	16.9
11SS090002	20110426	SO	PHENOL	OS	218	U	N		UG/KG	430	U	430	1	23.2
11SS100002	20110426	SO	PHENOL	OS	222	U	N		UG/KG	439	U	439	1	27.3
11SS110002	20110426	SO	PHENOL	OS	193	U	N		UG/KG	381	U	381	1	17.8
11SS110002-D	20110426	SO	PHENOL	OS	204	U	N		UG/KG	404	U	404	1	18.8
11SS120002	20110426	SO	PHENOL	OS	196	U	N		UG/KG	387	U	387	1	17
11SS130002	20110426	SO	PHENOL	OS	193	U	N		UG/KG	380	U	380	1	18.2
11SS140002	20110426	SO	PHENOL	OS	203	U	N		UG/KG	401	U	401	1	18.8
11SS150002	20110426	SO	PHENOL	OS	207	U	N		UG/KG	409	U	409	1	19.4
11SS160002	20110426	SO	PHENOL	OS	214	U	N		UG/KG	424	U	424	1	22.6
11SS170002	20110426	SO	PHENOL	OS	200	U	N		UG/KG	394	U	394	1	16.3
11SS180002	20110426	SO	PHENOL	OS	194	U	N		UG/KG	383	U	383	1	17.8
11SS290002	20110427	SO	PHENOL	OS	213	U	N		UG/KG	421	U	421	1	22.6
11SS300002	20110427	SO	PHENOL	OS	189	U	N		UG/KG	373	U	373	1	15
11SS310002	20110426	SO	PHENOL	OS	203	U	N		UG/KG	402	U	402	1	19.5
11SS310002-D	20110427	SO	PHENOL	OS	210	U	N		UG/KG	416	U	416	1	21.7
11SS320002	20110426	SO	PHENOL	OS	204	U	N		UG/KG	404	U	404	1	20.4
11SB020002	20110426	SO	1,1,1-TRICHLOROETHANE	OV	2.74	U	N		UG/KG	5.47	U	5.47	1	20.6
11SB030002	20110426	SO	1,1,1-TRICHLOROETHANE	OV	2.81	U	N		UG/KG	5.62	U	5.62	1	18.7
11SB030406	20110426	SO	1,1,1-TRICHLOROETHANE	OV	2.38	U	N		UG/KG	4.77	U	4.77	1	13.7
11SB260507	20110427	SO	1,1,1-TRICHLOROETHANE	OV	2.79	U	N		UG/KG	5.57	U	5.57	1	14.9
11SB330406	20111116	SO	1,1,1-TRICHLOROETHANE	OV	2.31	U	N		UG/KG	4.620000	U	4.62	1	14.9
11SB330607	20111116	SO	1,1,1-TRICHLOROETHANE	OV	2.17	U	N		UG/KG	4.330000	U	4.33	1	14
11SB340406	20111116	SO	1,1,1-TRICHLOROETHANE	OV	122	U	N		UG/KG	243.000000	U	243	50	17.6
11SB340708	20111116	SO	1,1,1-TRICHLOROETHANE	OV	2.38	U	N		UG/KG	4.760000	U	4.76	1	17.6
11SB350305	20111116	SO	1,1,1-TRICHLOROETHANE	OV	2.88	U	N		UG/KG	5.750000	U	5.75	1	17.6
11SB350506	20111116	SO	1,1,1-TRICHLOROETHANE	OV	2.72	U	N		UG/KG	5.440000	U	5.44	1	17.6
11SB360204	20111117	SO	1,1,1-TRICHLOROETHANE	OV	117	U	N		UG/KG	233.000000	U	233	50	15.5
11SB360405	20111117	SO	1,1,1-TRICHLOROETHANE	OV	113	U	N		UG/KG	226.000000	U	226	50	15.5
11SB360405-D	20111117	SO	1,1,1-TRICHLOROETHANE	OV	109	U	N		UG/KG	219.000000	U	219	50	13.3
11SB370103	20111116	SO	1,1,1-TRICHLOROETHANE	OV	2.62	U	N		UG/KG	5.240000	U	5.24	1	15.5
11SB370304	20111116	SO	1,1,1-TRICHLOROETHANE	OV	2.32	U	N		UG/KG	4.630000	U	4.63	1	13.4
11SB380406	20111115	SO	1,1,1-TRICHLOROETHANE	OV	3.9	U	N		UG/KG	7.790000	U	7.79	1	40.38
11SB380607	20111115	SO	1,1,1-TRICHLOROETHANE	OV	3.42	U	N		UG/KG	6.840000	U	6.84	1	38.4
11SB390406	20111115	SO	1,1,1-TRICHLOROETHANE	OV	2.8	U	N		UG/KG	5.610000	U	5.61	1	51.6
11SB390708	20111115	SO	1,1,1-TRICHLOROETHANE	OV	3.64	U	N		UG/KG	7.270000	U	7.27	1	39.4
11SB400305	20111115	SO	1,1,1-TRICHLOROETHANE	OV	157	U	N		UG/KG	314.000000	U	314	50	33.3
11SB400506	20111115	SO	1,1,1-TRICHLOROETHANE	OV	465	U	N		UG/KG	929.000000	U	929	100	51.6
11SB410204	20111117	SO	1,1,1-TRICHLOROETHANE	OV	114	U	N		UG/KG	228.000000	U	228	50	15.5
11SB410405	20111117	SO	1,1,1-TRICHLOROETHANE	OV	133	U	N		UG/KG	266.000000	U	266	50	15.5
11SB420102	20111116	SO	1,1,1-TRICHLOROETHANE	OV	2.29	U	N		UG/KG	4.580000	U	4.58	1	17.6
11SB420203	20111116	SO	1,1,1-TRICHLOROETHANE	OV	2.33	U	N		UG/KG	4.650000	U	4.65	1	14.4
11SB430406	20111116	SO	1,1,1-TRICHLOROETHANE	OV	2.69	U	N		UG/KG	5.380000	U	5.38	1	22.3
11SB430809	20111116	SO	1,1,1-TRICHLOROETHANE	OV	2.77	U	N		UG/KG	5.530000	U	5.53	1	15.7
11SB440406	20111116	SO	1,1,1-TRICHLOROETHANE	OV	2.32	U	N		UG/KG	4.640000	U	4.64	1	15.7
11SB440607	20111116	SO	1,1,1-TRICHLOROETHANE	OV	2.45	U	N		UG/KG	4.900000	U	4.9	1	11
11SB450204	20111116	SO	1,1,1-TRICHLOROETHANE	OV	136	U	N		UG/KG	272.000000	U	272	50	21.1
11SB450506	20111116	SO	1,1,1-TRICHLOROETHANE	OV	2.25	U	N		UG/KG	4.500000	U	4.5	1	12
11SB460305	20111117	SO	1,1,1-TRICHLOROETHANE	OV	2.28	U	N		UG/KG	4.550000	U	4.55	1	15.5
11SB460506	20111117	SO	1,1,1-TRICHLOROETHANE	OV	108	U	N		UG/KG	215.000000	U	215	50	8.5
11SB470103	20111116	SO	1,1,1-TRICHLOROETHANE	OV	2.8	U	N		UG/KG	5.600000	U	5.6	1	19.3
11SB470304	20111116	SO	1,1,1-TRICHLOROETHANE	OV	2.45	U	N		UG/KG	4.910000	U	4.91	1	17.8
11SB480305	20111116	SO	1,1,1-TRICHLOROETHANE	OV	2.84	U	N		UG/KG	5.680000	U	5.68	1	20.4
11SB480506	20111116	SO	1,1,1-TRICHLOROETHANE	OV	2.45	U	N		UG/KG	4.890000	U	4.89	1	14.9
11SB490204	20111116	SO	1,1,1-TRICHLOROETHANE	OV	2.79	U	N		UG/KG	5.580000	U	5.58	1	20.4
11SB490405	20111116	SO	1,1,1-TRICHLOROETHANE	OV	2.41	U	N		UG/KG	4.810000	U	4.81	1	12.7
11SB500305	20111116	SO	1,1,1-TRICHLOROETHANE	OV	2.5	U	N		UG/KG	4.990000	U	4.99	1	12.7
11SB500506	20111116	SO	1,1,1-TRICHLOROETHANE	OV	2.22	U	N		UG/KG	4.440000	U	4.44	1	11.1
11SB010002	20110426	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	21.1
11SB010002-D	20110426	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.45	U	N		UG/KG	4.9	U	4.9	1	21
11SB010406	20110426	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.38	U	N		UG/KG	4.75	U	4.75	1	17.7
11SB010406-D	20110426	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	19.4
11SB020002	20110426	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.74	U	N		UG/KG	5.47	U	5.47	1	20.6
11SB020406	20110426	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	24.3
11SB030002	20110426	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.81	U	N		UG/KG	5.62	U	5.62	1	18.7
11SB030406	20110426	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.38	U	N		UG/KG	4.77	U	4.77	1	13.7
11SB040002	20110426	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.98	U	N		UG/KG	5.97	U	5.97	1	20.9
11SB040406	20110426	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	12.8
11SB250507	20110426	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.9	U	N		UG/KG	5.79	U	5.79	1	18.9
11SB260507	20110427	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.79	U	N		UG/KG	5.57	U	5.57	1	14.9
11SB270507	20110426	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	14.1
11SB280507	20110426	SO	1,1,2,2-TETRACHLOROETHANE	OV	3.31	U	N		UG/KG	6.62	U	6.62	1	28.9
11SB330406	20111116	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.31	U	N		UG/KG	4.620000	U	4.62	1	14.9
11SB330607	20111116	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.17	U	N		UG/KG	4.330000	U	4.33	1	14
11SB340406	20111116	SO	1,1,2,2-TETRACHLOROETHANE	OV	122	U	N		UG/KG	243.000000	U	243	50	17.6
11SB340708	20111116	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.38	U	N		UG/KG	4.760000	U	4.76	1	17.6
11SB350305	20111116	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.88	U	N		UG/KG	5.750000	U	5.75	1	17.6
11SB350506	20111116	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.72	U	N		UG/KG	5.440000	U	5.44	1	17.6
11SB360204	20111117	SO	1,1,2,2-TETRACHLOROETHANE	OV	117	U	N		UG/KG	233.000000	U	233	50	15.5
11SB360405	20111117	SO	1,1,2,2-TETRACHLOROETHANE	OV	113	U	N		UG/KG	226.000000	U	226	50	15.5
11SB360405-D	20111117	SO	1,1,2,2-TETRACHLOROETHANE	OV	109	U	N		UG/KG	219.000000	U	219	50	13.3

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB370103	20111116	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.62	U	N		UG/KG	5.240000	U	5.24	1	15.5
11SB370304	20111116	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.32	U	N		UG/KG	4.630000	U	4.63	1	13.4
11SB380406	20111115	SO	1,1,2,2-TETRACHLOROETHANE	OV	3.9	U	N		UG/KG	7.790000	U	7.79	1	40.38
11SB380607	20111115	SO	1,1,2,2-TETRACHLOROETHANE	OV	3.42	U	N		UG/KG	6.840000	U	6.84	1	38.4
11SB390406	20111115	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.8	U	N		UG/KG	5.610000	U	5.61	1	51.6
11SB390708	20111115	SO	1,1,2,2-TETRACHLOROETHANE	OV	3.64	U	N		UG/KG	7.270000	U	7.27	1	39.4
11SB400305	20111115	SO	1,1,2,2-TETRACHLOROETHANE	OV	157	U	N		UG/KG	314.000000	U	314	50	33.3
11SB400506	20111115	SO	1,1,2,2-TETRACHLOROETHANE	OV	465	U	N		UG/KG	929.000000	U	929	100	51.6
11SB410204	20111117	SO	1,1,2,2-TETRACHLOROETHANE	OV	114	U	N		UG/KG	228.000000	U	228	50	15.5
11SB410405	20111117	SO	1,1,2,2-TETRACHLOROETHANE	OV	133	U	N		UG/KG	266.000000	U	266	50	15.5
11SB420102	20111116	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.29	U	N		UG/KG	4.580000	U	4.58	1	17.6
11SB420203	20111116	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.33	U	N		UG/KG	4.650000	U	4.65	1	14.4
11SB430406	20111116	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.69	U	N		UG/KG	5.380000	U	5.38	1	22.3
11SB430809	20111116	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.77	U	N		UG/KG	5.530000	U	5.53	1	15.7
11SB440406	20111116	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.32	U	N		UG/KG	4.640000	U	4.64	1	15.7
11SB440607	20111116	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.45	U	N		UG/KG	4.900000	U	4.9	1	11
11SB450204	20111116	SO	1,1,2,2-TETRACHLOROETHANE	OV	136	U	N		UG/KG	272.000000	U	272	50	21.1
11SB450506	20111116	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.25	U	N		UG/KG	4.500000	U	4.5	1	12
11SB460305	20111117	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.28	U	N		UG/KG	4.550000	U	4.55	1	15.5
11SB460506	20111117	SO	1,1,2,2-TETRACHLOROETHANE	OV	108	U	N		UG/KG	215.000000	U	215	50	8.5
11SB470103	20111116	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.8	U	N		UG/KG	5.600000	U	5.6	1	19.3
11SB470304	20111116	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.45	U	N		UG/KG	4.910000	U	4.91	1	17.8
11SB480305	20111116	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.84	U	N		UG/KG	5.680000	U	5.68	1	20.4
11SB480506	20111116	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.45	U	N		UG/KG	4.890000	U	4.89	1	14.9
11SB490204	20111116	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.79	U	N		UG/KG	5.580000	U	5.58	1	20.4
11SB490405	20111116	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.41	U	N		UG/KG	4.810000	U	4.81	1	12.7
11SB500305	20111116	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.5	U	N		UG/KG	4.990000	U	4.99	1	12.7
11SB500506	20111116	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.22	U	N		UG/KG	4.440000	U	4.44	1	11.1
11SB010002	20110426	SO	1,1,2-TRICHLOROETHANE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	21.1
11SB010002-D	20110426	SO	1,1,2-TRICHLOROETHANE	OV	2.45	U	N		UG/KG	4.9	U	4.9	1	21
11SB010406	20110426	SO	1,1,2-TRICHLOROETHANE	OV	2.38	U	N		UG/KG	4.75	U	4.75	1	17.7
11SB010406-D	20110426	SO	1,1,2-TRICHLOROETHANE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	19.4
11SB020002	20110426	SO	1,1,2-TRICHLOROETHANE	OV	2.74	U	N		UG/KG	5.47	U	5.47	1	20.6
11SB020406	20110426	SO	1,1,2-TRICHLOROETHANE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	24.3
11SB030002	20110426	SO	1,1,2-TRICHLOROETHANE	OV	2.81	U	N		UG/KG	5.62	U	5.62	1	18.7
11SB030406	20110426	SO	1,1,2-TRICHLOROETHANE	OV	2.38	U	N		UG/KG	4.77	U	4.77	1	13.7
11SB040002	20110426	SO	1,1,2-TRICHLOROETHANE	OV	2.98	U	N		UG/KG	5.97	U	5.97	1	20.9
11SB040406	20110426	SO	1,1,2-TRICHLOROETHANE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	12.8
11SB250507	20110426	SO	1,1,2-TRICHLOROETHANE	OV	2.9	U	N		UG/KG	5.79	U	5.79	1	18.9
11SB260507	20110427	SO	1,1,2-TRICHLOROETHANE	OV	2.79	U	N		UG/KG	5.57	U	5.57	1	14.9
11SB270507	20110426	SO	1,1,2-TRICHLOROETHANE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	14.1
11SB280507	20110426	SO	1,1,2-TRICHLOROETHANE	OV	3.31	U	N		UG/KG	6.62	U	6.62	1	28.9
11SB330406	20111116	SO	1,1,2-TRICHLOROETHANE	OV	2.31	U	N		UG/KG	4.620000	U	4.62	1	14.9
11SB330607	20111116	SO	1,1,2-TRICHLOROETHANE	OV	2.17	U	N		UG/KG	4.330000	U	4.33	1	14
11SB340406	20111116	SO	1,1,2-TRICHLOROETHANE	OV	122	U	N		UG/KG	243.000000	U	243	50	17.6
11SB340708	20111116	SO	1,1,2-TRICHLOROETHANE	OV	2.38	U	N		UG/KG	4.760000	U	4.76	1	17.6
11SB350305	20111116	SO	1,1,2-TRICHLOROETHANE	OV	2.88	U	N		UG/KG	5.750000	U	5.75	1	17.6
11SB350506	20111116	SO	1,1,2-TRICHLOROETHANE	OV	2.72	U	N		UG/KG	5.440000	U	5.44	1	17.6
11SB360204	20111117	SO	1,1,2-TRICHLOROETHANE	OV	117	U	N		UG/KG	233.000000	U	233	50	15.5
11SB360405	20111117	SO	1,1,2-TRICHLOROETHANE	OV	113	U	N		UG/KG	226.000000	U	226	50	15.5
11SB360405-D	20111117	SO	1,1,2-TRICHLOROETHANE	OV	109	U	N		UG/KG	219.000000	U	219	50	13.3
11SB370103	20111116	SO	1,1,2-TRICHLOROETHANE	OV	2.62	U	N		UG/KG	5.240000	U	5.24	1	15.5
11SB370304	20111116	SO	1,1,2-TRICHLOROETHANE	OV	2.32	U	N		UG/KG	4.630000	U	4.63	1	13.4
11SB380406	20111115	SO	1,1,2-TRICHLOROETHANE	OV	3.9	U	N		UG/KG	7.790000	U	7.79	1	40.38
11SB380607	20111115	SO	1,1,2-TRICHLOROETHANE	OV	3.42	U	N		UG/KG	6.840000	U	6.84	1	38.4
11SB390406	20111115	SO	1,1,2-TRICHLOROETHANE	OV	2.8	U	N		UG/KG	5.610000	U	5.61	1	51.6
11SB390708	20111115	SO	1,1,2-TRICHLOROETHANE	OV	3.64	U	N		UG/KG	7.270000	U	7.27	1	39.4
11SB400305	20111115	SO	1,1,2-TRICHLOROETHANE	OV	157	U	N		UG/KG	314.000000	U	314	50	33.3
11SB400506	20111115	SO	1,1,2-TRICHLOROETHANE	OV	465	U	N		UG/KG	929.000000	U	929	100	51.6
11SB410204	20111117	SO	1,1,2-TRICHLOROETHANE	OV	114	U	N		UG/KG	228.000000	U	228	50	15.5
11SB410405	20111117	SO	1,1,2-TRICHLOROETHANE	OV	133	U	N		UG/KG	266.000000	U	266	50	15.5
11SB420102	20111116	SO	1,1,2-TRICHLOROETHANE	OV	2.29	U	N		UG/KG	4.580000	U	4.58	1	17.6
11SB420203	20111116	SO	1,1,2-TRICHLOROETHANE	OV	2.33	U	N		UG/KG	4.650000	U	4.65	1	14.4
11SB430406	20111116	SO	1,1,2-TRICHLOROETHANE	OV	2.69	U	N		UG/KG	5.380000	U	5.38	1	22.3
11SB430809	20111116	SO	1,1,2-TRICHLOROETHANE	OV	2.77	U	N		UG/KG	5.530000	U	5.53	1	15.7
11SB440406	20111116	SO	1,1,2-TRICHLOROETHANE	OV	2.32	U	N		UG/KG	4.640000	U	4.64	1	15.7
11SB440607	20111116	SO	1,1,2-TRICHLOROETHANE	OV	2.45	U	N		UG/KG	4.900000	U	4.9	1	11
11SB450204	20111116	SO	1,1,2-TRICHLOROETHANE	OV	136	U	N		UG/KG	272.000000	U	272	50	21.1
11SB450506	20111116	SO	1,1,2-TRICHLOROETHANE	OV	2.25	U	N		UG/KG	4.500000	U	4.5	1	12
11SB460305	20111117	SO	1,1,2-TRICHLOROETHANE	OV	2.28	U	N		UG/KG	4.550000	U	4.55	1	15.5
11SB460506	20111117	SO	1,1,2-TRICHLOROETHANE	OV	108	U	N		UG/KG	215.000000	U	215	50	8.5
11SB470103	20111116	SO	1,1,2-TRICHLOROETHANE	OV	2.8	U	N		UG/KG	5.600000	U	5.6	1	19.3
11SB470304	20111116	SO	1,1,2-TRICHLOROETHANE	OV	2.45	U	N		UG/KG	4.910000	U	4.91	1	17.8
11SB480305	20111116	SO	1,1,2-TRICHLOROETHANE	OV	2.84	U	N		UG/KG	5.680000	U	5.68	1	20.4
11SB480506	20111116	SO	1,1,2-TRICHLOROETHANE	OV	2.45	U	N		UG/KG	4.890000	U	4.89	1	14.9
11SB490204	20111116	SO	1,1,2-TRICHLOROETHANE	OV	2.79	U	N		UG/KG	5.580000	U	5.58	1	20.4
11SB490405	20111116	SO	1,1,2-TRICHLOROETHANE	OV	2.41	U	N		UG/KG	4.810000	U	4.81	1	12.7
11SB500305	20111116	SO	1,1,2-TRICHLOROETHANE	OV	2.5	U	N		UG/KG	4.990000	U	4.99	1	12.7
11SB500506	20111116	SO	1,1,2-TRICHLOROETHANE	OV	2.22	U	N		UG/KG	4.440000	U	4.44	1	11.1
11SB010002	20110426	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	5.03	U	N		UG/KG	10.1	U	10.1	1	21.1
11SB010002-D	20110426	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.9	U	N		UG/KG	9.8	U	9.8	1	21

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB010406	20110426	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.75	U	N		UG/KG	9.5	U	9.5	1	17.7
11SB010406-D	20110426	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.79	U	N		UG/KG	9.59	U	9.59	1	19.4
11SB020002	20110426	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	5.47	U	N		UG/KG	10.9	U	10.9	1	20.6
11SB020406	20110426	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	5.1	U	N		UG/KG	10.2	U	10.2	1	24.3
11SB030002	20110426	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	5.62	U	N		UG/KG	11.2	U	11.2	1	18.7
11SB030406	20110426	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.77	U	N		UG/KG	9.53	U	9.53	1	13.7
11SB040002	20110426	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	5.97	U	N		UG/KG	11.9	U	11.9	1	20.9
11SB040406	20110426	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	5.03	U	N		UG/KG	10.1	U	10.1	1	12.8
11SB250507	20110426	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	5.79	U	N		UG/KG	11.6	U	11.6	1	18.9
11SB260507	20110427	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	5.57	U	N		UG/KG	11.1	U	11.1	1	14.9
11SB270507	20110426	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.48	U	N		UG/KG	8.97	U	8.97	1	14.1
11SB280507	20110426	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	6.62	U	N		UG/KG	13.2	U	13.2	1	28.9
11SB330406	20111116	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.62	U	N		UG/KG	9.230000	U	9.23	1	14.9
11SB330607	20111116	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.33	U	N		UG/KG	8.670000	U	8.67	1	14
11SB340406	20111116	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	243	U	N		UG/KG	487.000000	U	487	50	17.6
11SB340708	20111116	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.76	U	N		UG/KG	9.530000	U	9.53	1	17.6
11SB350305	20111116	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	5.75	U	N		UG/KG	11.500000	U	11.5	1	17.6
11SB350506	20111116	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	5.44	U	N		UG/KG	10.900000	U	10.9	1	17.6
11SB360204	20111117	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	233	U	N		UG/KG	466.000000	U	466	50	15.5
11SB360405	20111117	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	226	U	N		UG/KG	453.000000	U	453	50	15.5
11SB360405-D	20111117	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	219	U	N		UG/KG	437.000000	U	437	50	13.3
11SB370103	20111116	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	5.24	U	N		UG/KG	10.500000	U	10.5	1	15.5
11SB370304	20111116	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.63	U	N		UG/KG	9.260000	U	9.26	1	13.4
11SB380406	20111115	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	7.79	U	N		UG/KG	15.600000	U	15.6	1	40.38
11SB380607	20111115	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	6.84	U	N		UG/KG	13.700000	U	13.7	1	38.4
11SB390406	20111115	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	5.61	U	N		UG/KG	11.200000	U	11.2	1	51.6
11SB390708	20111115	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	7.27	U	N		UG/KG	14.500000	U	14.5	1	39.4
11SB400305	20111115	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	314	U	N		UG/KG	628.000000	U	628	50	33.3
11SB400506	20111115	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	929	U	N		UG/KG	1860.00000	U	1860	100	51.6
11SB410204	20111117	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	228	U	N		UG/KG	456.000000	U	456	50	15.5
11SB410405	20111117	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	266	U	N		UG/KG	532.000000	U	532	50	15.5
11SB420102	20111116	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.58	U	N		UG/KG	9.160000	U	9.16	1	17.6
11SB420203	20111116	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.65	U	N		UG/KG	9.300000	U	9.3	1	14.4
11SB430406	20111116	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	5.38	U	N		UG/KG	10.800000	U	10.8	1	22.3
11SB430809	20111116	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	5.53	U	N		UG/KG	11.100000	U	11.1	1	15.7
11SB440406	20111116	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.64	U	N		UG/KG	9.280000	U	9.28	1	15.7
11SB440607	20111116	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.9	U	N		UG/KG	9.800000	U	9.8	1	11
11SB450204	20111116	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	272	U	N		UG/KG	543.000000	U	543	50	21.1
11SB450506	20111116	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.5	U	N		UG/KG	8.990000	U	8.99	1	12
11SB460305	20111117	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.55	U	N		UG/KG	9.100000	U	9.1	1	15.5
11SB460506	20111117	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	215	U	N		UG/KG	430.000000	U	430	50	8.5
11SB470103	20111116	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	5.6	U	N		UG/KG	11.200000	U	11.2	1	19.3
11SB470304	20111116	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.91	U	N		UG/KG	9.810000	U	9.81	1	17.8
11SB480305	20111116	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	5.68	U	N		UG/KG	11.400000	U	11.4	1	20.4
11SB480506	20111116	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.89	U	N		UG/KG	9.780000	U	9.78	1	14.9
11SB490204	20111116	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	5.58	U	N		UG/KG	11.200000	U	11.2	1	20.4
11SB490405	20111116	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.81	U	N		UG/KG	9.630000	U	9.63	1	12.7
11SB500305	20111116	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.99	U	N		UG/KG	9.980000	U	9.98	1	12.7
11SB500506	20111116	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.44	U	N		UG/KG	8.870000	U	8.87	1	11.1
11SB010002	20110426	SO	1,1-DICHLOROETHANE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	21.1
11SB010002-D	20110426	SO	1,1-DICHLOROETHANE	OV	2.45	U	N		UG/KG	4.9	U	4.9	1	21
11SB010406	20110426	SO	1,1-DICHLOROETHANE	OV	2.38	U	N		UG/KG	4.75	U	4.75	1	17.7
11SB010406-D	20110426	SO	1,1-DICHLOROETHANE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	19.4
11SB020002	20110426	SO	1,1-DICHLOROETHANE	OV	2.74	U	N		UG/KG	5.47	U	5.47	1	20.6
11SB020406	20110426	SO	1,1-DICHLOROETHANE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	24.3
11SB030002	20110426	SO	1,1-DICHLOROETHANE	OV	2.81	U	N		UG/KG	5.62	U	5.62	1	18.7
11SB030406	20110426	SO	1,1-DICHLOROETHANE	OV	2.38	U	N		UG/KG	4.77	U	4.77	1	13.7
11SB040002	20110426	SO	1,1-DICHLOROETHANE	OV	2.98	U	N		UG/KG	5.97	U	5.97	1	20.9
11SB040406	20110426	SO	1,1-DICHLOROETHANE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	12.8
11SB250507	20110426	SO	1,1-DICHLOROETHANE	OV	2.9	U	N		UG/KG	5.79	U	5.79	1	18.9
11SB260507	20110427	SO	1,1-DICHLOROETHANE	OV	2.79	U	N		UG/KG	5.57	UN	5.57	1	14.9
11SB270507	20110426	SO	1,1-DICHLOROETHANE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	14.1
11SB280507	20110426	SO	1,1-DICHLOROETHANE	OV	3.31	U	N		UG/KG	6.62	UN	6.62	1	28.9
11SB330406	20111116	SO	1,1-DICHLOROETHANE	OV	2.31	U	N		UG/KG	4.620000	U	4.62	1	14.9
11SB330607	20111116	SO	1,1-DICHLOROETHANE	OV	2.17	U	N		UG/KG	4.330000	U	4.33	1	14
11SB340406	20111116	SO	1,1-DICHLOROETHANE	OV	122	U	N		UG/KG	243.000000	U	243	50	17.6
11SB340708	20111116	SO	1,1-DICHLOROETHANE	OV	2.38	U	N		UG/KG	4.760000	U	4.76	1	17.6
11SB350305	20111116	SO	1,1-DICHLOROETHANE	OV	2.88	U	N		UG/KG	5.750000	U	5.75	1	17.6
11SB350506	20111116	SO	1,1-DICHLOROETHANE	OV	2.72	U	N		UG/KG	5.440000	U	5.44	1	17.6
11SB360204	20111117	SO	1,1-DICHLOROETHANE	OV	117	U	N		UG/KG	233.000000	U	233	50	15.5
11SB360405	20111117	SO	1,1-DICHLOROETHANE	OV	113	U	N		UG/KG	226.000000	U	226	50	15.5
11SB360405-D	20111117	SO	1,1-DICHLOROETHANE	OV	109	U	N		UG/KG	219.000000	U	219	50	13.3
11SB370103	20111116	SO	1,1-DICHLOROETHANE	OV	2.62	U	N		UG/KG	5.240000	U	5.24	1	15.5
11SB370304	20111116	SO	1,1-DICHLOROETHANE	OV	2.32	U	N		UG/KG	4.630000	U	4.63	1	13.4
11SB380406	20111115	SO	1,1-DICHLOROETHANE	OV	3.9	U	N		UG/KG	7.790000	U	7.79	1	40.38
11SB380607	20111115	SO	1,1-DICHLOROETHANE	OV	3.42	U	N		UG/KG	6.840000	U	6.84	1	38.4
11SB390406	20111115	SO	1,1-DICHLOROETHANE	OV	2.8	U	N		UG/KG	5.610000	U	5.61	1	51.6
11SB390708	20111115	SO	1,1-DICHLOROETHANE	OV	3.64	U	N		UG/KG	7.270000	U	7.27	1	39.4
11SB400305	20111115	SO	1,1-DICHLOROETHANE	OV	157	U	N		UG/KG	314.000000	U	314	50	33.3
11SB400506	20111115	SO	1,1-DICHLOROETHANE	OV	465	U	N		UG/KG	929.000000	U	929	100	51.6
11SB410204	20111117	SO	1,1-DICHLOROETHANE	OV	114	U	N		UG/KG	228.000000	U	228	50	15.5

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB410405	20111117	SO	1,1-DICHLOROETHANE	OV	133	U	N		UG/KG	266.000000	U	266	50	15.5
11SB420102	20111116	SO	1,1-DICHLOROETHANE	OV	2.29	U	N		UG/KG	4.580000	U	4.58	1	17.6
11SB420203	20111116	SO	1,1-DICHLOROETHANE	OV	2.33	U	N		UG/KG	4.650000	U	4.65	1	14.4
11SB430406	20111116	SO	1,1-DICHLOROETHANE	OV	2.69	U	N		UG/KG	5.380000	U	5.38	1	22.3
11SB430809	20111116	SO	1,1-DICHLOROETHANE	OV	2.77	U	N		UG/KG	5.530000	U	5.53	1	15.7
11SB440406	20111116	SO	1,1-DICHLOROETHANE	OV	2.32	U	N		UG/KG	4.640000	U	4.64	1	15.7
11SB440607	20111116	SO	1,1-DICHLOROETHANE	OV	2.45	U	N		UG/KG	4.900000	U	4.9	1	11
11SB450204	20111116	SO	1,1-DICHLOROETHANE	OV	136	U	N		UG/KG	272.000000	U	272	50	21.1
11SB450506	20111116	SO	1,1-DICHLOROETHANE	OV	2.25	U	N		UG/KG	4.500000	U	4.5	1	12
11SB460305	20111117	SO	1,1-DICHLOROETHANE	OV	2.28	U	N		UG/KG	4.550000	U	4.55	1	15.5
11SB460506	20111117	SO	1,1-DICHLOROETHANE	OV	108	U	N		UG/KG	215.000000	U	215	50	8.5
11SB470103	20111116	SO	1,1-DICHLOROETHANE	OV	2.8	U	N		UG/KG	5.600000	U	5.6	1	19.3
11SB470304	20111116	SO	1,1-DICHLOROETHANE	OV	2.45	U	N		UG/KG	4.910000	U	4.91	1	17.8
11SB480305	20111116	SO	1,1-DICHLOROETHANE	OV	2.84	U	N		UG/KG	5.680000	U	5.68	1	20.4
11SB480506	20111116	SO	1,1-DICHLOROETHANE	OV	2.45	U	N		UG/KG	4.890000	U	4.89	1	14.9
11SB490204	20111116	SO	1,1-DICHLOROETHANE	OV	2.79	U	N		UG/KG	5.580000	U	5.58	1	20.4
11SB490405	20111116	SO	1,1-DICHLOROETHANE	OV	2.41	U	N		UG/KG	4.810000	U	4.81	1	12.7
11SB500305	20111116	SO	1,1-DICHLOROETHANE	OV	2.5	U	N		UG/KG	4.990000	U	4.99	1	12.7
11SB500506	20111116	SO	1,1-DICHLOROETHANE	OV	2.22	U	N		UG/KG	4.440000	U	4.44	1	11.1
11SB010002	20110426	SO	1,1-DICHLOROETHENE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	21.1
11SB010002-D	20110426	SO	1,1-DICHLOROETHENE	OV	2.45	U	N		UG/KG	4.9	U	4.9	1	21
11SB010406	20110426	SO	1,1-DICHLOROETHENE	OV	2.38	U	N		UG/KG	4.75	U	4.75	1	17.7
11SB010406-D	20110426	SO	1,1-DICHLOROETHENE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	19.4
11SB020002	20110426	SO	1,1-DICHLOROETHENE	OV	2.74	U	N		UG/KG	5.47	U	5.47	1	20.6
11SB030002	20110426	SO	1,1-DICHLOROETHENE	OV	2.81	U	N		UG/KG	5.62	U	5.62	1	18.7
11SB030406	20110426	SO	1,1-DICHLOROETHENE	OV	2.38	U	N		UG/KG	4.77	U	4.77	1	13.7
11SB040002	20110426	SO	1,1-DICHLOROETHENE	OV	2.98	U	N		UG/KG	5.97	U	5.97	1	20.9
11SB040406	20110426	SO	1,1-DICHLOROETHENE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	12.8
11SB250507	20110426	SO	1,1-DICHLOROETHENE	OV	2.9	U	N		UG/KG	5.79	U	5.79	1	18.9
11SB260507	20110427	SO	1,1-DICHLOROETHENE	OV	2.79	U	N		UG/KG	5.57	U	5.57	1	14.9
11SB270507	20110426	SO	1,1-DICHLOROETHENE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	14.1
11SB280507	20110426	SO	1,1-DICHLOROETHENE	OV	3.31	U	N		UG/KG	6.62	UN	6.62	1	28.9
11SB330406	20111116	SO	1,1-DICHLOROETHENE	OV	2.31	U	N		UG/KG	4.620000	U	4.62	1	14.9
11SB330607	20111116	SO	1,1-DICHLOROETHENE	OV	2.17	U	N		UG/KG	4.330000	U	4.33	1	14
11SB340406	20111116	SO	1,1-DICHLOROETHENE	OV	122	U	N		UG/KG	243.000000	U	243	50	17.6
11SB340708	20111116	SO	1,1-DICHLOROETHENE	OV	2.38	U	N		UG/KG	4.760000	U	4.76	1	17.6
11SB350305	20111116	SO	1,1-DICHLOROETHENE	OV	2.88	U	N		UG/KG	5.750000	U	5.75	1	17.6
11SB350506	20111116	SO	1,1-DICHLOROETHENE	OV	2.72	U	N		UG/KG	5.440000	U	5.44	1	17.6
11SB360204	20111117	SO	1,1-DICHLOROETHENE	OV	117	U	N		UG/KG	233.000000	U	233	50	15.5
11SB360405	20111117	SO	1,1-DICHLOROETHENE	OV	113	U	N		UG/KG	226.000000	U	226	50	15.5
11SB360405-D	20111117	SO	1,1-DICHLOROETHENE	OV	109	U	N		UG/KG	219.000000	U	219	50	13.3
11SB370103	20111116	SO	1,1-DICHLOROETHENE	OV	2.62	U	N		UG/KG	5.240000	U	5.24	1	15.5
11SB370304	20111116	SO	1,1-DICHLOROETHENE	OV	2.32	U	N		UG/KG	4.630000	U	4.63	1	13.4
11SB380406	20111115	SO	1,1-DICHLOROETHENE	OV	3.9	U	N		UG/KG	7.790000	U	7.79	1	40.38
11SB380607	20111115	SO	1,1-DICHLOROETHENE	OV	3.42	U	N		UG/KG	6.840000	U	6.84	1	38.4
11SB390406	20111115	SO	1,1-DICHLOROETHENE	OV	2.8	U	N		UG/KG	5.610000	U	5.61	1	51.6
11SB390708	20111115	SO	1,1-DICHLOROETHENE	OV	3.64	U	N		UG/KG	7.270000	U	7.27	1	39.4
11SB400305	20111115	SO	1,1-DICHLOROETHENE	OV	157	U	N		UG/KG	314.000000	U	314	50	33.3
11SB400506	20111115	SO	1,1-DICHLOROETHENE	OV	465	U	N		UG/KG	929.000000	U	929	100	51.6
11SB410204	20111117	SO	1,1-DICHLOROETHENE	OV	114	U	N		UG/KG	228.000000	U	228	50	15.5
11SB410405	20111117	SO	1,1-DICHLOROETHENE	OV	133	U	N		UG/KG	266.000000	U	266	50	15.5
11SB420102	20111116	SO	1,1-DICHLOROETHENE	OV	2.29	U	N		UG/KG	4.580000	U	4.58	1	17.6
11SB420203	20111116	SO	1,1-DICHLOROETHENE	OV	2.33	U	N		UG/KG	4.650000	U	4.65	1	14.4
11SB430406	20111116	SO	1,1-DICHLOROETHENE	OV	2.69	U	N		UG/KG	5.380000	U	5.38	1	22.3
11SB430809	20111116	SO	1,1-DICHLOROETHENE	OV	2.77	U	N		UG/KG	5.530000	U	5.53	1	15.7
11SB440406	20111116	SO	1,1-DICHLOROETHENE	OV	2.32	U	N		UG/KG	4.640000	U	4.64	1	15.7
11SB440607	20111116	SO	1,1-DICHLOROETHENE	OV	2.45	U	N		UG/KG	4.900000	U	4.9	1	11
11SB450204	20111116	SO	1,1-DICHLOROETHENE	OV	136	U	N		UG/KG	272.000000	U	272	50	21.1
11SB450506	20111116	SO	1,1-DICHLOROETHENE	OV	2.25	U	N		UG/KG	4.500000	U	4.5	1	12
11SB460305	20111117	SO	1,1-DICHLOROETHENE	OV	2.28	U	N		UG/KG	4.550000	U	4.55	1	15.5
11SB460506	20111117	SO	1,1-DICHLOROETHENE	OV	108	U	N		UG/KG	215.000000	U	215	50	8.5
11SB470103	20111116	SO	1,1-DICHLOROETHENE	OV	2.8	U	N		UG/KG	5.600000	U	5.6	1	19.3
11SB470304	20111116	SO	1,1-DICHLOROETHENE	OV	2.45	U	N		UG/KG	4.910000	U	4.91	1	17.8
11SB480305	20111116	SO	1,1-DICHLOROETHENE	OV	2.84	U	N		UG/KG	5.680000	U	5.68	1	20.4
11SB480506	20111116	SO	1,1-DICHLOROETHENE	OV	2.45	U	N		UG/KG	4.890000	U	4.89	1	14.9
11SB490204	20111116	SO	1,1-DICHLOROETHENE	OV	2.79	U	N		UG/KG	5.580000	U	5.58	1	20.4
11SB490405	20111116	SO	1,1-DICHLOROETHENE	OV	2.41	U	N		UG/KG	4.810000	U	4.81	1	12.7
11SB500305	20111116	SO	1,1-DICHLOROETHENE	OV	2.5	U	N		UG/KG	4.990000	U	4.99	1	12.7
11SB500506	20111116	SO	1,1-DICHLOROETHENE	OV	2.22	U	N		UG/KG	4.440000	U	4.44	1	11.1
11SB330406	20111116	SO	1,2,3-TRICHLOROBENZENE	OV	2.31	U	N		UG/KG	4.620000	U	4.62	1	14.9
11SB330607	20111116	SO	1,2,3-TRICHLOROBENZENE	OV	2.17	U	N		UG/KG	4.330000	U	4.33	1	14
11SB360405	20111117	SO	1,2,3-TRICHLOROBENZENE	OV	113	U	N		UG/KG	226.000000	U	226	50	15.5
11SB380406	20111115	SO	1,2,3-TRICHLOROBENZENE	OV	3.9	U	N		UG/KG	7.790000	U	7.79	1	40.38
11SB390406	20111115	SO	1,2,3-TRICHLOROBENZENE	OV	2.8	U	N		UG/KG	5.610000	U	5.61	1	51.6
11SB410204	20111117	SO	1,2,3-TRICHLOROBENZENE	OV	114	U	N		UG/KG	228.000000	U	228	50	15.5
11SB410405	20111117	SO	1,2,3-TRICHLOROBENZENE	OV	133	U	N		UG/KG	266.000000	U	266	50	15.5
11SB430406	20111116	SO	1,2,3-TRICHLOROBENZENE	OV	2.69	U	N		UG/KG	5.380000	U	5.38	1	22.3
11SB430809	20111116	SO	1,2,3-TRICHLOROBENZENE	OV	2.77	U	N		UG/KG	5.530000	U	5.53	1	15.7
11SB440607	20111116	SO	1,2,3-TRICHLOROBENZENE	OV	2.45	U	N		UG/KG	4.900000	U	4.9	1	11
11SB450204	20111116	SO	1,2,3-TRICHLOROBENZENE	OV	136	U	N		UG/KG	272.000000	U	272	50	21.1
11SB450506	20111116	SO	1,2,3-TRICHLOROBENZENE	OV	2.25	U	N		UG/KG	4.500000	U	4.5	1	12

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB460305	20111117	SO	1,2,3-TRICHLOROBENZENE	OV	2.28	U	N		UG/KG	4.550000	U	4.55	1	15.5
11SB470103	20111116	SO	1,2,3-TRICHLOROBENZENE	OV	2.8	U	N		UG/KG	5.600000	U	5.6	1	19.3
11SB480305	20111116	SO	1,2,3-TRICHLOROBENZENE	OV	2.84	U	N		UG/KG	5.680000	U	5.68	1	20.4
11SB480506	20111116	SO	1,2,3-TRICHLOROBENZENE	OV	2.45	U	N		UG/KG	4.890000	U	4.89	1	14.9
11SB490204	20111116	SO	1,2,3-TRICHLOROBENZENE	OV	2.79	U	N		UG/KG	5.580000	U	5.58	1	20.4
11SB490405	20111116	SO	1,2,3-TRICHLOROBENZENE	OV	2.41	U	N		UG/KG	4.810000	U	4.81	1	12.7
11SB500506	20111116	SO	1,2,3-TRICHLOROBENZENE	OV	2.22	U	N		UG/KG	4.440000	U	4.44	1	11.1
11SB020002	20110426	SO	1,2,4-TRICHLOROBENZENE	OV	2.74	U	N		UG/KG	5.47	U	5.47	1	20.6
11SB030002	20110426	SO	1,2,4-TRICHLOROBENZENE	OV	2.81	U	N		UG/KG	5.62	U	5.62	1	18.7
11SB030406	20110426	SO	1,2,4-TRICHLOROBENZENE	OV	2.38	U	N		UG/KG	4.77	U	4.77	1	13.7
11SB260507	20110427	SO	1,2,4-TRICHLOROBENZENE	OV	2.79	U	N		UG/KG	5.57	U	5.57	1	14.9
11SB330406	20111116	SO	1,2,4-TRICHLOROBENZENE	OV	2.31	U	N		UG/KG	4.620000	U	4.62	1	14.9
11SB330607	20111116	SO	1,2,4-TRICHLOROBENZENE	OV	2.17	U	N		UG/KG	4.330000	U	4.33	1	14
11SB350305	20111116	SO	1,2,4-TRICHLOROBENZENE	OV	2.88	U	N		UG/KG	5.750000	U	5.75	1	17.6
11SB350506	20111116	SO	1,2,4-TRICHLOROBENZENE	OV	2.72	U	N		UG/KG	5.440000	U	5.44	1	17.6
11SB380406	20111115	SO	1,2,4-TRICHLOROBENZENE	OV	3.9	U	N		UG/KG	7.790000	U	7.79	1	40.38
11SB390406	20111115	SO	1,2,4-TRICHLOROBENZENE	OV	2.8	U	N		UG/KG	5.610000	U	5.61	1	51.6
11SB430406	20111116	SO	1,2,4-TRICHLOROBENZENE	OV	2.69	U	N		UG/KG	5.380000	U	5.38	1	22.3
11SB430809	20111116	SO	1,2,4-TRICHLOROBENZENE	OV	2.77	U	N		UG/KG	5.530000	U	5.53	1	15.7
11SB440607	20111116	SO	1,2,4-TRICHLOROBENZENE	OV	2.45	U	N		UG/KG	4.900000	U	4.9	1	11
11SB450204	20111116	SO	1,2,4-TRICHLOROBENZENE	OV	136	U	N		UG/KG	272.000000	U	272	50	21.1
11SB450506	20111116	SO	1,2,4-TRICHLOROBENZENE	OV	2.25	U	N		UG/KG	4.500000	U	4.5	1	12
11SB470103	20111116	SO	1,2,4-TRICHLOROBENZENE	OV	2.8	U	N		UG/KG	5.600000	U	5.6	1	19.3
11SB480305	20111116	SO	1,2,4-TRICHLOROBENZENE	OV	2.84	U	N		UG/KG	5.680000	U	5.68	1	20.4
11SB480506	20111116	SO	1,2,4-TRICHLOROBENZENE	OV	2.45	U	N		UG/KG	4.890000	U	4.89	1	14.9
11SB490204	20111116	SO	1,2,4-TRICHLOROBENZENE	OV	2.79	U	N		UG/KG	5.580000	U	5.58	1	20.4
11SB490405	20111116	SO	1,2,4-TRICHLOROBENZENE	OV	2.41	U	N		UG/KG	4.810000	U	4.81	1	12.7
11SB500506	20111116	SO	1,2,4-TRICHLOROBENZENE	OV	2.22	U	N		UG/KG	4.440000	U	4.44	1	11.1
11SB020002	20110426	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	5.47	U	N		UG/KG	10.9	U	10.9	1	20.6
11SB030002	20110426	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	5.62	U	N		UG/KG	11.2	U	11.2	1	18.7
11SB030406	20110426	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.77	U	N		UG/KG	9.53	U	9.53	1	13.7
11SB260507	20110427	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	5.57	U	N		UG/KG	11.1	U	11.1	1	14.9
11SB330406	20111116	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.62	U	N		UG/KG	9.230000	U	9.23	1	14.9
11SB330607	20111116	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.33	U	N		UG/KG	8.670000	U	8.67	1	14
11SB340406	20111116	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	243	U	N		UG/KG	487.000000	U	487	50	17.6
11SB340708	20111116	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.76	U	N		UG/KG	9.530000	U	9.53	1	17.6
11SB360204	20111117	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	233	U	N		UG/KG	466.000000	U	466	50	15.5
11SB360405	20111117	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	226	U	N		UG/KG	453.000000	U	453	50	15.5
11SB360405-D	20111117	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	219	U	N		UG/KG	437.000000	U	437	50	13.3
11SB370103	20111116	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	5.24	U	N		UG/KG	10.500000	U	10.5	1	15.5
11SB370304	20111116	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.63	U	N		UG/KG	9.260000	U	9.26	1	13.4
11SB380406	20111115	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	7.79	U	N		UG/KG	15.600000	U	15.6	1	40.38
11SB380607	20111115	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	6.84	U	N		UG/KG	13.700000	U	13.7	1	38.4
11SB390406	20111115	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	5.61	U	N		UG/KG	11.200000	U	11.2	1	51.6
11SB390708	20111115	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	7.27	U	N		UG/KG	14.500000	U	14.5	1	39.4
11SB400305	20111115	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	314	U	N		UG/KG	628.000000	U	628	50	33.3
11SB400506	20111115	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	929	U	N		UG/KG	1860.00000	U	1860	100	51.6
11SB410204	20111117	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	228	U	N		UG/KG	456.000000	U	456	50	15.5
11SB410405	20111117	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	266	U	N		UG/KG	532.000000	U	532	50	15.5
11SB420102	20111116	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.58	U	N		UG/KG	9.160000	U	9.16	1	17.6
11SB420203	20111116	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.65	U	N		UG/KG	9.300000	U	9.3	1	14.4
11SB430406	20111116	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	5.38	U	N		UG/KG	10.800000	U	10.8	1	22.3
11SB430809	20111116	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	5.53	U	N		UG/KG	11.100000	U	11.1	1	15.7
11SB440406	20111116	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.64	U	N		UG/KG	9.280000	U	9.28	1	15.7
11SB440607	20111116	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.9	U	N		UG/KG	9.800000	U	9.8	1	11
11SB450204	20111116	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	272	U	N		UG/KG	543.000000	U	543	50	21.1
11SB450506	20111116	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.5	U	N		UG/KG	8.990000	U	8.99	1	12
11SB460305	20111117	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.55	U	N		UG/KG	9.100000	U	9.1	1	15.5
11SB460506	20111117	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	215	U	N		UG/KG	430.000000	U	430	50	8.5
11SB470103	20111116	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	5.6	U	N		UG/KG	11.200000	U	11.2	1	19.3
11SB470304	20111116	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.91	U	N		UG/KG	9.810000	U	9.81	1	17.8
11SB480305	20111116	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	5.68	U	N		UG/KG	11.400000	U	11.4	1	20.4
11SB480506	20111116	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.89	U	N		UG/KG	9.780000	U	9.78	1	14.9
11SB490204	20111116	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	5.58	U	N		UG/KG	11.200000	U	11.2	1	20.4
11SB490405	20111116	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.81	U	N		UG/KG	9.630000	U	9.63	1	12.7
11SB500305	20111116	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.99	U	N		UG/KG	9.980000	U	9.98	1	12.7
11SB500506	20111116	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.44	U	N		UG/KG	8.870000	U	8.87	1	11.1
11SB010002	20110426	SO	1,2-DIBROMOETHANE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	21.1
11SB010002-D	20110426	SO	1,2-DIBROMOETHANE	OV	2.45	U	N		UG/KG	4.9	U	4.9	1	21
11SB010406	20110426	SO	1,2-DIBROMOETHANE	OV	2.38	U	N		UG/KG	4.75	U	4.75	1	17.7
11SB010406-D	20110426	SO	1,2-DIBROMOETHANE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	19.4
11SB020002	20110426	SO	1,2-DIBROMOETHANE	OV	2.74	U	N		UG/KG	5.47	U	5.47	1	20.6
11SB020406	20110426	SO	1,2-DIBROMOETHANE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	24.3
11SB030002	20110426	SO	1,2-DIBROMOETHANE	OV	2.81	U	N		UG/KG	5.62	U	5.62	1	18.7
11SB030406	20110426	SO	1,2-DIBROMOETHANE	OV	2.38	U	N		UG/KG	4.77	U	4.77	1	13.7
11SB040002	20110426	SO	1,2-DIBROMOETHANE	OV	2.98	U	N		UG/KG	5.97	U	5.97	1	20.9
11SB040406	20110426	SO	1,2-DIBROMOETHANE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	12.8
11SB250507	20110426	SO	1,2-DIBROMOETHANE	OV	2.9	U	N		UG/KG	5.79	U	5.79	1	18.9
11SB260507	20110427	SO	1,2-DIBROMOETHANE	OV	2.79	U	N		UG/KG	5.57	U	5.57	1	14.9
11SB270507	20110426	SO	1,2-DIBROMOETHANE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	14.1
11SB280507	20110426	SO	1,2-DIBROMOETHANE	OV	3.31	U	N		UG/KG	6.62	U	6.62	1	28.9

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB330406	20111116	SO	1,2-DIBROMOETHANE	OV	2.31	U	N		UG/KG	4.620000	U	4.62	1	14.9
11SB330607	20111116	SO	1,2-DIBROMOETHANE	OV	2.17	U	N		UG/KG	4.330000	U	4.33	1	14
11SB340406	20111116	SO	1,2-DIBROMOETHANE	OV	122	U	N		UG/KG	243.000000	U	243	50	17.6
11SB340708	20111116	SO	1,2-DIBROMOETHANE	OV	2.38	U	N		UG/KG	4.760000	U	4.76	1	17.6
11SB350305	20111116	SO	1,2-DIBROMOETHANE	OV	2.88	U	N		UG/KG	5.750000	U	5.75	1	17.6
11SB350506	20111116	SO	1,2-DIBROMOETHANE	OV	2.72	U	N		UG/KG	5.440000	U	5.44	1	17.6
11SB360204	20111117	SO	1,2-DIBROMOETHANE	OV	117	U	N		UG/KG	233.000000	U	233	50	15.5
11SB360405	20111117	SO	1,2-DIBROMOETHANE	OV	113	U	N		UG/KG	226.000000	U	226	50	15.5
11SB360405-D	20111117	SO	1,2-DIBROMOETHANE	OV	109	U	N		UG/KG	219.000000	U	219	50	13.3
11SB370103	20111116	SO	1,2-DIBROMOETHANE	OV	2.62	U	N		UG/KG	5.240000	U	5.24	1	15.5
11SB370304	20111116	SO	1,2-DIBROMOETHANE	OV	2.32	U	N		UG/KG	4.630000	U	4.63	1	13.4
11SB380406	20111115	SO	1,2-DIBROMOETHANE	OV	3.9	U	N		UG/KG	7.790000	U	7.79	1	40.38
11SB380607	20111115	SO	1,2-DIBROMOETHANE	OV	3.42	U	N		UG/KG	6.840000	U	6.84	1	38.4
11SB390406	20111115	SO	1,2-DIBROMOETHANE	OV	2.8	U	N		UG/KG	5.610000	U	5.61	1	51.6
11SB390708	20111115	SO	1,2-DIBROMOETHANE	OV	3.64	U	N		UG/KG	7.270000	U	7.27	1	39.4
11SB400305	20111115	SO	1,2-DIBROMOETHANE	OV	157	U	N		UG/KG	314.000000	U	314	50	33.3
11SB400506	20111115	SO	1,2-DIBROMOETHANE	OV	465	U	N		UG/KG	929.000000	U	929	100	51.6
11SB410204	20111117	SO	1,2-DIBROMOETHANE	OV	114	U	N		UG/KG	228.000000	U	228	50	15.5
11SB410405	20111117	SO	1,2-DIBROMOETHANE	OV	133	U	N		UG/KG	266.000000	U	266	50	15.5
11SB420102	20111116	SO	1,2-DIBROMOETHANE	OV	2.29	U	N		UG/KG	4.580000	U	4.58	1	17.6
11SB420203	20111116	SO	1,2-DIBROMOETHANE	OV	2.33	U	N		UG/KG	4.650000	U	4.65	1	14.4
11SB430406	20111116	SO	1,2-DIBROMOETHANE	OV	2.69	U	N		UG/KG	5.380000	U	5.38	1	22.3
11SB430809	20111116	SO	1,2-DIBROMOETHANE	OV	2.77	U	N		UG/KG	5.530000	U	5.53	1	15.7
11SB440406	20111116	SO	1,2-DIBROMOETHANE	OV	2.32	U	N		UG/KG	4.640000	U	4.64	1	15.7
11SB440607	20111116	SO	1,2-DIBROMOETHANE	OV	2.45	U	N		UG/KG	4.900000	U	4.9	1	11
11SB450204	20111116	SO	1,2-DIBROMOETHANE	OV	136	U	N		UG/KG	272.000000	U	272	50	21.1
11SB450506	20111116	SO	1,2-DIBROMOETHANE	OV	2.25	U	N		UG/KG	4.500000	U	4.5	1	12
11SB460305	20111117	SO	1,2-DIBROMOETHANE	OV	2.28	U	N		UG/KG	4.550000	U	4.55	1	15.5
11SB460506	20111117	SO	1,2-DIBROMOETHANE	OV	108	U	N		UG/KG	215.000000	U	215	50	8.5
11SB470103	20111116	SO	1,2-DIBROMOETHANE	OV	2.8	U	N		UG/KG	5.600000	U	5.6	1	19.3
11SB470304	20111116	SO	1,2-DIBROMOETHANE	OV	2.45	U	N		UG/KG	4.910000	U	4.91	1	17.8
11SB480305	20111116	SO	1,2-DIBROMOETHANE	OV	2.84	U	N		UG/KG	5.680000	U	5.68	1	20.4
11SB480506	20111116	SO	1,2-DIBROMOETHANE	OV	2.45	U	N		UG/KG	4.890000	U	4.89	1	14.9
11SB490204	20111116	SO	1,2-DIBROMOETHANE	OV	2.79	U	N		UG/KG	5.580000	U	5.58	1	20.4
11SB490405	20111116	SO	1,2-DIBROMOETHANE	OV	2.41	U	N		UG/KG	4.810000	U	4.81	1	12.7
11SB500305	20111116	SO	1,2-DIBROMOETHANE	OV	2.5	U	N		UG/KG	4.990000	U	4.99	1	12.7
11SB500506	20111116	SO	1,2-DIBROMOETHANE	OV	2.22	U	N		UG/KG	4.440000	U	4.44	1	11.1
11SB010002	20110426	SO	1,2-DICHLOROBENZENE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	21.1
11SB010002-D	20110426	SO	1,2-DICHLOROBENZENE	OV	2.45	U	N		UG/KG	4.9	U	4.9	1	21
11SB010406	20110426	SO	1,2-DICHLOROBENZENE	OV	2.38	U	N		UG/KG	4.75	U	4.75	1	17.7
11SB010406-D	20110426	SO	1,2-DICHLOROBENZENE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	19.4
11SB020002	20110426	SO	1,2-DICHLOROBENZENE	OV	2.74	U	N		UG/KG	5.47	U	5.47	1	20.6
11SB020406	20110426	SO	1,2-DICHLOROBENZENE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	24.3
11SB040002	20110426	SO	1,2-DICHLOROBENZENE	OV	2.98	U	N		UG/KG	5.97	U	5.97	1	20.9
11SB040406	20110426	SO	1,2-DICHLOROBENZENE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	12.8
11SB250507	20110426	SO	1,2-DICHLOROBENZENE	OV	2.9	U	N		UG/KG	5.79	U	5.79	1	18.9
11SB260507	20110427	SO	1,2-DICHLOROBENZENE	OV	2.79	U	N		UG/KG	5.57	U	5.57	1	14.9
11SB270507	20110426	SO	1,2-DICHLOROBENZENE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	14.1
11SB280507	20110426	SO	1,2-DICHLOROBENZENE	OV	3.31	U	N		UG/KG	6.62	UN	6.62	1	28.9
11SB330406	20111116	SO	1,2-DICHLOROBENZENE	OV	2.31	U	N		UG/KG	4.620000	U	4.62	1	14.9
11SB330607	20111116	SO	1,2-DICHLOROBENZENE	OV	2.17	U	N		UG/KG	4.330000	U	4.33	1	14
11SB340406	20111116	SO	1,2-DICHLOROBENZENE	OV	122	U	N		UG/KG	243.000000	U	243	50	17.6
11SB340708	20111116	SO	1,2-DICHLOROBENZENE	OV	2.38	U	N		UG/KG	4.760000	U	4.76	1	17.6
11SB350305	20111116	SO	1,2-DICHLOROBENZENE	OV	2.88	U	N		UG/KG	5.750000	U	5.75	1	17.6
11SB350506	20111116	SO	1,2-DICHLOROBENZENE	OV	2.72	U	N		UG/KG	5.440000	U	5.44	1	17.6
11SB370103	20111116	SO	1,2-DICHLOROBENZENE	OV	2.62	U	N		UG/KG	5.240000	U	5.24	1	15.5
11SB370304	20111116	SO	1,2-DICHLOROBENZENE	OV	2.32	U	N		UG/KG	4.630000	U	4.63	1	13.4
11SB400305	20111115	SO	1,2-DICHLOROBENZENE	OV	157	U	N		UG/KG	314.000000	U	314	50	33.3
11SB400506	20111115	SO	1,2-DICHLOROBENZENE	OV	465	U	N		UG/KG	929.000000	U	929	100	51.6
11SB420102	20111116	SO	1,2-DICHLOROBENZENE	OV	2.29	U	N		UG/KG	4.580000	U	4.58	1	17.6
11SB420203	20111116	SO	1,2-DICHLOROBENZENE	OV	2.33	U	N		UG/KG	4.650000	U	4.65	1	14.4
11SB430809	20111116	SO	1,2-DICHLOROBENZENE	OV	2.77	U	N		UG/KG	5.530000	U	5.53	1	15.7
11SB450204	20111116	SO	1,2-DICHLOROBENZENE	OV	136	U	N		UG/KG	272.000000	U	272	50	21.1
11SB450506	20111116	SO	1,2-DICHLOROBENZENE	OV	2.25	U	N		UG/KG	4.500000	U	4.5	1	12
11SB460506	20111117	SO	1,2-DICHLOROBENZENE	OV	108	U	N		UG/KG	215.000000	U	215	50	8.5
11SB470103	20111116	SO	1,2-DICHLOROBENZENE	OV	2.8	U	N		UG/KG	5.600000	U	5.6	1	19.3
11SB470304	20111116	SO	1,2-DICHLOROBENZENE	OV	2.45	U	N		UG/KG	4.910000	U	4.91	1	17.8
11SB480305	20111116	SO	1,2-DICHLOROBENZENE	OV	2.84	U	N		UG/KG	5.680000	U	5.68	1	20.4
11SB480506	20111116	SO	1,2-DICHLOROBENZENE	OV	2.45	U	N		UG/KG	4.890000	U	4.89	1	14.9
11SB490204	20111116	SO	1,2-DICHLOROBENZENE	OV	2.79	U	N		UG/KG	5.580000	U	5.58	1	20.4
11SB490405	20111116	SO	1,2-DICHLOROBENZENE	OV	2.41	U	N		UG/KG	4.810000	U	4.81	1	12.7
11SB500305	20111116	SO	1,2-DICHLOROBENZENE	OV	2.5	U	N		UG/KG	4.990000	U	4.99	1	12.7
11SB500506	20111116	SO	1,2-DICHLOROBENZENE	OV	2.22	U	N		UG/KG	4.440000	U	4.44	1	11.1
11SB020002	20110426	SO	1,2-DICHLOROETHANE	OV	2.74	U	N		UG/KG	5.47	U	5.47	1	20.6
11SB030002	20110426	SO	1,2-DICHLOROETHANE	OV	2.81	U	N		UG/KG	5.62	U	5.62	1	18.7
11SB030406	20110426	SO	1,2-DICHLOROETHANE	OV	2.38	U	N		UG/KG	4.77	U	4.77	1	13.7
11SB260507	20110427	SO	1,2-DICHLOROETHANE	OV	2.79	U	N		UG/KG	5.57	UN	5.57	1	14.9
11SB330406	20111116	SO	1,2-DICHLOROETHANE	OV	2.31	U	N		UG/KG	4.620000	U	4.62	1	14.9
11SB330607	20111116	SO	1,2-DICHLOROETHANE	OV	2.17	U	N		UG/KG	4.330000	U	4.33	1	14
11SB340406	20111116	SO	1,2-DICHLOROETHANE	OV	122	U	N		UG/KG	243.000000	U	243	50	17.6
11SB340708	20111116	SO	1,2-DICHLOROETHANE	OV	2.38	U	N		UG/KG	4.760000	U	4.76	1	17.6

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB350305	20111116	SO	1,2-DICHLOROETHANE	OV	2.88	U	N		UG/KG	5.750000	U	5.75	1	17.6
11SB350506	20111116	SO	1,2-DICHLOROETHANE	OV	2.72	U	N		UG/KG	5.440000	U	5.44	1	17.6
11SB360204	20111117	SO	1,2-DICHLOROETHANE	OV	117	U	N		UG/KG	233.000000	U	233	50	15.5
11SB360405	20111117	SO	1,2-DICHLOROETHANE	OV	113	U	N		UG/KG	226.000000	U	226	50	15.5
11SB360405-D	20111117	SO	1,2-DICHLOROETHANE	OV	109	U	N		UG/KG	219.000000	U	219	50	13.3
11SB370103	20111116	SO	1,2-DICHLOROETHANE	OV	2.62	U	N		UG/KG	5.240000	U	5.24	1	15.5
11SB370304	20111116	SO	1,2-DICHLOROETHANE	OV	2.32	U	N		UG/KG	4.630000	U	4.63	1	13.4
11SB380406	20111115	SO	1,2-DICHLOROETHANE	OV	3.9	U	N		UG/KG	7.790000	U	7.79	1	40.38
11SB380607	20111115	SO	1,2-DICHLOROETHANE	OV	3.42	U	N		UG/KG	6.840000	U	6.84	1	38.4
11SB390406	20111115	SO	1,2-DICHLOROETHANE	OV	2.8	U	N		UG/KG	5.610000	U	5.61	1	51.6
11SB390708	20111115	SO	1,2-DICHLOROETHANE	OV	3.64	U	N		UG/KG	7.270000	U	7.27	1	39.4
11SB400305	20111115	SO	1,2-DICHLOROETHANE	OV	157	U	N		UG/KG	314.000000	U	314	50	33.3
11SB400506	20111115	SO	1,2-DICHLOROETHANE	OV	465	U	N		UG/KG	929.000000	U	929	100	51.6
11SB410204	20111117	SO	1,2-DICHLOROETHANE	OV	114	U	N		UG/KG	228.000000	U	228	50	15.5
11SB410405	20111117	SO	1,2-DICHLOROETHANE	OV	133	U	N		UG/KG	266.000000	U	266	50	15.5
11SB420102	20111116	SO	1,2-DICHLOROETHANE	OV	2.29	U	N		UG/KG	4.580000	U	4.58	1	17.6
11SB420203	20111116	SO	1,2-DICHLOROETHANE	OV	2.33	U	N		UG/KG	4.650000	U	4.65	1	14.4
11SB430406	20111116	SO	1,2-DICHLOROETHANE	OV	2.69	U	N		UG/KG	5.380000	U	5.38	1	22.3
11SB430809	20111116	SO	1,2-DICHLOROETHANE	OV	2.77	U	N		UG/KG	5.530000	U	5.53	1	15.7
11SB440406	20111116	SO	1,2-DICHLOROETHANE	OV	2.32	U	N		UG/KG	4.640000	U	4.64	1	15.7
11SB440607	20111116	SO	1,2-DICHLOROETHANE	OV	2.45	U	N		UG/KG	4.900000	U	4.9	1	11
11SB450204	20111116	SO	1,2-DICHLOROETHANE	OV	136	U	N		UG/KG	272.000000	U	272	50	21.1
11SB450506	20111116	SO	1,2-DICHLOROETHANE	OV	2.25	U	N		UG/KG	4.500000	U	4.5	1	12
11SB460305	20111117	SO	1,2-DICHLOROETHANE	OV	2.28	U	N		UG/KG	4.550000	U	4.55	1	15.5
11SB460506	20111117	SO	1,2-DICHLOROETHANE	OV	108	U	N		UG/KG	215.000000	U	215	50	8.5
11SB470103	20111116	SO	1,2-DICHLOROETHANE	OV	2.8	U	N		UG/KG	5.600000	U	5.6	1	19.3
11SB470304	20111116	SO	1,2-DICHLOROETHANE	OV	2.45	U	N		UG/KG	4.910000	U	4.91	1	17.8
11SB480305	20111116	SO	1,2-DICHLOROETHANE	OV	2.84	U	N		UG/KG	5.680000	U	5.68	1	20.4
11SB480506	20111116	SO	1,2-DICHLOROETHANE	OV	2.45	U	N		UG/KG	4.890000	U	4.89	1	14.9
11SB490204	20111116	SO	1,2-DICHLOROETHANE	OV	2.79	U	N		UG/KG	5.580000	U	5.58	1	20.4
11SB490405	20111116	SO	1,2-DICHLOROETHANE	OV	2.41	U	N		UG/KG	4.810000	U	4.81	1	12.7
11SB500305	20111116	SO	1,2-DICHLOROETHANE	OV	2.5	U	N		UG/KG	4.990000	U	4.99	1	12.7
11SB500506	20111116	SO	1,2-DICHLOROETHANE	OV	2.22	U	N		UG/KG	4.440000	U	4.44	1	11.1
11SB020002	20110426	SO	1,2-DICHLOROPROPANE	OV	2.74	U	N		UG/KG	5.47	U	5.47	1	20.6
11SB030002	20110426	SO	1,2-DICHLOROPROPANE	OV	2.81	U	N		UG/KG	5.62	U	5.62	1	18.7
11SB030406	20110426	SO	1,2-DICHLOROPROPANE	OV	2.38	U	N		UG/KG	4.77	U	4.77	1	13.7
11SB260507	20110427	SO	1,2-DICHLOROPROPANE	OV	2.79	U	N		UG/KG	5.57	U	5.57	1	14.9
11SB330406	20111116	SO	1,2-DICHLOROPROPANE	OV	2.31	U	N		UG/KG	4.620000	U	4.62	1	14.9
11SB330607	20111116	SO	1,2-DICHLOROPROPANE	OV	2.17	U	N		UG/KG	4.330000	U	4.33	1	14
11SB340406	20111116	SO	1,2-DICHLOROPROPANE	OV	122	U	N		UG/KG	243.000000	U	243	50	17.6
11SB340708	20111116	SO	1,2-DICHLOROPROPANE	OV	2.38	U	N		UG/KG	4.760000	U	4.76	1	17.6
11SB350305	20111116	SO	1,2-DICHLOROPROPANE	OV	2.88	U	N		UG/KG	5.750000	U	5.75	1	17.6
11SB350506	20111116	SO	1,2-DICHLOROPROPANE	OV	2.72	U	N		UG/KG	5.440000	U	5.44	1	17.6
11SB360204	20111117	SO	1,2-DICHLOROPROPANE	OV	117	U	N		UG/KG	233.000000	U	233	50	15.5
11SB360405	20111117	SO	1,2-DICHLOROPROPANE	OV	113	U	N		UG/KG	226.000000	U	226	50	15.5
11SB360405-D	20111117	SO	1,2-DICHLOROPROPANE	OV	109	U	N		UG/KG	219.000000	U	219	50	13.3
11SB370103	20111116	SO	1,2-DICHLOROPROPANE	OV	2.62	U	N		UG/KG	5.240000	U	5.24	1	15.5
11SB370304	20111116	SO	1,2-DICHLOROPROPANE	OV	2.32	U	N		UG/KG	4.630000	U	4.63	1	13.4
11SB380406	20111115	SO	1,2-DICHLOROPROPANE	OV	3.9	U	N		UG/KG	7.790000	U	7.79	1	40.38
11SB380607	20111115	SO	1,2-DICHLOROPROPANE	OV	3.42	U	N		UG/KG	6.840000	U	6.84	1	38.4
11SB390406	20111115	SO	1,2-DICHLOROPROPANE	OV	2.8	U	N		UG/KG	5.610000	U	5.61	1	51.6
11SB390708	20111115	SO	1,2-DICHLOROPROPANE	OV	3.64	U	N		UG/KG	7.270000	U	7.27	1	39.4
11SB400305	20111115	SO	1,2-DICHLOROPROPANE	OV	157	U	N		UG/KG	314.000000	U	314	50	33.3
11SB400506	20111115	SO	1,2-DICHLOROPROPANE	OV	465	U	N		UG/KG	929.000000	U	929	100	51.6
11SB410204	20111117	SO	1,2-DICHLOROPROPANE	OV	114	U	N		UG/KG	228.000000	U	228	50	15.5
11SB410405	20111117	SO	1,2-DICHLOROPROPANE	OV	133	U	N		UG/KG	266.000000	U	266	50	15.5
11SB420102	20111116	SO	1,2-DICHLOROPROPANE	OV	2.29	U	N		UG/KG	4.580000	U	4.58	1	17.6
11SB420203	20111116	SO	1,2-DICHLOROPROPANE	OV	2.33	U	N		UG/KG	4.650000	U	4.65	1	14.4
11SB430406	20111116	SO	1,2-DICHLOROPROPANE	OV	2.69	U	N		UG/KG	5.380000	U	5.38	1	22.3
11SB430809	20111116	SO	1,2-DICHLOROPROPANE	OV	2.77	U	N		UG/KG	5.530000	U	5.53	1	15.7
11SB440406	20111116	SO	1,2-DICHLOROPROPANE	OV	2.32	U	N		UG/KG	4.640000	U	4.64	1	15.7
11SB440607	20111116	SO	1,2-DICHLOROPROPANE	OV	2.45	U	N		UG/KG	4.900000	U	4.9	1	11
11SB450204	20111116	SO	1,2-DICHLOROPROPANE	OV	136	U	N		UG/KG	272.000000	U	272	50	21.1
11SB450506	20111116	SO	1,2-DICHLOROPROPANE	OV	2.25	U	N		UG/KG	4.500000	U	4.5	1	12
11SB460305	20111117	SO	1,2-DICHLOROPROPANE	OV	2.28	U	N		UG/KG	4.550000	U	4.55	1	15.5
11SB460506	20111117	SO	1,2-DICHLOROPROPANE	OV	108	U	N		UG/KG	215.000000	U	215	50	8.5
11SB470103	20111116	SO	1,2-DICHLOROPROPANE	OV	2.8	U	N		UG/KG	5.600000	U	5.6	1	19.3
11SB470304	20111116	SO	1,2-DICHLOROPROPANE	OV	2.45	U	N		UG/KG	4.910000	U	4.91	1	17.8
11SB480305	20111116	SO	1,2-DICHLOROPROPANE	OV	2.84	U	N		UG/KG	5.680000	U	5.68	1	20.4
11SB480506	20111116	SO	1,2-DICHLOROPROPANE	OV	2.45	U	N		UG/KG	4.890000	U	4.89	1	14.9
11SB490204	20111116	SO	1,2-DICHLOROPROPANE	OV	2.79	U	N		UG/KG	5.580000	U	5.58	1	20.4
11SB490405	20111116	SO	1,2-DICHLOROPROPANE	OV	2.41	U	N		UG/KG	4.810000	U	4.81	1	12.7
11SB500305	20111116	SO	1,2-DICHLOROPROPANE	OV	2.5	U	N		UG/KG	4.990000	U	4.99	1	12.7
11SB500506	20111116	SO	1,2-DICHLOROPROPANE	OV	2.22	U	N		UG/KG	4.440000	U	4.44	1	11.1
11SB010002	20110426	SO	1,3-DICHLOROBENZENE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	21.1
11SB010002-D	20110426	SO	1,3-DICHLOROBENZENE	OV	2.45	U	N		UG/KG	4.9	U	4.9	1	21
11SB010406	20110426	SO	1,3-DICHLOROBENZENE	OV	2.38	U	N		UG/KG	4.75	U	4.75	1	17.7
11SB010406-D	20110426	SO	1,3-DICHLOROBENZENE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	19.4
11SB020002	20110426	SO	1,3-DICHLOROBENZENE	OV	2.74	U	N		UG/KG	5.47	U	5.47	1	20.6
11SB020406	20110426	SO	1,3-DICHLOROBENZENE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	24.3
11SB030002	20110426	SO	1,3-DICHLOROBENZENE	OV	2.81	U	N		UG/KG	5.62	U	5.62	1	18.7

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB030406	20110426	SO	1,3-DICHLOROBENZENE	OV	2.38	U	N		UG/KG	4.77	U	4.77	1	13.7
11SB040002	20110426	SO	1,3-DICHLOROBENZENE	OV	2.98	U	N		UG/KG	5.97	U	5.97	1	20.9
11SB040406	20110426	SO	1,3-DICHLOROBENZENE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	12.8
11SB250507	20110426	SO	1,3-DICHLOROBENZENE	OV	2.9	U	N		UG/KG	5.79	U	5.79	1	18.9
11SB260507	20110427	SO	1,3-DICHLOROBENZENE	OV	2.79	U	N		UG/KG	5.57	U	5.57	1	14.9
11SB270507	20110426	SO	1,3-DICHLOROBENZENE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	14.1
11SB280507	20110426	SO	1,3-DICHLOROBENZENE	OV	3.31	U	N		UG/KG	6.62	U	6.62	1	28.9
11SB330406	20111116	SO	1,3-DICHLOROBENZENE	OV	2.31	U	N		UG/KG	4.620000	U	4.62	1	14.9
11SB330607	20111116	SO	1,3-DICHLOROBENZENE	OV	2.17	U	N		UG/KG	4.330000	U	4.33	1	14
11SB340406	20111116	SO	1,3-DICHLOROBENZENE	OV	122	U	N		UG/KG	243.000000	U	243	50	17.6
11SB340708	20111116	SO	1,3-DICHLOROBENZENE	OV	2.38	U	N		UG/KG	4.760000	U	4.76	1	17.6
11SB350305	20111116	SO	1,3-DICHLOROBENZENE	OV	2.88	U	N		UG/KG	5.750000	U	5.75	1	17.6
11SB350506	20111116	SO	1,3-DICHLOROBENZENE	OV	2.72	U	N		UG/KG	5.440000	U	5.44	1	17.6
11SB360204	20111117	SO	1,3-DICHLOROBENZENE	OV	117	U	N		UG/KG	233.000000	U	233	50	15.5
11SB360405	20111117	SO	1,3-DICHLOROBENZENE	OV	113	U	N		UG/KG	226.000000	U	226	50	15.5
11SB360405-D	20111117	SO	1,3-DICHLOROBENZENE	OV	109	U	N		UG/KG	219.000000	U	219	50	13.3
11SB370103	20111116	SO	1,3-DICHLOROBENZENE	OV	2.62	U	N		UG/KG	5.240000	U	5.24	1	15.5
11SB370304	20111116	SO	1,3-DICHLOROBENZENE	OV	2.32	U	N		UG/KG	4.630000	U	4.63	1	13.4
11SB380406	20111115	SO	1,3-DICHLOROBENZENE	OV	3.9	U	N		UG/KG	7.790000	U	7.79	1	40.38
11SB380607	20111115	SO	1,3-DICHLOROBENZENE	OV	3.42	U	N		UG/KG	6.840000	U	6.84	1	38.4
11SB390406	20111115	SO	1,3-DICHLOROBENZENE	OV	2.8	U	N		UG/KG	5.610000	U	5.61	1	51.6
11SB390708	20111115	SO	1,3-DICHLOROBENZENE	OV	3.64	U	N		UG/KG	7.270000	U	7.27	1	39.4
11SB400305	20111115	SO	1,3-DICHLOROBENZENE	OV	157	U	N		UG/KG	314.000000	U	314	50	33.3
11SB400506	20111115	SO	1,3-DICHLOROBENZENE	OV	465	U	N		UG/KG	929.000000	U	929	100	51.6
11SB410204	20111117	SO	1,3-DICHLOROBENZENE	OV	114	U	N		UG/KG	228.000000	U	228	50	15.5
11SB410405	20111117	SO	1,3-DICHLOROBENZENE	OV	133	U	N		UG/KG	266.000000	U	266	50	15.5
11SB420102	20111116	SO	1,3-DICHLOROBENZENE	OV	2.29	U	N		UG/KG	4.580000	U	4.58	1	17.6
11SB420203	20111116	SO	1,3-DICHLOROBENZENE	OV	2.33	U	N		UG/KG	4.650000	U	4.65	1	14.4
11SB430406	20111116	SO	1,3-DICHLOROBENZENE	OV	2.69	U	N		UG/KG	5.380000	U	5.38	1	22.3
11SB430809	20111116	SO	1,3-DICHLOROBENZENE	OV	2.77	U	N		UG/KG	5.530000	U	5.53	1	15.7
11SB440406	20111116	SO	1,3-DICHLOROBENZENE	OV	2.32	U	N		UG/KG	4.640000	U	4.64	1	15.7
11SB440607	20111116	SO	1,3-DICHLOROBENZENE	OV	2.45	U	N		UG/KG	4.900000	U	4.9	1	11
11SB450204	20111116	SO	1,3-DICHLOROBENZENE	OV	136	U	N		UG/KG	272.000000	U	272	50	21.1
11SB450506	20111116	SO	1,3-DICHLOROBENZENE	OV	2.25	U	N		UG/KG	4.500000	U	4.5	1	12
11SB460305	20111117	SO	1,3-DICHLOROBENZENE	OV	2.28	U	N		UG/KG	4.550000	U	4.55	1	15.5
11SB460506	20111117	SO	1,3-DICHLOROBENZENE	OV	108	U	N		UG/KG	215.000000	U	215	50	8.5
11SB470103	20111116	SO	1,3-DICHLOROBENZENE	OV	2.8	U	N		UG/KG	5.600000	U	5.6	1	19.3
11SB470304	20111116	SO	1,3-DICHLOROBENZENE	OV	2.45	U	N		UG/KG	4.910000	U	4.91	1	17.8
11SB480305	20111116	SO	1,3-DICHLOROBENZENE	OV	2.84	U	N		UG/KG	5.680000	U	5.68	1	20.4
11SB480506	20111116	SO	1,3-DICHLOROBENZENE	OV	2.45	U	N		UG/KG	4.890000	U	4.89	1	14.9
11SB490204	20111116	SO	1,3-DICHLOROBENZENE	OV	2.79	U	N		UG/KG	5.580000	U	5.58	1	20.4
11SB490405	20111116	SO	1,3-DICHLOROBENZENE	OV	2.41	U	N		UG/KG	4.810000	U	4.81	1	12.7
11SB500305	20111116	SO	1,3-DICHLOROBENZENE	OV	2.5	U	N		UG/KG	4.990000	U	4.99	1	12.7
11SB500506	20111116	SO	1,3-DICHLOROBENZENE	OV	2.22	U	N		UG/KG	4.440000	U	4.44	1	11.1
11SB010002	20110426	SO	1,4-DICHLOROBENZENE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	21.1
11SB010002-D	20110426	SO	1,4-DICHLOROBENZENE	OV	2.45	U	N		UG/KG	4.9	U	4.9	1	21
11SB010406	20110426	SO	1,4-DICHLOROBENZENE	OV	2.38	U	N		UG/KG	4.75	U	4.75	1	17.7
11SB010406-D	20110426	SO	1,4-DICHLOROBENZENE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	19.4
11SB020002	20110426	SO	1,4-DICHLOROBENZENE	OV	2.74	U	N		UG/KG	5.47	U	5.47	1	20.6
11SB020406	20110426	SO	1,4-DICHLOROBENZENE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	24.3
11SB030002	20110426	SO	1,4-DICHLOROBENZENE	OV	2.81	U	N		UG/KG	5.62	U	5.62	1	18.7
11SB030406	20110426	SO	1,4-DICHLOROBENZENE	OV	2.38	U	N		UG/KG	4.77	U	4.77	1	13.7
11SB040002	20110426	SO	1,4-DICHLOROBENZENE	OV	2.98	U	N		UG/KG	5.97	U	5.97	1	20.9
11SB040406	20110426	SO	1,4-DICHLOROBENZENE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	12.8
11SB250507	20110426	SO	1,4-DICHLOROBENZENE	OV	2.9	U	N		UG/KG	5.79	U	5.79	1	18.9
11SB260507	20110427	SO	1,4-DICHLOROBENZENE	OV	2.79	U	N		UG/KG	5.57	U	5.57	1	14.9
11SB270507	20110426	SO	1,4-DICHLOROBENZENE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	14.1
11SB280507	20110426	SO	1,4-DICHLOROBENZENE	OV	3.31	U	N		UG/KG	6.62	UN	6.62	1	28.9
11SB330406	20111116	SO	1,4-DICHLOROBENZENE	OV	2.31	U	N		UG/KG	4.620000	U	4.62	1	14.9
11SB330607	20111116	SO	1,4-DICHLOROBENZENE	OV	2.17	U	N		UG/KG	4.330000	U	4.33	1	14
11SB340406	20111116	SO	1,4-DICHLOROBENZENE	OV	122	U	N		UG/KG	243.000000	U	243	50	17.6
11SB340708	20111116	SO	1,4-DICHLOROBENZENE	OV	2.38	U	N		UG/KG	4.760000	U	4.76	1	17.6
11SB350305	20111116	SO	1,4-DICHLOROBENZENE	OV	2.88	U	N		UG/KG	5.750000	U	5.75	1	17.6
11SB350506	20111116	SO	1,4-DICHLOROBENZENE	OV	2.72	U	N		UG/KG	5.440000	U	5.44	1	17.6
11SB360204	20111117	SO	1,4-DICHLOROBENZENE	OV	117	U	N		UG/KG	233.000000	U	233	50	15.5
11SB360405-D	20111117	SO	1,4-DICHLOROBENZENE	OV	109	U	N		UG/KG	219.000000	U	219	50	13.3
11SB370103	20111116	SO	1,4-DICHLOROBENZENE	OV	2.62	U	N		UG/KG	5.240000	U	5.24	1	15.5
11SB370304	20111116	SO	1,4-DICHLOROBENZENE	OV	2.32	U	N		UG/KG	4.630000	U	4.63	1	13.4
11SB390406	20111115	SO	1,4-DICHLOROBENZENE	OV	2.8	U	N		UG/KG	5.610000	U	5.61	1	51.6
11SB390708	20111115	SO	1,4-DICHLOROBENZENE	OV	3.64	U	N		UG/KG	7.270000	U	7.27	1	39.4
11SB400305	20111115	SO	1,4-DICHLOROBENZENE	OV	157	U	N		UG/KG	314.000000	U	314	50	33.3
11SB400506	20111115	SO	1,4-DICHLOROBENZENE	OV	465	U	N		UG/KG	929.000000	U	929	100	51.6
11SB420102	20111116	SO	1,4-DICHLOROBENZENE	OV	2.29	U	N		UG/KG	4.580000	U	4.58	1	17.6
11SB420203	20111116	SO	1,4-DICHLOROBENZENE	OV	2.33	U	N		UG/KG	4.650000	U	4.65	1	14.4
11SB430406	20111116	SO	1,4-DICHLOROBENZENE	OV	2.69	U	N		UG/KG	5.380000	U	5.38	1	22.3
11SB430809	20111116	SO	1,4-DICHLOROBENZENE	OV	2.77	U	N		UG/KG	5.530000	U	5.53	1	15.7
11SB440406	20111116	SO	1,4-DICHLOROBENZENE	OV	2.32	U	N		UG/KG	4.640000	U	4.64	1	15.7
11SB440607	20111116	SO	1,4-DICHLOROBENZENE	OV	2.45	U	N		UG/KG	4.900000	U	4.9	1	11
11SB450204	20111116	SO	1,4-DICHLOROBENZENE	OV	136	U	N		UG/KG	272.000000	U	272	50	21.1
11SB450506	20111116	SO	1,4-DICHLOROBENZENE	OV	2.25	U	N		UG/KG	4.500000	U	4.5	1	12
11SB460305	20111117	SO	1,4-DICHLOROBENZENE	OV	2.28	U	N		UG/KG	4.550000	U	4.55	1	15.5

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB460506	20111117	SO	1,4-DICHLOROBENZENE	OV	108	U	N		UG/KG	215.000000	U	215	50	8.5
11SB470103	20111116	SO	1,4-DICHLOROBENZENE	OV	2.8	U	N		UG/KG	5.600000	U	5.6	1	19.3
11SB470304	20111116	SO	1,4-DICHLOROBENZENE	OV	2.45	U	N		UG/KG	4.910000	U	4.91	1	17.8
11SB480305	20111116	SO	1,4-DICHLOROBENZENE	OV	2.84	U	N		UG/KG	5.680000	U	5.68	1	20.4
11SB480506	20111116	SO	1,4-DICHLOROBENZENE	OV	2.45	U	N		UG/KG	4.890000	U	4.89	1	14.9
11SB490204	20111116	SO	1,4-DICHLOROBENZENE	OV	2.79	U	N		UG/KG	5.580000	U	5.58	1	20.4
11SB490405	20111116	SO	1,4-DICHLOROBENZENE	OV	2.41	U	N		UG/KG	4.810000	U	4.81	1	12.7
11SB500305	20111116	SO	1,4-DICHLOROBENZENE	OV	2.5	U	N		UG/KG	4.990000	U	4.99	1	12.7
11SB500506	20111116	SO	1,4-DICHLOROBENZENE	OV	2.22	U	N		UG/KG	4.440000	U	4.44	1	11.1
11SB010002	20110426	SO	2-BUTANONE	OV	5.03	U	N		UG/KG	10.1	U	10.1	1	21.1
11SB010002-D	20110426	SO	2-BUTANONE	OV	4.9	U	N		UG/KG	9.8	U	9.8	1	21
11SB010406	20110426	SO	2-BUTANONE	OV	4.75	U	N		UG/KG	9.5	U	9.5	1	17.7
11SB010406-D	20110426	SO	2-BUTANONE	OV	4.79	U	N		UG/KG	9.59	U	9.59	1	19.4
11SB020002	20110426	SO	2-BUTANONE	OV	5.47	U	N		UG/KG	10.9	U	10.9	1	20.6
11SB020406	20110426	SO	2-BUTANONE	OV	5.1	U	N		UG/KG	10.2	U	10.2	1	24.3
11SB030002	20110426	SO	2-BUTANONE	OV	5.62	U	N		UG/KG	11.2	U	11.2	1	18.7
11SB030406	20110426	SO	2-BUTANONE	OV	4.77	U	N		UG/KG	9.53	U	9.53	1	13.7
11SB040406	20110426	SO	2-BUTANONE	OV	5.03	U	N		UG/KG	10.1	U	10.1	1	12.8
11SB250507	20110426	SO	2-BUTANONE	OV	5.79	U	N		UG/KG	11.6	U	11.6	1	18.9
11SB260507	20110427	SO	2-BUTANONE	OV	5.57	U	N		UG/KG	11.1	U	11.1	1	14.9
11SB270507	20110426	SO	2-BUTANONE	OV	4.48	U	N		UG/KG	8.97	U	8.97	1	14.1
11SB280507	20110426	SO	2-BUTANONE	OV	6.62	U	N		UG/KG	13.2	U	13.2	1	28.9
11SB330406	20111116	SO	2-BUTANONE	OV	4.62	U	N		UG/KG	9.230000	U	9.23	1	14.9
11SB330607	20111116	SO	2-BUTANONE	OV	4.33	U	N		UG/KG	8.670000	U	8.67	1	14
11SB380406	20111115	SO	2-BUTANONE	OV	7.79	U	N		UG/KG	15.600000	U	15.6	1	40.38
11SB380607	20111115	SO	2-BUTANONE	OV	6.84	U	N		UG/KG	13.700000	U	13.7	1	38.4
11SB390708	20111115	SO	2-BUTANONE	OV	7.27	U	N		UG/KG	14.500000	U	14.5	1	39.4
11SB400305	20111115	SO	2-BUTANONE	OV	314	U	N		UG/KG	628.000000	U	628	50	33.3
11SB400506	20111115	SO	2-BUTANONE	OV	929	U	N		UG/KG	1860.000000	U	1860	100	51.6
11SB430406	20111116	SO	2-BUTANONE	OV	5.38	U	N		UG/KG	10.800000	U	10.8	1	22.3
11SB430809	20111116	SO	2-BUTANONE	OV	5.53	U	N		UG/KG	11.100000	U	11.1	1	15.7
11SB440607	20111116	SO	2-BUTANONE	OV	4.9	U	N		UG/KG	9.800000	U	9.8	1	11
11SB450204	20111116	SO	2-BUTANONE	OV	272	U	N		UG/KG	543.000000	U	543	50	21.1
11SB470103	20111116	SO	2-BUTANONE	OV	5.6	U	N		UG/KG	11.200000	U	11.2	1	19.3
11SB480305	20111116	SO	2-BUTANONE	OV	5.68	U	N		UG/KG	11.400000	U	11.4	1	20.4
11SB480506	20111116	SO	2-BUTANONE	OV	4.89	U	N		UG/KG	9.780000	U	9.78	1	14.9
11SB490204	20111116	SO	2-BUTANONE	OV	5.58	U	N		UG/KG	11.200000	U	11.2	1	20.4
11SB490405	20111116	SO	2-BUTANONE	OV	4.81	U	N		UG/KG	9.630000	U	9.63	1	12.7
11SB500506	20111116	SO	2-BUTANONE	OV	4.44	U	N		UG/KG	8.870000	U	8.87	1	11.1
11SB010002	20110426	SO	2-HEXANONE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	21.1
11SB010002-D	20110426	SO	2-HEXANONE	OV	2.45	U	N		UG/KG	4.9	U	4.9	1	21
11SB010406	20110426	SO	2-HEXANONE	OV	2.38	U	N		UG/KG	4.75	U	4.75	1	17.7
11SB010406-D	20110426	SO	2-HEXANONE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	19.4
11SB020002	20110426	SO	2-HEXANONE	OV	2.74	U	N		UG/KG	5.47	U	5.47	1	20.6
11SB020406	20110426	SO	2-HEXANONE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	24.3
11SB030002	20110426	SO	2-HEXANONE	OV	2.81	U	N		UG/KG	5.62	U	5.62	1	18.7
11SB030406	20110426	SO	2-HEXANONE	OV	2.38	U	N		UG/KG	4.77	U	4.77	1	13.7
11SB040002	20110426	SO	2-HEXANONE	OV	2.98	U	N		UG/KG	5.97	U	5.97	1	20.9
11SB040406	20110426	SO	2-HEXANONE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	12.8
11SB250507	20110426	SO	2-HEXANONE	OV	2.9	U	N		UG/KG	5.79	U	5.79	1	18.9
11SB260507	20110427	SO	2-HEXANONE	OV	2.79	U	N		UG/KG	5.57	U	5.57	1	14.9
11SB270507	20110426	SO	2-HEXANONE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	14.1
11SB280507	20110426	SO	2-HEXANONE	OV	3.31	U	N		UG/KG	6.62	U	6.62	1	28.9
11SB330406	20111116	SO	2-HEXANONE	OV	2.31	U	N		UG/KG	4.620000	U	4.62	1	14.9
11SB330607	20111116	SO	2-HEXANONE	OV	2.17	U	N		UG/KG	4.330000	U	4.33	1	14
11SB360405	20111117	SO	2-HEXANONE	OV	113	U	N		UG/KG	226.000000	U	226	50	15.5
11SB380406	20111115	SO	2-HEXANONE	OV	3.9	U	N		UG/KG	7.790000	U	7.79	1	40.38
11SB380607	20111115	SO	2-HEXANONE	OV	3.42	U	N		UG/KG	6.840000	U	6.84	1	38.4
11SB390406	20111115	SO	2-HEXANONE	OV	2.8	U	N		UG/KG	5.610000	U	5.61	1	51.6
11SB390708	20111115	SO	2-HEXANONE	OV	3.64	U	N		UG/KG	7.270000	U	7.27	1	39.4
11SB400305	20111115	SO	2-HEXANONE	OV	157	U	N		UG/KG	314.000000	U	314	50	33.3
11SB400506	20111115	SO	2-HEXANONE	OV	465	U	N		UG/KG	929.000000	U	929	100	51.6
11SB410204	20111117	SO	2-HEXANONE	OV	114	U	N		UG/KG	228.000000	U	228	50	15.5
11SB410405	20111117	SO	2-HEXANONE	OV	133	U	N		UG/KG	266.000000	U	266	50	15.5
11SB430406	20111116	SO	2-HEXANONE	OV	2.69	U	N		UG/KG	5.380000	U	5.38	1	22.3
11SB430809	20111116	SO	2-HEXANONE	OV	2.77	U	N		UG/KG	5.530000	U	5.53	1	15.7
11SB440607	20111116	SO	2-HEXANONE	OV	2.45	U	N		UG/KG	4.900000	U	4.9	1	11
11SB450204	20111116	SO	2-HEXANONE	OV	136	U	N		UG/KG	272.000000	U	272	50	21.1
11SB450506	20111116	SO	2-HEXANONE	OV	2.25	U	N		UG/KG	4.500000	U	4.5	1	12
11SB460305	20111117	SO	2-HEXANONE	OV	2.28	U	N		UG/KG	4.550000	U	4.55	1	15.5
11SB470103	20111116	SO	2-HEXANONE	OV	2.8	U	N		UG/KG	5.600000	U	5.6	1	19.3
11SB480305	20111116	SO	2-HEXANONE	OV	2.84	U	N		UG/KG	5.680000	U	5.68	1	20.4
11SB480506	20111116	SO	2-HEXANONE	OV	2.45	U	N		UG/KG	4.890000	U	4.89	1	14.9
11SB490204	20111116	SO	2-HEXANONE	OV	2.79	U	N		UG/KG	5.580000	U	5.58	1	20.4
11SB490405	20111116	SO	2-HEXANONE	OV	2.41	U	N		UG/KG	4.810000	U	4.81	1	12.7
11SB500506	20111116	SO	2-HEXANONE	OV	2.22	U	N		UG/KG	4.440000	U	4.44	1	11.1
11SB020002	20110426	SO	4-METHYL-2-PENTANONE	OV	2.74	U	N		UG/KG	5.47	U	5.47	1	20.6
11SB030002	20110426	SO	4-METHYL-2-PENTANONE	OV	2.81	U	N		UG/KG	5.62	U	5.62	1	18.7
11SB030406	20110426	SO	4-METHYL-2-PENTANONE	OV	2.38	U	N		UG/KG	4.77	U	4.77	1	13.7
11SB260507	20110427	SO	4-METHYL-2-PENTANONE	OV	2.79	U	N		UG/KG	5.57	U	5.57	1	14.9
11SB330406	20111116	SO	4-METHYL-2-PENTANONE	OV	2.31	U	N		UG/KG	4.620000	U	4.62	1	14.9

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB330607	20111116	SO	4-METHYL-2-PENTANONE	OV	2.17	U	N		UG/KG	4.330000	U	4.33	1	14
11SB340406	20111116	SO	4-METHYL-2-PENTANONE	OV	122	U	N		UG/KG	243.000000	U	243	50	17.6
11SB340708	20111116	SO	4-METHYL-2-PENTANONE	OV	2.38	U	N		UG/KG	4.760000	U	4.76	1	17.6
11SB360204	20111117	SO	4-METHYL-2-PENTANONE	OV	117	U	N		UG/KG	233.000000	U	233	50	15.5
11SB360405	20111117	SO	4-METHYL-2-PENTANONE	OV	113	U	N		UG/KG	226.000000	U	226	50	15.5
11SB360405-D	20111117	SO	4-METHYL-2-PENTANONE	OV	109	U	N		UG/KG	219.000000	U	219	50	13.3
11SB370103	20111116	SO	4-METHYL-2-PENTANONE	OV	2.62	U	N		UG/KG	5.240000	U	5.24	1	15.5
11SB370304	20111116	SO	4-METHYL-2-PENTANONE	OV	2.32	U	N		UG/KG	4.630000	U	4.63	1	13.4
11SB380406	20111115	SO	4-METHYL-2-PENTANONE	OV	3.9	U	N		UG/KG	7.790000	U	7.79	1	40.38
11SB380607	20111115	SO	4-METHYL-2-PENTANONE	OV	3.42	U	N		UG/KG	6.840000	U	6.84	1	38.4
11SB390406	20111115	SO	4-METHYL-2-PENTANONE	OV	2.8	U	N		UG/KG	5.610000	U	5.61	1	51.6
11SB390708	20111115	SO	4-METHYL-2-PENTANONE	OV	3.64	U	N		UG/KG	7.270000	U	7.27	1	39.4
11SB400305	20111115	SO	4-METHYL-2-PENTANONE	OV	157	U	N		UG/KG	314.000000	U	314	50	33.3
11SB400506	20111115	SO	4-METHYL-2-PENTANONE	OV	465	U	N		UG/KG	929.000000	U	929	100	51.6
11SB410204	20111117	SO	4-METHYL-2-PENTANONE	OV	114	U	N		UG/KG	228.000000	U	228	50	15.5
11SB410405	20111117	SO	4-METHYL-2-PENTANONE	OV	133	U	N		UG/KG	266.000000	U	266	50	15.5
11SB420102	20111116	SO	4-METHYL-2-PENTANONE	OV	2.29	U	N		UG/KG	4.580000	U	4.58	1	17.6
11SB420203	20111116	SO	4-METHYL-2-PENTANONE	OV	2.33	U	N		UG/KG	4.650000	U	4.65	1	14.4
11SB430406	20111116	SO	4-METHYL-2-PENTANONE	OV	2.69	U	N		UG/KG	5.380000	U	5.38	1	22.3
11SB430809	20111116	SO	4-METHYL-2-PENTANONE	OV	2.77	U	N		UG/KG	5.530000	U	5.53	1	15.7
11SB440406	20111116	SO	4-METHYL-2-PENTANONE	OV	2.32	U	N		UG/KG	4.640000	U	4.64	1	15.7
11SB440607	20111116	SO	4-METHYL-2-PENTANONE	OV	2.45	U	N		UG/KG	4.900000	U	4.9	1	11
11SB450204	20111116	SO	4-METHYL-2-PENTANONE	OV	136	U	N		UG/KG	272.000000	U	272	50	21.1
11SB450506	20111116	SO	4-METHYL-2-PENTANONE	OV	2.25	U	N		UG/KG	4.500000	U	4.5	1	12
11SB460305	20111117	SO	4-METHYL-2-PENTANONE	OV	2.28	U	N		UG/KG	4.550000	U	4.55	1	15.5
11SB460506	20111117	SO	4-METHYL-2-PENTANONE	OV	108	U	N		UG/KG	215.000000	U	215	50	8.5
11SB470103	20111116	SO	4-METHYL-2-PENTANONE	OV	2.8	U	N		UG/KG	5.600000	U	5.6	1	19.3
11SB470304	20111116	SO	4-METHYL-2-PENTANONE	OV	2.45	U	N		UG/KG	4.910000	U	4.91	1	17.8
11SB480305	20111116	SO	4-METHYL-2-PENTANONE	OV	2.84	U	N		UG/KG	5.680000	U	5.68	1	20.4
11SB480506	20111116	SO	4-METHYL-2-PENTANONE	OV	2.45	U	N		UG/KG	4.890000	U	4.89	1	14.9
11SB490204	20111116	SO	4-METHYL-2-PENTANONE	OV	2.79	U	N		UG/KG	5.580000	U	5.58	1	20.4
11SB490405	20111116	SO	4-METHYL-2-PENTANONE	OV	2.41	U	N		UG/KG	4.810000	U	4.81	1	12.7
11SB500305	20111116	SO	4-METHYL-2-PENTANONE	OV	2.5	U	N		UG/KG	4.990000	U	4.99	1	12.7
11SB500506	20111116	SO	4-METHYL-2-PENTANONE	OV	2.22	U	N		UG/KG	4.440000	U	4.44	1	11.1
11SB010002	20110426	SO	ACETONE	OV	10.1	U	N		UG/KG	20.1	U	20.1	1	21.1
11SB010002-D	20110426	SO	ACETONE	OV	9.8	U	N		UG/KG	19.6	U	19.6	1	21
11SB010406	20110426	SO	ACETONE	OV	9.5	U	N		UG/KG	19	U	19	1	17.7
11SB010406-D	20110426	SO	ACETONE	OV	9.59	U	N		UG/KG	19.2	U	19.2	1	19.4
11SB020406	20110426	SO	ACETONE	OV	10.2	U	N		UG/KG	20.4	U	20.4	1	24.3
11SB040406	20110426	SO	ACETONE	OV	10.1	U	N		UG/KG	20.1	U	20.1	1	12.8
11SB250507	20110426	SO	ACETONE	OV	11.6	U	N		UG/KG	23.2	U	23.2	1	18.9
11SB270507	20110426	SO	ACETONE	OV	8.97	U	N		UG/KG	17.9	U	17.9	1	14.1
11SB280507	20110426	SO	ACETONE	OV	13.2	U	N		UG/KG	26.5	U	26.5	1	28.9
11SB330406	20111116	SO	ACETONE	OV	9.23	U	N		UG/KG	18.500000	U	18.5	1	14.9
11SB330607	20111116	SO	ACETONE	OV	8.67	U	N		UG/KG	17.300000	U	17.3	1	14
11SB380406	20111115	SO	ACETONE	OV	15.6	U	N		UG/KG	31.200000	U	31.2	1	40.38
11SB440607	20111116	SO	ACETONE	OV	9.8	U	N		UG/KG	19.600000	U	19.6	1	11
11SB450204	20111116	SO	ACETONE	OV	543	U	N		UG/KG	1090.00000	U	1090	50	21.1
11SB470103	20111116	SO	ACETONE	OV	11.2	U	N		UG/KG	22.400000	U	22.4	1	19.3
11SB480506	20111116	SO	ACETONE	OV	9.78	U	N		UG/KG	19.600000	U	19.6	1	14.9
11SB490204	20111116	SO	ACETONE	OV	11.2	U	N		UG/KG	22.300000	U	22.3	1	20.4
11SB490405	20111116	SO	ACETONE	OV	9.63	U	N		UG/KG	19.300000	U	19.3	1	12.7
11SB500506	20111116	SO	ACETONE	OV	8.87	U	N		UG/KG	17.700000	U	17.7	1	11.1
11SB010002	20110426	SO	BENZENE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	21.1
11SB010002-D	20110426	SO	BENZENE	OV	2.45	U	N		UG/KG	4.9	U	4.9	1	21
11SB010406	20110426	SO	BENZENE	OV	2.38	U	N		UG/KG	4.75	U	4.75	1	17.7
11SB010406-D	20110426	SO	BENZENE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	19.4
11SB020002	20110426	SO	BENZENE	OV	2.74	U	N		UG/KG	5.47	U	5.47	1	20.6
11SB020406	20110426	SO	BENZENE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	24.3
11SB030002	20110426	SO	BENZENE	OV	2.81	U	N		UG/KG	5.62	U	5.62	1	18.7
11SB030406	20110426	SO	BENZENE	OV	2.38	U	N		UG/KG	4.77	U	4.77	1	13.7
11SB040002	20110426	SO	BENZENE	OV	2.98	U	N		UG/KG	5.97	U	5.97	1	20.9
11SB040406	20110426	SO	BENZENE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	12.8
11SB250507	20110426	SO	BENZENE	OV	2.9	U	N		UG/KG	5.79	U	5.79	1	18.9
11SB260507	20110427	SO	BENZENE	OV	2.79	U	N		UG/KG	5.57	U	5.57	1	14.9
11SB270507	20110426	SO	BENZENE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	14.1
11SB280507	20110426	SO	BENZENE	OV	3.31	U	N		UG/KG	6.62	UN	6.62	1	28.9
11SB330406	20111116	SO	BENZENE	OV	2.31	U	N		UG/KG	4.620000	U	4.62	1	14.9
11SB330607	20111116	SO	BENZENE	OV	2.17	U	N		UG/KG	4.330000	U	4.33	1	14
11SB340406	20111116	SO	BENZENE	OV	122	U	N		UG/KG	243.000000	U	243	50	17.6
11SB340708	20111116	SO	BENZENE	OV	2.38	U	N		UG/KG	4.760000	U	4.76	1	17.6
11SB350305	20111116	SO	BENZENE	OV	2.88	U	N		UG/KG	5.750000	U	5.75	1	17.6
11SB350506	20111116	SO	BENZENE	OV	2.72	U	N		UG/KG	5.440000	U	5.44	1	17.6
11SB360204	20111117	SO	BENZENE	OV	117	U	N		UG/KG	233.000000	U	233	50	15.5
11SB360405-D	20111117	SO	BENZENE	OV	109	U	N		UG/KG	219.000000	U	219	50	13.3
11SB370103	20111116	SO	BENZENE	OV	2.62	U	N		UG/KG	5.240000	U	5.24	1	15.5
11SB370304	20111116	SO	BENZENE	OV	2.32	U	N		UG/KG	4.630000	U	4.63	1	13.4
11SB380406	20111115	SO	BENZENE	OV	3.9	U	N		UG/KG	7.790000	U	7.79	1	40.38
11SB380607	20111115	SO	BENZENE	OV	3.42	U	N		UG/KG	6.840000	U	6.84	1	38.4
11SB390406	20111115	SO	BENZENE	OV	2.8	U	N		UG/KG	5.610000	U	5.61	1	51.6
11SB390708	20111115	SO	BENZENE	OV	3.64	U	N		UG/KG	7.270000	U	7.27	1	39.4

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB400305	20111115	SO	BENZENE	OV	157	U	N		UG/KG	314.000000	U	314	50	33.3
11SB400506	20111115	SO	BENZENE	OV	465	U	N		UG/KG	929.000000	U	929	100	51.6
11SB410204	20111117	SO	BENZENE	OV	114	U	N		UG/KG	228.000000	U	228	50	15.5
11SB410405	20111117	SO	BENZENE	OV	133	U	N		UG/KG	266.000000	U	266	50	15.5
11SB420102	20111116	SO	BENZENE	OV	2.29	U	N		UG/KG	4.580000	U	4.58	1	17.6
11SB420203	20111116	SO	BENZENE	OV	2.33	U	N		UG/KG	4.650000	U	4.65	1	14.4
11SB430406	20111116	SO	BENZENE	OV	2.69	U	N		UG/KG	5.380000	U	5.38	1	22.3
11SB430809	20111116	SO	BENZENE	OV	2.77	U	N		UG/KG	5.530000	U	5.53	1	15.7
11SB440406	20111116	SO	BENZENE	OV	2.32	U	N		UG/KG	4.640000	U	4.64	1	15.7
11SB440607	20111116	SO	BENZENE	OV	2.45	U	N		UG/KG	4.900000	U	4.9	1	11
11SB450204	20111116	SO	BENZENE	OV	136	U	N		UG/KG	272.000000	U	272	50	21.1
11SB450506	20111116	SO	BENZENE	OV	2.25	U	N		UG/KG	4.500000	U	4.5	1	12
11SB460305	20111117	SO	BENZENE	OV	2.28	U	N		UG/KG	4.550000	U	4.55	1	15.5
11SB460506	20111117	SO	BENZENE	OV	108	U	N		UG/KG	215.000000	U	215	50	8.5
11SB470103	20111116	SO	BENZENE	OV	2.8	U	N		UG/KG	5.600000	U	5.6	1	19.3
11SB470304	20111116	SO	BENZENE	OV	2.45	U	N		UG/KG	4.910000	U	4.91	1	17.8
11SB480305	20111116	SO	BENZENE	OV	2.84	U	N		UG/KG	5.680000	U	5.68	1	20.4
11SB480506	20111116	SO	BENZENE	OV	2.45	U	N		UG/KG	4.890000	U	4.89	1	14.9
11SB490204	20111116	SO	BENZENE	OV	2.79	U	N		UG/KG	5.580000	U	5.58	1	20.4
11SB490405	20111116	SO	BENZENE	OV	2.41	U	N		UG/KG	4.810000	U	4.81	1	12.7
11SB500305	20111116	SO	BENZENE	OV	2.5	U	N		UG/KG	4.990000	U	4.99	1	12.7
11SB500506	20111116	SO	BENZENE	OV	2.22	U	N		UG/KG	4.440000	U	4.44	1	11.1
11SB330406	20111116	SO	BROMOCHLOROMETHANE	OV	2.31	U	N		UG/KG	4.620000	U	4.62	1	14.9
11SB330607	20111116	SO	BROMOCHLOROMETHANE	OV	2.17	U	N		UG/KG	4.330000	U	4.33	1	14
11SB340406	20111116	SO	BROMOCHLOROMETHANE	OV	122	U	N		UG/KG	243.000000	U	243	50	17.6
11SB340708	20111116	SO	BROMOCHLOROMETHANE	OV	2.38	U	N		UG/KG	4.760000	U	4.76	1	17.6
11SB350305	20111116	SO	BROMOCHLOROMETHANE	OV	2.88	U	N		UG/KG	5.750000	U	5.75	1	17.6
11SB350506	20111116	SO	BROMOCHLOROMETHANE	OV	2.72	U	N		UG/KG	5.440000	U	5.44	1	17.6
11SB360204	20111117	SO	BROMOCHLOROMETHANE	OV	117	U	N		UG/KG	233.000000	U	233	50	15.5
11SB360405	20111117	SO	BROMOCHLOROMETHANE	OV	113	U	N		UG/KG	226.000000	U	226	50	15.5
11SB360405-D	20111117	SO	BROMOCHLOROMETHANE	OV	109	U	N		UG/KG	219.000000	U	219	50	13.3
11SB370103	20111116	SO	BROMOCHLOROMETHANE	OV	2.62	U	N		UG/KG	5.240000	U	5.24	1	15.5
11SB370304	20111116	SO	BROMOCHLOROMETHANE	OV	2.32	U	N		UG/KG	4.630000	U	4.63	1	13.4
11SB380406	20111115	SO	BROMOCHLOROMETHANE	OV	3.9	U	N		UG/KG	7.790000	U	7.79	1	40.38
11SB380607	20111115	SO	BROMOCHLOROMETHANE	OV	3.42	U	N		UG/KG	6.840000	U	6.84	1	38.4
11SB390406	20111115	SO	BROMOCHLOROMETHANE	OV	2.8	U	N		UG/KG	5.610000	U	5.61	1	51.6
11SB390708	20111115	SO	BROMOCHLOROMETHANE	OV	3.64	U	N		UG/KG	7.270000	U	7.27	1	39.4
11SB400305	20111115	SO	BROMOCHLOROMETHANE	OV	157	U	N		UG/KG	314.000000	U	314	50	33.3
11SB400506	20111115	SO	BROMOCHLOROMETHANE	OV	465	U	N		UG/KG	929.000000	U	929	100	51.6
11SB410204	20111117	SO	BROMOCHLOROMETHANE	OV	114	U	N		UG/KG	228.000000	U	228	50	15.5
11SB410405	20111117	SO	BROMOCHLOROMETHANE	OV	133	U	N		UG/KG	266.000000	U	266	50	15.5
11SB420102	20111116	SO	BROMOCHLOROMETHANE	OV	2.29	U	N		UG/KG	4.580000	U	4.58	1	17.6
11SB420203	20111116	SO	BROMOCHLOROMETHANE	OV	2.33	U	N		UG/KG	4.650000	U	4.65	1	14.4
11SB430406	20111116	SO	BROMOCHLOROMETHANE	OV	2.69	U	N		UG/KG	5.380000	U	5.38	1	22.3
11SB430809	20111116	SO	BROMOCHLOROMETHANE	OV	2.77	U	N		UG/KG	5.530000	U	5.53	1	15.7
11SB440406	20111116	SO	BROMOCHLOROMETHANE	OV	2.32	U	N		UG/KG	4.640000	U	4.64	1	15.7
11SB440607	20111116	SO	BROMOCHLOROMETHANE	OV	2.45	U	N		UG/KG	4.900000	U	4.9	1	11
11SB450204	20111116	SO	BROMOCHLOROMETHANE	OV	136	U	N		UG/KG	272.000000	U	272	50	21.1
11SB450506	20111116	SO	BROMOCHLOROMETHANE	OV	2.25	U	N		UG/KG	4.500000	U	4.5	1	12
11SB460305	20111117	SO	BROMOCHLOROMETHANE	OV	2.28	U	N		UG/KG	4.550000	U	4.55	1	15.5
11SB460506	20111117	SO	BROMOCHLOROMETHANE	OV	108	U	N		UG/KG	215.000000	U	215	50	8.5
11SB470103	20111116	SO	BROMOCHLOROMETHANE	OV	2.8	U	N		UG/KG	5.600000	U	5.6	1	19.3
11SB470304	20111116	SO	BROMOCHLOROMETHANE	OV	2.45	U	N		UG/KG	4.910000	U	4.91	1	17.8
11SB480305	20111116	SO	BROMOCHLOROMETHANE	OV	2.84	U	N		UG/KG	5.680000	U	5.68	1	20.4
11SB480506	20111116	SO	BROMOCHLOROMETHANE	OV	2.45	U	N		UG/KG	4.890000	U	4.89	1	14.9
11SB490204	20111116	SO	BROMOCHLOROMETHANE	OV	2.79	U	N		UG/KG	5.580000	U	5.58	1	20.4
11SB490405	20111116	SO	BROMOCHLOROMETHANE	OV	2.41	U	N		UG/KG	4.810000	U	4.81	1	12.7
11SB500305	20111116	SO	BROMOCHLOROMETHANE	OV	2.5	U	N		UG/KG	4.990000	U	4.99	1	12.7
11SB500506	20111116	SO	BROMOCHLOROMETHANE	OV	2.22	U	N		UG/KG	4.440000	U	4.44	1	11.1
11SB020002	20110426	SO	BROMODICHLOROMETHANE	OV	2.74	U	N		UG/KG	5.47	U	5.47	1	20.6
11SB030002	20110426	SO	BROMODICHLOROMETHANE	OV	2.81	U	N		UG/KG	5.62	U	5.62	1	18.7
11SB030406	20110426	SO	BROMODICHLOROMETHANE	OV	2.38	U	N		UG/KG	4.77	U	4.77	1	13.7
11SB260507	20110427	SO	BROMODICHLOROMETHANE	OV	2.79	U	N		UG/KG	5.57	U	5.57	1	14.9
11SB330406	20111116	SO	BROMODICHLOROMETHANE	OV	2.31	U	N		UG/KG	4.620000	U	4.62	1	14.9
11SB330607	20111116	SO	BROMODICHLOROMETHANE	OV	2.17	U	N		UG/KG	4.330000	U	4.33	1	14
11SB340406	20111116	SO	BROMODICHLOROMETHANE	OV	122	U	N		UG/KG	243.000000	U	243	50	17.6
11SB340708	20111116	SO	BROMODICHLOROMETHANE	OV	2.38	U	N		UG/KG	4.760000	U	4.76	1	17.6
11SB350305	20111116	SO	BROMODICHLOROMETHANE	OV	2.88	U	N		UG/KG	5.750000	U	5.75	1	17.6
11SB350506	20111116	SO	BROMODICHLOROMETHANE	OV	2.72	U	N		UG/KG	5.440000	U	5.44	1	17.6
11SB360204	20111117	SO	BROMODICHLOROMETHANE	OV	117	U	N		UG/KG	233.000000	U	233	50	15.5
11SB360405	20111117	SO	BROMODICHLOROMETHANE	OV	113	U	N		UG/KG	226.000000	U	226	50	15.5
11SB360405-D	20111117	SO	BROMODICHLOROMETHANE	OV	109	U	N		UG/KG	219.000000	U	219	50	13.3
11SB370103	20111116	SO	BROMODICHLOROMETHANE	OV	2.62	U	N		UG/KG	5.240000	U	5.24	1	15.5
11SB370304	20111116	SO	BROMODICHLOROMETHANE	OV	2.32	U	N		UG/KG	4.630000	U	4.63	1	13.4
11SB380406	20111115	SO	BROMODICHLOROMETHANE	OV	3.9	U	N		UG/KG	7.790000	U	7.79	1	40.38
11SB380607	20111115	SO	BROMODICHLOROMETHANE	OV	3.42	U	N		UG/KG	6.840000	U	6.84	1	38.4
11SB390406	20111115	SO	BROMODICHLOROMETHANE	OV	2.8	U	N		UG/KG	5.610000	U	5.61	1	51.6
11SB390708	20111115	SO	BROMODICHLOROMETHANE	OV	3.64	U	N		UG/KG	7.270000	U	7.27	1	39.4
11SB400305	20111115	SO	BROMODICHLOROMETHANE	OV	157	U	N		UG/KG	314.000000	U	314	50	33.3
11SB400506	20111115	SO	BROMODICHLOROMETHANE	OV	465	U	N		UG/KG	929.000000	U	929	100	51.6
11SB410204	20111117	SO	BROMODICHLOROMETHANE	OV	114	U	N		UG/KG	228.000000	U	228	50	15.5

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB410405	20111117	SO	BROMODICHLOROMETHANE	OV	133	U	N		UG/KG	266.000000	U	266	50	15.5
11SB420102	20111116	SO	BROMODICHLOROMETHANE	OV	2.29	U	N		UG/KG	4.580000	U	4.58	1	17.6
11SB420203	20111116	SO	BROMODICHLOROMETHANE	OV	2.33	U	N		UG/KG	4.650000	U	4.65	1	14.4
11SB430406	20111116	SO	BROMODICHLOROMETHANE	OV	2.69	U	N		UG/KG	5.380000	U	5.38	1	22.3
11SB430809	20111116	SO	BROMODICHLOROMETHANE	OV	2.77	U	N		UG/KG	5.530000	U	5.53	1	15.7
11SB440406	20111116	SO	BROMODICHLOROMETHANE	OV	2.32	U	N		UG/KG	4.640000	U	4.64	1	15.7
11SB440607	20111116	SO	BROMODICHLOROMETHANE	OV	2.45	U	N		UG/KG	4.900000	U	4.9	1	11
11SB450204	20111116	SO	BROMODICHLOROMETHANE	OV	136	U	N		UG/KG	272.000000	U	272	50	21.1
11SB450506	20111116	SO	BROMODICHLOROMETHANE	OV	2.25	U	N		UG/KG	4.500000	U	4.5	1	12
11SB460305	20111117	SO	BROMODICHLOROMETHANE	OV	2.28	U	N		UG/KG	4.550000	U	4.55	1	15.5
11SB460506	20111117	SO	BROMODICHLOROMETHANE	OV	108	U	N		UG/KG	215.000000	U	215	50	8.5
11SB470103	20111116	SO	BROMODICHLOROMETHANE	OV	2.8	U	N		UG/KG	5.600000	U	5.6	1	19.3
11SB470304	20111116	SO	BROMODICHLOROMETHANE	OV	2.45	U	N		UG/KG	4.910000	U	4.91	1	17.8
11SB480305	20111116	SO	BROMODICHLOROMETHANE	OV	2.84	U	N		UG/KG	5.680000	U	5.68	1	20.4
11SB480506	20111116	SO	BROMODICHLOROMETHANE	OV	2.45	U	N		UG/KG	4.890000	U	4.89	1	14.9
11SB490204	20111116	SO	BROMODICHLOROMETHANE	OV	2.79	U	N		UG/KG	5.580000	U	5.58	1	20.4
11SB490405	20111116	SO	BROMODICHLOROMETHANE	OV	2.41	U	N		UG/KG	4.810000	U	4.81	1	12.7
11SB500305	20111116	SO	BROMODICHLOROMETHANE	OV	2.5	U	N		UG/KG	4.990000	U	4.99	1	12.7
11SB500506	20111116	SO	BROMODICHLOROMETHANE	OV	2.22	U	N		UG/KG	4.440000	U	4.44	1	11.1
11SB020002	20110426	SO	BROMOFORM	OV	2.74	U	N		UG/KG	5.47	U	5.47	1	20.6
11SB030002	20110426	SO	BROMOFORM	OV	2.81	U	N		UG/KG	5.62	U	5.62	1	18.7
11SB030406	20110426	SO	BROMOFORM	OV	2.38	U	N		UG/KG	4.77	U	4.77	1	13.7
11SB260507	20110427	SO	BROMOFORM	OV	2.79	U	N		UG/KG	5.57	U	5.57	1	14.9
11SB330406	20111116	SO	BROMOFORM	OV	2.31	U	N		UG/KG	4.620000	U	4.62	1	14.9
11SB330607	20111116	SO	BROMOFORM	OV	2.17	U	N		UG/KG	4.330000	U	4.33	1	14
11SB340406	20111116	SO	BROMOFORM	OV	122	U	N		UG/KG	243.000000	U	243	50	17.6
11SB340708	20111116	SO	BROMOFORM	OV	2.38	U	N		UG/KG	4.760000	U	4.76	1	17.6
11SB360204	20111117	SO	BROMOFORM	OV	117	U	N		UG/KG	233.000000	U	233	50	15.5
11SB360405	20111117	SO	BROMOFORM	OV	113	U	N		UG/KG	226.000000	U	226	50	15.5
11SB360405-D	20111117	SO	BROMOFORM	OV	109	U	N		UG/KG	219.000000	U	219	50	13.3
11SB370103	20111116	SO	BROMOFORM	OV	2.62	U	N		UG/KG	5.240000	U	5.24	1	15.5
11SB370304	20111116	SO	BROMOFORM	OV	2.32	U	N		UG/KG	4.630000	U	4.63	1	13.4
11SB380406	20111115	SO	BROMOFORM	OV	3.9	U	N		UG/KG	7.790000	U	7.79	1	40.38
11SB380607	20111115	SO	BROMOFORM	OV	3.42	U	N		UG/KG	6.840000	U	6.84	1	38.4
11SB390406	20111115	SO	BROMOFORM	OV	2.8	U	N		UG/KG	5.610000	U	5.61	1	51.6
11SB390708	20111115	SO	BROMOFORM	OV	3.64	U	N		UG/KG	7.270000	U	7.27	1	39.4
11SB400305	20111115	SO	BROMOFORM	OV	157	U	N		UG/KG	314.000000	U	314	50	33.3
11SB400506	20111115	SO	BROMOFORM	OV	465	U	N		UG/KG	929.000000	U	929	100	51.6
11SB410204	20111117	SO	BROMOFORM	OV	114	U	N		UG/KG	228.000000	U	228	50	15.5
11SB410405	20111117	SO	BROMOFORM	OV	133	U	N		UG/KG	266.000000	U	266	50	15.5
11SB420102	20111116	SO	BROMOFORM	OV	2.29	U	N		UG/KG	4.580000	U	4.58	1	17.6
11SB420203	20111116	SO	BROMOFORM	OV	2.33	U	N		UG/KG	4.650000	U	4.65	1	14.4
11SB430406	20111116	SO	BROMOFORM	OV	2.69	U	N		UG/KG	5.380000	U	5.38	1	22.3
11SB430809	20111116	SO	BROMOFORM	OV	2.77	U	N		UG/KG	5.530000	U	5.53	1	15.7
11SB440406	20111116	SO	BROMOFORM	OV	2.32	U	N		UG/KG	4.640000	U	4.64	1	15.7
11SB440607	20111116	SO	BROMOFORM	OV	2.45	U	N		UG/KG	4.900000	U	4.9	1	11
11SB450204	20111116	SO	BROMOFORM	OV	136	U	N		UG/KG	272.000000	U	272	50	21.1
11SB450506	20111116	SO	BROMOFORM	OV	2.25	U	N		UG/KG	4.500000	U	4.5	1	12
11SB460305	20111117	SO	BROMOFORM	OV	2.28	U	N		UG/KG	4.550000	U	4.55	1	15.5
11SB460506	20111117	SO	BROMOFORM	OV	108	U	N		UG/KG	215.000000	U	215	50	8.5
11SB470103	20111116	SO	BROMOFORM	OV	2.8	U	N		UG/KG	5.600000	U	5.6	1	19.3
11SB470304	20111116	SO	BROMOFORM	OV	2.45	U	N		UG/KG	4.910000	U	4.91	1	17.8
11SB480305	20111116	SO	BROMOFORM	OV	2.84	U	N		UG/KG	5.680000	U	5.68	1	20.4
11SB480506	20111116	SO	BROMOFORM	OV	2.45	U	N		UG/KG	4.890000	U	4.89	1	14.9
11SB490204	20111116	SO	BROMOFORM	OV	2.79	U	N		UG/KG	5.580000	U	5.58	1	20.4
11SB490405	20111116	SO	BROMOFORM	OV	2.41	U	N		UG/KG	4.810000	U	4.81	1	12.7
11SB500305	20111116	SO	BROMOFORM	OV	2.5	U	N		UG/KG	4.990000	U	4.99	1	12.7
11SB500506	20111116	SO	BROMOFORM	OV	2.22	U	N		UG/KG	4.440000	U	4.44	1	11.1
11SB020002	20110426	SO	BROMOMETHANE	OV	5.47	U	N		UG/KG	10.9	U	10.9	1	20.6
11SB030002	20110426	SO	BROMOMETHANE	OV	5.62	U	N		UG/KG	11.2	U	11.2	1	18.7
11SB030406	20110426	SO	BROMOMETHANE	OV	4.77	U	N		UG/KG	9.53	U	9.53	1	13.7
11SB260507	20110427	SO	BROMOMETHANE	OV	5.57	U	N		UG/KG	11.1	U	11.1	1	14.9
11SB330406	20111116	SO	BROMOMETHANE	OV	4.62	U	N		UG/KG	9.230000	U	9.23	1	14.9
11SB330607	20111116	SO	BROMOMETHANE	OV	4.33	U	N		UG/KG	8.670000	U	8.67	1	14
11SB340406	20111116	SO	BROMOMETHANE	OV	243	U	N		UG/KG	487.000000	U	487	50	17.6
11SB340708	20111116	SO	BROMOMETHANE	OV	4.76	U	N		UG/KG	9.530000	U	9.53	1	17.6
11SB350305	20111116	SO	BROMOMETHANE	OV	5.75	U	N		UG/KG	11.500000	U	11.5	1	17.6
11SB350506	20111116	SO	BROMOMETHANE	OV	5.44	U	N		UG/KG	10.900000	U	10.9	1	17.6
11SB360204	20111117	SO	BROMOMETHANE	OV	233	U	N		UG/KG	466.000000	U	466	50	15.5
11SB360405	20111117	SO	BROMOMETHANE	OV	226	U	N		UG/KG	453.000000	U	453	50	15.5
11SB360405-D	20111117	SO	BROMOMETHANE	OV	219	U	N		UG/KG	437.000000	U	437	50	13.3
11SB370103	20111116	SO	BROMOMETHANE	OV	5.24	U	N		UG/KG	10.500000	U	10.5	1	15.5
11SB370304	20111116	SO	BROMOMETHANE	OV	4.63	U	N		UG/KG	9.260000	U	9.26	1	13.4
11SB380406	20111115	SO	BROMOMETHANE	OV	7.79	U	N		UG/KG	15.600000	U	15.6	1	40.38
11SB380607	20111115	SO	BROMOMETHANE	OV	6.84	U	N		UG/KG	13.700000	U	13.7	1	38.4
11SB390406	20111115	SO	BROMOMETHANE	OV	5.61	U	N		UG/KG	11.200000	U	11.2	1	51.6
11SB390708	20111115	SO	BROMOMETHANE	OV	7.27	U	N		UG/KG	14.500000	U	14.5	1	39.4
11SB400305	20111115	SO	BROMOMETHANE	OV	314	U	N		UG/KG	628.000000	U	628	50	33.3
11SB400506	20111115	SO	BROMOMETHANE	OV	929	U	N		UG/KG	1860.000000	U	1860	100	51.6
11SB410204	20111117	SO	BROMOMETHANE	OV	228	U	N		UG/KG	456.000000	U	456	50	15.5
11SB410405	20111117	SO	BROMOMETHANE	OV	266	U	N		UG/KG	532.000000	U	532	50	15.5

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB420102	20111116	SO	BROMOMETHANE	OV	4.58	U	N		UG/KG	9.160000	U	9.16	1	17.6
11SB420203	20111116	SO	BROMOMETHANE	OV	4.65	U	N		UG/KG	9.300000	U	9.3	1	14.4
11SB430406	20111116	SO	BROMOMETHANE	OV	5.38	U	N		UG/KG	10.800000	U	10.8	1	22.3
11SB430809	20111116	SO	BROMOMETHANE	OV	5.53	U	N		UG/KG	11.100000	U	11.1	1	15.7
11SB440406	20111116	SO	BROMOMETHANE	OV	4.64	U	N		UG/KG	9.280000	U	9.28	1	15.7
11SB440607	20111116	SO	BROMOMETHANE	OV	4.9	U	N		UG/KG	9.800000	U	9.8	1	11
11SB450204	20111116	SO	BROMOMETHANE	OV	272	U	N		UG/KG	543.000000	U	543	50	21.1
11SB450506	20111116	SO	BROMOMETHANE	OV	4.5	U	N		UG/KG	8.990000	U	8.99	1	12
11SB460305	20111117	SO	BROMOMETHANE	OV	4.55	U	N		UG/KG	9.100000	U	9.1	1	15.5
11SB460506	20111117	SO	BROMOMETHANE	OV	215	U	N		UG/KG	430.000000	U	430	50	8.5
11SB470103	20111116	SO	BROMOMETHANE	OV	5.6	U	N		UG/KG	11.200000	U	11.2	1	19.3
11SB470304	20111116	SO	BROMOMETHANE	OV	4.91	U	N		UG/KG	9.810000	U	9.81	1	17.8
11SB480305	20111116	SO	BROMOMETHANE	OV	5.68	U	N		UG/KG	11.400000	U	11.4	1	20.4
11SB480506	20111116	SO	BROMOMETHANE	OV	4.89	U	N		UG/KG	9.780000	U	9.78	1	14.9
11SB490204	20111116	SO	BROMOMETHANE	OV	5.58	U	N		UG/KG	11.200000	U	11.2	1	20.4
11SB490405	20111116	SO	BROMOMETHANE	OV	4.81	U	N		UG/KG	9.630000	U	9.63	1	12.7
11SB500305	20111116	SO	BROMOMETHANE	OV	4.99	U	N		UG/KG	9.980000	U	9.98	1	12.7
11SB500506	20111116	SO	BROMOMETHANE	OV	4.44	U	N		UG/KG	8.870000	U	8.87	1	11.1
11SB010002	20110426	SO	CARBON DISULFIDE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	21.1
11SB010002-D	20110426	SO	CARBON DISULFIDE	OV	2.45	U	N		UG/KG	4.9	U	4.9	1	21
11SB010406	20110426	SO	CARBON DISULFIDE	OV	2.38	U	N		UG/KG	4.75	U	4.75	1	17.7
11SB010406-D	20110426	SO	CARBON DISULFIDE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	19.4
11SB020002	20110426	SO	CARBON DISULFIDE	OV	2.74	U	N		UG/KG	5.47	U	5.47	1	20.6
11SB020406	20110426	SO	CARBON DISULFIDE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	24.3
11SB030002	20110426	SO	CARBON DISULFIDE	OV	2.81	U	N		UG/KG	5.62	U	5.62	1	18.7
11SB030406	20110426	SO	CARBON DISULFIDE	OV	2.38	U	N		UG/KG	4.77	U	4.77	1	13.7
11SB040002	20110426	SO	CARBON DISULFIDE	OV	2.98	U	N		UG/KG	5.97	U	5.97	1	20.9
11SB040406	20110426	SO	CARBON DISULFIDE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	12.8
11SB250507	20110426	SO	CARBON DISULFIDE	OV	2.9	U	N		UG/KG	5.79	U	5.79	1	18.9
11SB260507	20110427	SO	CARBON DISULFIDE	OV	2.79	U	N		UG/KG	5.57	U	5.57	1	14.9
11SB270507	20110426	SO	CARBON DISULFIDE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	14.1
11SB280507	20110426	SO	CARBON DISULFIDE	OV	3.31	U	N		UG/KG	6.62	U	6.62	1	28.9
11SB330406	20111116	SO	CARBON DISULFIDE	OV	2.31	U	N		UG/KG	4.620000	U	4.62	1	14.9
11SB330607	20111116	SO	CARBON DISULFIDE	OV	2.17	U	N		UG/KG	4.330000	U	4.33	1	14
11SB340406	20111116	SO	CARBON DISULFIDE	OV	122	U	N		UG/KG	243.000000	U	243	50	17.6
11SB340708	20111116	SO	CARBON DISULFIDE	OV	2.38	U	N		UG/KG	4.760000	U	4.76	1	17.6
11SB350305	20111116	SO	CARBON DISULFIDE	OV	2.88	U	N		UG/KG	5.750000	U	5.75	1	17.6
11SB350506	20111116	SO	CARBON DISULFIDE	OV	2.72	U	N		UG/KG	5.440000	U	5.44	1	17.6
11SB360204	20111117	SO	CARBON DISULFIDE	OV	117	U	N		UG/KG	233.000000	U	233	50	15.5
11SB360405	20111117	SO	CARBON DISULFIDE	OV	113	U	N		UG/KG	226.000000	U	226	50	15.5
11SB360405-D	20111117	SO	CARBON DISULFIDE	OV	109	U	N		UG/KG	219.000000	U	219	50	13.3
11SB370103	20111116	SO	CARBON DISULFIDE	OV	2.62	U	N		UG/KG	5.240000	U	5.24	1	15.5
11SB370304	20111116	SO	CARBON DISULFIDE	OV	2.32	U	N		UG/KG	4.630000	U	4.63	1	13.4
11SB380406	20111115	SO	CARBON DISULFIDE	OV	3.9	U	N		UG/KG	7.790000	U	7.79	1	40.38
11SB380607	20111115	SO	CARBON DISULFIDE	OV	3.42	U	N		UG/KG	6.840000	U	6.84	1	38.4
11SB390406	20111115	SO	CARBON DISULFIDE	OV	2.8	U	N		UG/KG	5.610000	U	5.61	1	51.6
11SB390708	20111115	SO	CARBON DISULFIDE	OV	3.64	U	N		UG/KG	7.270000	U	7.27	1	39.4
11SB400305	20111115	SO	CARBON DISULFIDE	OV	157	U	N		UG/KG	314.000000	U	314	50	33.3
11SB400506	20111115	SO	CARBON DISULFIDE	OV	465	U	N		UG/KG	929.000000	U	929	100	51.6
11SB410204	20111117	SO	CARBON DISULFIDE	OV	114	U	N		UG/KG	228.000000	U	228	50	15.5
11SB410405	20111117	SO	CARBON DISULFIDE	OV	133	U	N		UG/KG	266.000000	U	266	50	15.5
11SB420102	20111116	SO	CARBON DISULFIDE	OV	2.29	U	N		UG/KG	4.580000	U	4.58	1	17.6
11SB420203	20111116	SO	CARBON DISULFIDE	OV	2.33	U	N		UG/KG	4.650000	U	4.65	1	14.4
11SB430406	20111116	SO	CARBON DISULFIDE	OV	2.69	U	N		UG/KG	5.380000	U	5.38	1	22.3
11SB430809	20111116	SO	CARBON DISULFIDE	OV	2.77	U	N		UG/KG	5.530000	U	5.53	1	15.7
11SB440406	20111116	SO	CARBON DISULFIDE	OV	2.32	U	N		UG/KG	4.640000	U	4.64	1	15.7
11SB440607	20111116	SO	CARBON DISULFIDE	OV	2.45	U	N		UG/KG	4.900000	U	4.9	1	11
11SB450204	20111116	SO	CARBON DISULFIDE	OV	136	U	N		UG/KG	272.000000	U	272	50	21.1
11SB450506	20111116	SO	CARBON DISULFIDE	OV	2.25	U	N		UG/KG	4.500000	U	4.5	1	12
11SB460305	20111117	SO	CARBON DISULFIDE	OV	2.28	U	N		UG/KG	4.550000	U	4.55	1	15.5
11SB460506	20111117	SO	CARBON DISULFIDE	OV	108	U	N		UG/KG	215.000000	U	215	50	8.5
11SB470103	20111116	SO	CARBON DISULFIDE	OV	2.8	U	N		UG/KG	5.600000	U	5.6	1	19.3
11SB470304	20111116	SO	CARBON DISULFIDE	OV	2.45	U	N		UG/KG	4.910000	U	4.91	1	17.8
11SB480305	20111116	SO	CARBON DISULFIDE	OV	2.84	U	N		UG/KG	5.680000	U	5.68	1	20.4
11SB480506	20111116	SO	CARBON DISULFIDE	OV	2.45	U	N		UG/KG	4.890000	U	4.89	1	14.9
11SB490204	20111116	SO	CARBON DISULFIDE	OV	2.79	U	N		UG/KG	5.580000	U	5.58	1	20.4
11SB490405	20111116	SO	CARBON DISULFIDE	OV	2.41	U	N		UG/KG	4.810000	U	4.81	1	12.7
11SB500305	20111116	SO	CARBON DISULFIDE	OV	2.5	U	N		UG/KG	4.990000	U	4.99	1	12.7
11SB500506	20111116	SO	CARBON DISULFIDE	OV	2.22	U	N		UG/KG	4.440000	U	4.44	1	11.1
11SB020002	20110426	SO	CARBON TETRACHLORIDE	OV	2.74	U	N		UG/KG	5.47	U	5.47	1	20.6
11SB030002	20110426	SO	CARBON TETRACHLORIDE	OV	2.81	U	N		UG/KG	5.62	U	5.62	1	18.7
11SB030406	20110426	SO	CARBON TETRACHLORIDE	OV	2.38	U	N		UG/KG	4.77	U	4.77	1	13.7
11SB260507	20110427	SO	CARBON TETRACHLORIDE	OV	2.79	U	N		UG/KG	5.57	U	5.57	1	14.9
11SB330406	20111116	SO	CARBON TETRACHLORIDE	OV	2.31	U	N		UG/KG	4.620000	U	4.62	1	14.9
11SB330607	20111116	SO	CARBON TETRACHLORIDE	OV	2.17	U	N		UG/KG	4.330000	U	4.33	1	14
11SB340406	20111116	SO	CARBON TETRACHLORIDE	OV	122	U	N		UG/KG	243.000000	U	243	50	17.6
11SB340708	20111116	SO	CARBON TETRACHLORIDE	OV	2.38	U	N		UG/KG	4.760000	U	4.76	1	17.6
11SB350305	20111116	SO	CARBON TETRACHLORIDE	OV	2.88	U	N		UG/KG	5.750000	U	5.75	1	17.6
11SB350506	20111116	SO	CARBON TETRACHLORIDE	OV	2.72	U	N		UG/KG	5.440000	U	5.44	1	17.6
11SB360204	20111117	SO	CARBON TETRACHLORIDE	OV	117	U	N		UG/KG	233.000000	U	233	50	15.5
11SB360405	20111117	SO	CARBON TETRACHLORIDE	OV	113	U	N		UG/KG	226.000000	U	226	50	15.5

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB360405-D	20111117	SO	CARBON TETRACHLORIDE	OV	109	U	N		UG/KG	219.000000	U	219	50	13.3
11SB370103	20111116	SO	CARBON TETRACHLORIDE	OV	2.62	U	N		UG/KG	5.240000	U	5.24	1	15.5
11SB370304	20111116	SO	CARBON TETRACHLORIDE	OV	2.32	U	N		UG/KG	4.630000	U	4.63	1	13.4
11SB380406	20111115	SO	CARBON TETRACHLORIDE	OV	3.9	U	N		UG/KG	7.790000	U	7.79	1	40.38
11SB380607	20111115	SO	CARBON TETRACHLORIDE	OV	3.42	U	N		UG/KG	6.840000	U	6.84	1	38.4
11SB390406	20111115	SO	CARBON TETRACHLORIDE	OV	2.8	U	N		UG/KG	5.610000	U	5.61	1	51.6
11SB390708	20111115	SO	CARBON TETRACHLORIDE	OV	3.64	U	N		UG/KG	7.270000	U	7.27	1	39.4
11SB400305	20111115	SO	CARBON TETRACHLORIDE	OV	157	U	N		UG/KG	314.000000	U	314	50	33.3
11SB400506	20111115	SO	CARBON TETRACHLORIDE	OV	465	U	N		UG/KG	929.000000	U	929	100	51.6
11SB410204	20111117	SO	CARBON TETRACHLORIDE	OV	114	U	N		UG/KG	228.000000	U	228	50	15.5
11SB410405	20111117	SO	CARBON TETRACHLORIDE	OV	133	U	N		UG/KG	266.000000	U	266	50	15.5
11SB420102	20111116	SO	CARBON TETRACHLORIDE	OV	2.29	U	N		UG/KG	4.580000	U	4.58	1	17.6
11SB420203	20111116	SO	CARBON TETRACHLORIDE	OV	2.33	U	N		UG/KG	4.650000	U	4.65	1	14.4
11SB430406	20111116	SO	CARBON TETRACHLORIDE	OV	2.69	U	N		UG/KG	5.380000	U	5.38	1	22.3
11SB430809	20111116	SO	CARBON TETRACHLORIDE	OV	2.77	U	N		UG/KG	5.530000	U	5.53	1	15.7
11SB440406	20111116	SO	CARBON TETRACHLORIDE	OV	2.32	U	N		UG/KG	4.640000	U	4.64	1	15.7
11SB440607	20111116	SO	CARBON TETRACHLORIDE	OV	2.45	U	N		UG/KG	4.900000	U	4.9	1	11
11SB450204	20111116	SO	CARBON TETRACHLORIDE	OV	136	U	N		UG/KG	272.000000	U	272	50	21.1
11SB450506	20111116	SO	CARBON TETRACHLORIDE	OV	2.25	U	N		UG/KG	4.500000	U	4.5	1	12
11SB460305	20111117	SO	CARBON TETRACHLORIDE	OV	2.28	U	N		UG/KG	4.550000	U	4.55	1	15.5
11SB460506	20111117	SO	CARBON TETRACHLORIDE	OV	108	U	N		UG/KG	215.000000	U	215	50	8.5
11SB470103	20111116	SO	CARBON TETRACHLORIDE	OV	2.8	U	N		UG/KG	5.600000	U	5.6	1	19.3
11SB470304	20111116	SO	CARBON TETRACHLORIDE	OV	2.45	U	N		UG/KG	4.910000	U	4.91	1	17.8
11SB480305	20111116	SO	CARBON TETRACHLORIDE	OV	2.84	U	N		UG/KG	5.680000	U	5.68	1	20.4
11SB480506	20111116	SO	CARBON TETRACHLORIDE	OV	2.45	U	N		UG/KG	4.890000	U	4.89	1	14.9
11SB490204	20111116	SO	CARBON TETRACHLORIDE	OV	2.79	U	N		UG/KG	5.580000	U	5.58	1	20.4
11SB490405	20111116	SO	CARBON TETRACHLORIDE	OV	2.41	U	N		UG/KG	4.810000	U	4.81	1	12.7
11SB500305	20111116	SO	CARBON TETRACHLORIDE	OV	2.5	U	N		UG/KG	4.990000	U	4.99	1	12.7
11SB500506	20111116	SO	CARBON TETRACHLORIDE	OV	2.22	U	N		UG/KG	4.440000	U	4.44	1	11.1
11SB010002	20110426	SO	CHLOROBENZENE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	21.1
11SB010002-D	20110426	SO	CHLOROBENZENE	OV	2.45	U	N		UG/KG	4.9	U	4.9	1	21
11SB010406	20110426	SO	CHLOROBENZENE	OV	2.38	U	N		UG/KG	4.75	U	4.75	1	17.7
11SB010406-D	20110426	SO	CHLOROBENZENE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	19.4
11SB020002	20110426	SO	CHLOROBENZENE	OV	2.74	U	N		UG/KG	5.47	U	5.47	1	20.6
11SB020406	20110426	SO	CHLOROBENZENE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	24.3
11SB030002	20110426	SO	CHLOROBENZENE	OV	2.81	U	N		UG/KG	5.62	U	5.62	1	18.7
11SB030406	20110426	SO	CHLOROBENZENE	OV	2.38	U	N		UG/KG	4.77	U	4.77	1	13.7
11SB040002	20110426	SO	CHLOROBENZENE	OV	2.98	U	N		UG/KG	5.97	U	5.97	1	20.9
11SB040406	20110426	SO	CHLOROBENZENE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	12.8
11SB250507	20110426	SO	CHLOROBENZENE	OV	2.9	U	N		UG/KG	5.79	U	5.79	1	18.9
11SB260507	20110427	SO	CHLOROBENZENE	OV	2.79	U	N		UG/KG	5.57	U	5.57	1	14.9
11SB270507	20110426	SO	CHLOROBENZENE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	14.1
11SB280507	20110426	SO	CHLOROBENZENE	OV	3.31	U	N		UG/KG	6.62	UN	6.62	1	28.9
11SB330406	20111116	SO	CHLOROBENZENE	OV	2.31	U	N		UG/KG	4.620000	U	4.62	1	14.9
11SB330607	20111116	SO	CHLOROBENZENE	OV	2.17	U	N		UG/KG	4.330000	U	4.33	1	14
11SB340406	20111116	SO	CHLOROBENZENE	OV	122	U	N		UG/KG	243.000000	U	243	50	17.6
11SB340708	20111116	SO	CHLOROBENZENE	OV	2.38	U	N		UG/KG	4.760000	U	4.76	1	17.6
11SB350305	20111116	SO	CHLOROBENZENE	OV	2.88	U	N		UG/KG	5.750000	U	5.75	1	17.6
11SB350506	20111116	SO	CHLOROBENZENE	OV	2.72	U	N		UG/KG	5.440000	U	5.44	1	17.6
11SB370103	20111116	SO	CHLOROBENZENE	OV	2.62	U	N		UG/KG	5.240000	U	5.24	1	15.5
11SB370304	20111116	SO	CHLOROBENZENE	OV	2.32	U	N		UG/KG	4.630000	U	4.63	1	13.4
11SB390406	20111115	SO	CHLOROBENZENE	OV	2.8	U	N		UG/KG	5.610000	U	5.61	1	51.6
11SB390708	20111115	SO	CHLOROBENZENE	OV	3.64	U	N		UG/KG	7.270000	U	7.27	1	39.4
11SB400305	20111115	SO	CHLOROBENZENE	OV	157	U	N		UG/KG	314.000000	U	314	50	33.3
11SB400506	20111115	SO	CHLOROBENZENE	OV	465	U	N		UG/KG	929.000000	U	929	100	51.6
11SB420102	20111116	SO	CHLOROBENZENE	OV	2.29	U	N		UG/KG	4.580000	U	4.58	1	17.6
11SB420203	20111116	SO	CHLOROBENZENE	OV	2.33	U	N		UG/KG	4.650000	U	4.65	1	14.4
11SB430406	20111116	SO	CHLOROBENZENE	OV	2.69	U	N		UG/KG	5.380000	U	5.38	1	22.3
11SB430809	20111116	SO	CHLOROBENZENE	OV	2.77	U	N		UG/KG	5.530000	U	5.53	1	15.7
11SB440406	20111116	SO	CHLOROBENZENE	OV	2.32	U	N		UG/KG	4.640000	U	4.64	1	15.7
11SB440607	20111116	SO	CHLOROBENZENE	OV	2.45	U	N		UG/KG	4.900000	U	4.9	1	11
11SB450204	20111116	SO	CHLOROBENZENE	OV	136	U	N		UG/KG	272.000000	U	272	50	21.1
11SB450506	20111116	SO	CHLOROBENZENE	OV	2.25	U	N		UG/KG	4.500000	U	4.5	1	12
11SB460305	20111117	SO	CHLOROBENZENE	OV	2.28	U	N		UG/KG	4.550000	U	4.55	1	15.5
11SB460506	20111117	SO	CHLOROBENZENE	OV	108	U	N		UG/KG	215.000000	U	215	50	8.5
11SB470103	20111116	SO	CHLOROBENZENE	OV	2.8	U	N		UG/KG	5.600000	U	5.6	1	19.3
11SB470304	20111116	SO	CHLOROBENZENE	OV	2.45	U	N		UG/KG	4.910000	U	4.91	1	17.8
11SB480305	20111116	SO	CHLOROBENZENE	OV	2.84	U	N		UG/KG	5.680000	U	5.68	1	20.4
11SB480506	20111116	SO	CHLOROBENZENE	OV	2.45	U	N		UG/KG	4.890000	U	4.89	1	14.9
11SB490204	20111116	SO	CHLOROBENZENE	OV	2.79	U	N		UG/KG	5.580000	U	5.58	1	20.4
11SB490405	20111116	SO	CHLOROBENZENE	OV	2.41	U	N		UG/KG	4.810000	U	4.81	1	12.7
11SB500305	20111116	SO	CHLOROBENZENE	OV	2.5	U	N		UG/KG	4.990000	U	4.99	1	12.7
11SB500506	20111116	SO	CHLOROBENZENE	OV	2.22	U	N		UG/KG	4.440000	U	4.44	1	11.1
11SB010002	20110426	SO	CHLORODIBROMOMETHANE	OV	2.51	U	N		UG/KG	5.03	UX	5.03	1	21.1
11SB010002-D	20110426	SO	CHLORODIBROMOMETHANE	OV	2.45	U	N		UG/KG	4.9	UX	4.9	1	21
11SB010406	20110426	SO	CHLORODIBROMOMETHANE	OV	2.38	U	N		UG/KG	4.75	UX	4.75	1	17.7
11SB010406-D	20110426	SO	CHLORODIBROMOMETHANE	OV	2.4	U	N		UG/KG	4.79	UX	4.79	1	19.4
11SB020002	20110426	SO	CHLORODIBROMOMETHANE	OV	2.74	U	N		UG/KG	5.47	U	5.47	1	20.6
11SB020406	20110426	SO	CHLORODIBROMOMETHANE	OV	2.55	U	N		UG/KG	5.1	UX	5.1	1	24.3
11SB030002	20110426	SO	CHLORODIBROMOMETHANE	OV	2.81	U	N		UG/KG	5.62	U	5.62	1	18.7
11SB030406	20110426	SO	CHLORODIBROMOMETHANE	OV	2.38	U	N		UG/KG	4.77	U	4.77	1	13.7

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB040002	20110426	SO	CHLORODIBROMOMETHANE	OV	2.98	U	N		UG/KG	5.97	UX	5.97	1	20.9
11SB040406	20110426	SO	CHLORODIBROMOMETHANE	OV	2.51	U	N		UG/KG	5.03	UX	5.03	1	12.8
11SB250507	20110426	SO	CHLORODIBROMOMETHANE	OV	2.9	U	N		UG/KG	5.79	UX	5.79	1	18.9
11SB260507	20110427	SO	CHLORODIBROMOMETHANE	OV	2.79	U	N		UG/KG	5.57	U	5.57	1	14.9
11SB270507	20110426	SO	CHLORODIBROMOMETHANE	OV	2.24	U	N		UG/KG	4.48	UX	4.48	1	14.1
11SB280507	20110426	SO	CHLORODIBROMOMETHANE	OV	3.31	U	N		UG/KG	6.62	UX	6.62	1	28.9
11SB330406	20111116	SO	CHLORODIBROMOMETHANE	OV	2.31	U	N		UG/KG	4.620000	U	4.62	1	14.9
11SB330607	20111116	SO	CHLORODIBROMOMETHANE	OV	2.17	U	N		UG/KG	4.330000	U	4.33	1	14
11SB340406	20111116	SO	CHLORODIBROMOMETHANE	OV	122	U	N		UG/KG	243.000000	U	243	50	17.6
11SB340708	20111116	SO	CHLORODIBROMOMETHANE	OV	2.38	U	N		UG/KG	4.760000	U	4.76	1	17.6
11SB350305	20111116	SO	CHLORODIBROMOMETHANE	OV	2.88	U	N		UG/KG	5.750000	U	5.75	1	17.6
11SB350506	20111116	SO	CHLORODIBROMOMETHANE	OV	2.72	U	N		UG/KG	5.440000	U	5.44	1	17.6
11SB360204	20111117	SO	CHLORODIBROMOMETHANE	OV	117	U	N		UG/KG	233.000000	U	233	50	15.5
11SB360405	20111117	SO	CHLORODIBROMOMETHANE	OV	113	U	N		UG/KG	226.000000	U	226	50	15.5
11SB360405-D	20111117	SO	CHLORODIBROMOMETHANE	OV	109	U	N		UG/KG	219.000000	U	219	50	13.3
11SB370103	20111116	SO	CHLORODIBROMOMETHANE	OV	2.62	U	N		UG/KG	5.240000	U	5.24	1	15.5
11SB370304	20111116	SO	CHLORODIBROMOMETHANE	OV	2.32	U	N		UG/KG	4.630000	U	4.63	1	13.4
11SB380406	20111115	SO	CHLORODIBROMOMETHANE	OV	3.9	U	N		UG/KG	7.790000	U	7.79	1	40.38
11SB380607	20111115	SO	CHLORODIBROMOMETHANE	OV	3.42	U	N		UG/KG	6.840000	U	6.84	1	38.4
11SB390406	20111115	SO	CHLORODIBROMOMETHANE	OV	2.8	U	N		UG/KG	5.610000	U	5.61	1	51.6
11SB390708	20111115	SO	CHLORODIBROMOMETHANE	OV	3.64	U	N		UG/KG	7.270000	U	7.27	1	39.4
11SB400305	20111115	SO	CHLORODIBROMOMETHANE	OV	157	U	N		UG/KG	314.000000	U	314	50	33.3
11SB400506	20111115	SO	CHLORODIBROMOMETHANE	OV	465	U	N		UG/KG	929.000000	U	929	100	51.6
11SB410204	20111117	SO	CHLORODIBROMOMETHANE	OV	114	U	N		UG/KG	228.000000	U	228	50	15.5
11SB410405	20111117	SO	CHLORODIBROMOMETHANE	OV	133	U	N		UG/KG	266.000000	U	266	50	15.5
11SB420102	20111116	SO	CHLORODIBROMOMETHANE	OV	2.29	U	N		UG/KG	4.580000	U	4.58	1	17.6
11SB420203	20111116	SO	CHLORODIBROMOMETHANE	OV	2.33	U	N		UG/KG	4.650000	U	4.65	1	14.4
11SB430406	20111116	SO	CHLORODIBROMOMETHANE	OV	2.69	U	N		UG/KG	5.380000	U	5.38	1	22.3
11SB430809	20111116	SO	CHLORODIBROMOMETHANE	OV	2.77	U	N		UG/KG	5.530000	U	5.53	1	15.7
11SB440406	20111116	SO	CHLORODIBROMOMETHANE	OV	2.32	U	N		UG/KG	4.640000	U	4.64	1	15.7
11SB440607	20111116	SO	CHLORODIBROMOMETHANE	OV	2.45	U	N		UG/KG	4.900000	U	4.9	1	11
11SB450204	20111116	SO	CHLORODIBROMOMETHANE	OV	136	U	N		UG/KG	272.000000	U	272	50	21.1
11SB450506	20111116	SO	CHLORODIBROMOMETHANE	OV	2.25	U	N		UG/KG	4.500000	U	4.5	1	12
11SB460305	20111117	SO	CHLORODIBROMOMETHANE	OV	2.28	U	N		UG/KG	4.550000	U	4.55	1	15.5
11SB460506	20111117	SO	CHLORODIBROMOMETHANE	OV	108	U	N		UG/KG	215.000000	U	215	50	8.5
11SB470103	20111116	SO	CHLORODIBROMOMETHANE	OV	2.8	U	N		UG/KG	5.600000	U	5.6	1	19.3
11SB470304	20111116	SO	CHLORODIBROMOMETHANE	OV	2.45	U	N		UG/KG	4.910000	U	4.91	1	17.8
11SB480305	20111116	SO	CHLORODIBROMOMETHANE	OV	2.84	U	N		UG/KG	5.680000	U	5.68	1	20.4
11SB480506	20111116	SO	CHLORODIBROMOMETHANE	OV	2.45	U	N		UG/KG	4.890000	U	4.89	1	14.9
11SB490204	20111116	SO	CHLORODIBROMOMETHANE	OV	2.79	U	N		UG/KG	5.580000	U	5.58	1	20.4
11SB490405	20111116	SO	CHLORODIBROMOMETHANE	OV	2.41	U	N		UG/KG	4.810000	U	4.81	1	12.7
11SB500305	20111116	SO	CHLORODIBROMOMETHANE	OV	2.5	U	N		UG/KG	4.990000	U	4.99	1	12.7
11SB500506	20111116	SO	CHLORODIBROMOMETHANE	OV	2.22	U	N		UG/KG	4.440000	U	4.44	1	11.1
11SB020002	20110426	SO	CHLOROETHANE	OV	5.47	U	N		UG/KG	10.9	U	10.9	1	20.6
11SB030002	20110426	SO	CHLOROETHANE	OV	5.62	U	N		UG/KG	11.2	U	11.2	1	18.7
11SB030406	20110426	SO	CHLOROETHANE	OV	4.77	U	N		UG/KG	9.53	U	9.53	1	13.7
11SB260507	20110427	SO	CHLOROETHANE	OV	5.57	U	N		UG/KG	11.1	U	11.1	1	14.9
11SB330406	20111116	SO	CHLOROETHANE	OV	4.62	U	N		UG/KG	9.230000	U	9.23	1	14.9
11SB330607	20111116	SO	CHLOROETHANE	OV	4.33	U	N		UG/KG	8.670000	U	8.67	1	14
11SB340406	20111116	SO	CHLOROETHANE	OV	243	U	N		UG/KG	487.000000	U	487	50	17.6
11SB340708	20111116	SO	CHLOROETHANE	OV	4.76	U	N		UG/KG	9.530000	U	9.53	1	17.6
11SB350305	20111116	SO	CHLOROETHANE	OV	5.75	U	N		UG/KG	11.500000	U	11.5	1	17.6
11SB350506	20111116	SO	CHLOROETHANE	OV	5.44	U	N		UG/KG	10.900000	U	10.9	1	17.6
11SB360204	20111117	SO	CHLOROETHANE	OV	233	U	N		UG/KG	466.000000	U	466	50	15.5
11SB360405	20111117	SO	CHLOROETHANE	OV	226	U	N		UG/KG	453.000000	U	453	50	15.5
11SB360405-D	20111117	SO	CHLOROETHANE	OV	219	U	N		UG/KG	437.000000	U	437	50	13.3
11SB370103	20111116	SO	CHLOROETHANE	OV	5.24	U	N		UG/KG	10.500000	U	10.5	1	15.5
11SB370304	20111116	SO	CHLOROETHANE	OV	4.63	U	N		UG/KG	9.260000	U	9.26	1	13.4
11SB380406	20111115	SO	CHLOROETHANE	OV	7.79	U	N		UG/KG	15.600000	U	15.6	1	40.38
11SB380607	20111115	SO	CHLOROETHANE	OV	6.84	U	N		UG/KG	13.700000	U	13.7	1	38.4
11SB390406	20111115	SO	CHLOROETHANE	OV	5.61	U	N		UG/KG	11.200000	U	11.2	1	51.6
11SB390708	20111115	SO	CHLOROETHANE	OV	7.27	U	N		UG/KG	14.500000	U	14.5	1	39.4
11SB400305	20111115	SO	CHLOROETHANE	OV	314	U	N		UG/KG	628.000000	U	628	50	33.3
11SB400506	20111115	SO	CHLOROETHANE	OV	929	U	N		UG/KG	1860.00000	U	1860	100	51.6
11SB410204	20111117	SO	CHLOROETHANE	OV	228	U	N		UG/KG	456.000000	U	456	50	15.5
11SB410405	20111117	SO	CHLOROETHANE	OV	266	U	N		UG/KG	532.000000	U	532	50	15.5
11SB420102	20111116	SO	CHLOROETHANE	OV	4.58	U	N		UG/KG	9.160000	U	9.16	1	17.6
11SB420203	20111116	SO	CHLOROETHANE	OV	4.65	U	N		UG/KG	9.300000	U	9.3	1	14.4
11SB430406	20111116	SO	CHLOROETHANE	OV	5.38	U	N		UG/KG	10.800000	U	10.8	1	22.3
11SB430809	20111116	SO	CHLOROETHANE	OV	5.53	U	N		UG/KG	11.100000	U	11.1	1	15.7
11SB440406	20111116	SO	CHLOROETHANE	OV	4.64	U	N		UG/KG	9.280000	U	9.28	1	15.7
11SB440607	20111116	SO	CHLOROETHANE	OV	4.9	U	N		UG/KG	9.800000	U	9.8	1	11
11SB450204	20111116	SO	CHLOROETHANE	OV	272	U	N		UG/KG	543.000000	U	543	50	21.1
11SB450506	20111116	SO	CHLOROETHANE	OV	4.5	U	N		UG/KG	8.990000	U	8.99	1	12
11SB460305	20111117	SO	CHLOROETHANE	OV	4.55	U	N		UG/KG	9.100000	U	9.1	1	15.5
11SB460506	20111117	SO	CHLOROETHANE	OV	215	U	N		UG/KG	430.000000	U	430	50	8.5
11SB470103	20111116	SO	CHLOROETHANE	OV	5.6	U	N		UG/KG	11.200000	U	11.2	1	19.3
11SB470304	20111116	SO	CHLOROETHANE	OV	4.91	U	N		UG/KG	9.810000	U	9.81	1	17.8
11SB480305	20111116	SO	CHLOROETHANE	OV	5.68	U	N		UG/KG	11.400000	U	11.4	1	20.4
11SB480506	20111116	SO	CHLOROETHANE	OV	4.89	U	N		UG/KG	9.780000	U	9.78	1	14.9
11SB490204	20111116	SO	CHLOROETHANE	OV	5.58	U	N		UG/KG	11.200000	U	11.2	1	20.4

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB490405	20111116	SO	CHLOROETHANE	OV	4.81	U	N		UG/KG	9.630000	U	9.63	1	12.7
11SB500305	20111116	SO	CHLOROETHANE	OV	4.99	U	N		UG/KG	9.980000	U	9.98	1	12.7
11SB500506	20111116	SO	CHLOROETHANE	OV	4.44	U	N		UG/KG	8.870000	U	8.87	1	11.1
11SB010002	20110426	SO	CHLOROFORM	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	21.1
11SB010002-D	20110426	SO	CHLOROFORM	OV	2.45	U	N		UG/KG	4.9	U	4.9	1	21
11SB010406	20110426	SO	CHLOROFORM	OV	2.38	U	N		UG/KG	4.75	U	4.75	1	17.7
11SB010406-D	20110426	SO	CHLOROFORM	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	19.4
11SB020002	20110426	SO	CHLOROFORM	OV	2.74	U	N		UG/KG	5.47	U	5.47	1	20.6
11SB020406	20110426	SO	CHLOROFORM	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	24.3
11SB030002	20110426	SO	CHLOROFORM	OV	2.81	U	N		UG/KG	5.62	U	5.62	1	18.7
11SB030406	20110426	SO	CHLOROFORM	OV	2.38	U	N		UG/KG	4.77	U	4.77	1	13.7
11SB040002	20110426	SO	CHLOROFORM	OV	2.98	U	N		UG/KG	5.97	U	5.97	1	20.9
11SB040406	20110426	SO	CHLOROFORM	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	12.8
11SB250507	20110426	SO	CHLOROFORM	OV	2.9	U	N		UG/KG	5.79	U	5.79	1	18.9
11SB260507	20110427	SO	CHLOROFORM	OV	2.79	U	N		UG/KG	5.57	U	5.57	1	14.9
11SB270507	20110426	SO	CHLOROFORM	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	14.1
11SB280507	20110426	SO	CHLOROFORM	OV	3.31	U	N		UG/KG	6.62	U	6.62	1	28.9
11SB330406	20111116	SO	CHLOROFORM	OV	2.31	U	N		UG/KG	4.620000	U	4.62	1	14.9
11SB330607	20111116	SO	CHLOROFORM	OV	2.17	U	N		UG/KG	4.330000	U	4.33	1	14
11SB340406	20111116	SO	CHLOROFORM	OV	122	U	N		UG/KG	243.000000	U	243	50	17.6
11SB340708	20111116	SO	CHLOROFORM	OV	2.38	U	N		UG/KG	4.760000	U	4.76	1	17.6
11SB350305	20111116	SO	CHLOROFORM	OV	2.88	U	N		UG/KG	5.750000	U	5.75	1	17.6
11SB350506	20111116	SO	CHLOROFORM	OV	2.72	U	N		UG/KG	5.440000	U	5.44	1	17.6
11SB360204	20111117	SO	CHLOROFORM	OV	117	U	N		UG/KG	233.000000	U	233	50	15.5
11SB360405	20111117	SO	CHLOROFORM	OV	113	U	N		UG/KG	226.000000	U	226	50	15.5
11SB360405-D	20111117	SO	CHLOROFORM	OV	109	U	N		UG/KG	219.000000	U	219	50	13.3
11SB370103	20111116	SO	CHLOROFORM	OV	2.62	U	N		UG/KG	5.240000	U	5.24	1	15.5
11SB370304	20111116	SO	CHLOROFORM	OV	2.32	U	N		UG/KG	4.630000	U	4.63	1	13.4
11SB380406	20111115	SO	CHLOROFORM	OV	3.9	U	N		UG/KG	7.790000	U	7.79	1	40.38
11SB380607	20111115	SO	CHLOROFORM	OV	3.42	U	N		UG/KG	6.840000	U	6.84	1	38.4
11SB390406	20111115	SO	CHLOROFORM	OV	2.8	U	N		UG/KG	5.610000	U	5.61	1	51.6
11SB390708	20111115	SO	CHLOROFORM	OV	3.64	U	N		UG/KG	7.270000	U	7.27	1	39.4
11SB400305	20111115	SO	CHLOROFORM	OV	157	U	N		UG/KG	314.000000	U	314	50	33.3
11SB400506	20111115	SO	CHLOROFORM	OV	465	U	N		UG/KG	929.000000	U	929	100	51.6
11SB410204	20111117	SO	CHLOROFORM	OV	114	U	N		UG/KG	228.000000	U	228	50	15.5
11SB410405	20111117	SO	CHLOROFORM	OV	133	U	N		UG/KG	266.000000	U	266	50	15.5
11SB420102	20111116	SO	CHLOROFORM	OV	2.29	U	N		UG/KG	4.580000	U	4.58	1	17.6
11SB420203	20111116	SO	CHLOROFORM	OV	2.33	U	N		UG/KG	4.650000	U	4.65	1	14.4
11SB430406	20111116	SO	CHLOROFORM	OV	2.69	U	N		UG/KG	5.380000	U	5.38	1	22.3
11SB430809	20111116	SO	CHLOROFORM	OV	2.77	U	N		UG/KG	5.530000	U	5.53	1	15.7
11SB440406	20111116	SO	CHLOROFORM	OV	2.32	U	N		UG/KG	4.640000	U	4.64	1	15.7
11SB440607	20111116	SO	CHLOROFORM	OV	2.45	U	N		UG/KG	4.900000	U	4.9	1	11
11SB450204	20111116	SO	CHLOROFORM	OV	136	U	N		UG/KG	272.000000	U	272	50	21.1
11SB450506	20111116	SO	CHLOROFORM	OV	2.25	U	N		UG/KG	4.500000	U	4.5	1	12
11SB460305	20111117	SO	CHLOROFORM	OV	2.28	U	N		UG/KG	4.550000	U	4.55	1	15.5
11SB460506	20111117	SO	CHLOROFORM	OV	108	U	N		UG/KG	215.000000	U	215	50	8.5
11SB470103	20111116	SO	CHLOROFORM	OV	2.8	U	N		UG/KG	5.600000	U	5.6	1	19.3
11SB470304	20111116	SO	CHLOROFORM	OV	2.45	U	N		UG/KG	4.910000	U	4.91	1	17.8
11SB480305	20111116	SO	CHLOROFORM	OV	2.84	U	N		UG/KG	5.680000	U	5.68	1	20.4
11SB480506	20111116	SO	CHLOROFORM	OV	2.45	U	N		UG/KG	4.890000	U	4.89	1	14.9
11SB490204	20111116	SO	CHLOROFORM	OV	2.79	U	N		UG/KG	5.580000	U	5.58	1	20.4
11SB490405	20111116	SO	CHLOROFORM	OV	2.41	U	N		UG/KG	4.810000	U	4.81	1	12.7
11SB500305	20111116	SO	CHLOROFORM	OV	2.5	U	N		UG/KG	4.990000	U	4.99	1	12.7
11SB500506	20111116	SO	CHLOROFORM	OV	2.22	U	N		UG/KG	4.440000	U	4.44	1	11.1
11SB010002	20110426	SO	CHLOROMETHANE	OV	5.03	U	N		UG/KG	10.1	U	10.1	1	21.1
11SB010002-D	20110426	SO	CHLOROMETHANE	OV	4.9	U	N		UG/KG	9.8	U	9.8	1	21
11SB010406	20110426	SO	CHLOROMETHANE	OV	4.75	U	N		UG/KG	9.5	U	9.5	1	17.7
11SB010406-D	20110426	SO	CHLOROMETHANE	OV	4.79	U	N		UG/KG	9.59	U	9.59	1	19.4
11SB020002	20110426	SO	CHLOROMETHANE	OV	5.47	U	N		UG/KG	10.9	U	10.9	1	20.6
11SB020406	20110426	SO	CHLOROMETHANE	OV	5.1	U	N		UG/KG	10.2	U	10.2	1	24.3
11SB030002	20110426	SO	CHLOROMETHANE	OV	5.62	U	N		UG/KG	11.2	U	11.2	1	18.7
11SB030406	20110426	SO	CHLOROMETHANE	OV	4.77	U	N		UG/KG	9.53	U	9.53	1	13.7
11SB040002	20110426	SO	CHLOROMETHANE	OV	5.97	U	N		UG/KG	11.9	U	11.9	1	20.9
11SB040406	20110426	SO	CHLOROMETHANE	OV	5.03	U	N		UG/KG	10.1	U	10.1	1	12.8
11SB250507	20110426	SO	CHLOROMETHANE	OV	5.79	U	N		UG/KG	11.6	U	11.6	1	18.9
11SB260507	20110427	SO	CHLOROMETHANE	OV	5.57	U	N		UG/KG	11.1	U	11.1	1	14.9
11SB270507	20110426	SO	CHLOROMETHANE	OV	4.48	U	N		UG/KG	8.97	U	8.97	1	14.1
11SB280507	20110426	SO	CHLOROMETHANE	OV	6.62	U	N		UG/KG	13.2	U	13.2	1	28.9
11SB330406	20111116	SO	CHLOROMETHANE	OV	4.62	U	N		UG/KG	9.230000	U	9.23	1	14.9
11SB330607	20111116	SO	CHLOROMETHANE	OV	4.33	U	N		UG/KG	8.670000	U	8.67	1	14
11SB340406	20111116	SO	CHLOROMETHANE	OV	243	U	N		UG/KG	487.000000	U	487	50	17.6
11SB340708	20111116	SO	CHLOROMETHANE	OV	4.76	U	N		UG/KG	9.530000	U	9.53	1	17.6
11SB350305	20111116	SO	CHLOROMETHANE	OV	5.75	U	N		UG/KG	11.500000	U	11.5	1	17.6
11SB350506	20111116	SO	CHLOROMETHANE	OV	5.44	U	N		UG/KG	10.900000	U	10.9	1	17.6
11SB360204	20111117	SO	CHLOROMETHANE	OV	233	U	N		UG/KG	466.000000	U	466	50	15.5
11SB360405	20111117	SO	CHLOROMETHANE	OV	226	U	N		UG/KG	453.000000	U	453	50	15.5
11SB360405-D	20111117	SO	CHLOROMETHANE	OV	219	U	N		UG/KG	437.000000	U	437	50	13.3
11SB370103	20111116	SO	CHLOROMETHANE	OV	5.24	U	N		UG/KG	10.500000	U	10.5	1	15.5
11SB370304	20111116	SO	CHLOROMETHANE	OV	4.63	U	N		UG/KG	9.260000	U	9.26	1	13.4
11SB380406	20111115	SO	CHLOROMETHANE	OV	7.79	U	N		UG/KG	15.600000	U	15.6	1	40.38
11SB380607	20111115	SO	CHLOROMETHANE	OV	6.84	U	N		UG/KG	13.700000	U	13.7	1	38.4

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB390406	20111115	SO	CHLOROMETHANE	OV	5.61	U	N		UG/KG	11.200000	U	11.2	1	51.6
11SB390708	20111115	SO	CHLOROMETHANE	OV	7.27	U	N		UG/KG	14.500000	U	14.5	1	39.4
11SB400305	20111115	SO	CHLOROMETHANE	OV	314	U	N		UG/KG	628.000000	U	628	50	33.3
11SB400506	20111115	SO	CHLOROMETHANE	OV	929	U	N		UG/KG	1860.00000	U	1860	100	51.6
11SB410204	20111117	SO	CHLOROMETHANE	OV	228	U	N		UG/KG	456.000000	U	456	50	15.5
11SB410405	20111117	SO	CHLOROMETHANE	OV	266	U	N		UG/KG	532.000000	U	532	50	15.5
11SB420102	20111116	SO	CHLOROMETHANE	OV	4.58	U	N		UG/KG	9.160000	U	9.16	1	17.6
11SB420203	20111116	SO	CHLOROMETHANE	OV	4.65	U	N		UG/KG	9.300000	U	9.3	1	14.4
11SB430406	20111116	SO	CHLOROMETHANE	OV	5.38	U	N		UG/KG	10.800000	U	10.8	1	22.3
11SB430809	20111116	SO	CHLOROMETHANE	OV	5.53	U	N		UG/KG	11.100000	U	11.1	1	15.7
11SB440406	20111116	SO	CHLOROMETHANE	OV	4.64	U	N		UG/KG	9.280000	U	9.28	1	15.7
11SB440607	20111116	SO	CHLOROMETHANE	OV	4.9	U	N		UG/KG	9.800000	U	9.8	1	11
11SB450204	20111116	SO	CHLOROMETHANE	OV	272	U	N		UG/KG	543.000000	U	543	50	21.1
11SB450506	20111116	SO	CHLOROMETHANE	OV	4.5	U	N		UG/KG	8.990000	U	8.99	1	12
11SB460305	20111117	SO	CHLOROMETHANE	OV	4.55	U	N		UG/KG	9.100000	U	9.1	1	15.5
11SB460506	20111117	SO	CHLOROMETHANE	OV	215	U	N		UG/KG	430.000000	U	430	50	8.5
11SB470103	20111116	SO	CHLOROMETHANE	OV	5.6	U	N		UG/KG	11.200000	U	11.2	1	19.3
11SB470304	20111116	SO	CHLOROMETHANE	OV	4.91	U	N		UG/KG	9.810000	U	9.81	1	17.8
11SB480305	20111116	SO	CHLOROMETHANE	OV	5.68	U	N		UG/KG	11.400000	U	11.4	1	20.4
11SB480506	20111116	SO	CHLOROMETHANE	OV	4.89	U	N		UG/KG	9.780000	U	9.78	1	14.9
11SB490204	20111116	SO	CHLOROMETHANE	OV	5.58	U	N		UG/KG	11.200000	U	11.2	1	20.4
11SB490405	20111116	SO	CHLOROMETHANE	OV	4.81	U	N		UG/KG	9.630000	U	9.63	1	12.7
11SB500305	20111116	SO	CHLOROMETHANE	OV	4.99	U	N		UG/KG	9.980000	U	9.98	1	12.7
11SB500506	20111116	SO	CHLOROMETHANE	OV	4.44	U	N		UG/KG	8.870000	U	8.87	1	11.1
11SB030002	20110426	SO	CIS-1,2-DICHLOROETHENE	OV	2.81	U	N		UG/KG	5.62	U	5.62	1	18.7
11SB030406	20110426	SO	CIS-1,2-DICHLOROETHENE	OV	2.38	U	N		UG/KG	4.77	U	4.77	1	13.7
11SB040002	20110426	SO	CIS-1,2-DICHLOROETHENE	OV	2.98	U	N		UG/KG	5.97	U	5.97	1	20.9
11SB040406	20110426	SO	CIS-1,2-DICHLOROETHENE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	12.8
11SB250507	20110426	SO	CIS-1,2-DICHLOROETHENE	OV	2.9	U	N		UG/KG	5.79	U	5.79	1	18.9
11SB260507	20110427	SO	CIS-1,2-DICHLOROETHENE	OV	2.79	U	N		UG/KG	5.57	U	5.57	1	14.9
11SB270507	20110426	SO	CIS-1,2-DICHLOROETHENE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	14.1
11SB280507	20110426	SO	CIS-1,2-DICHLOROETHENE	OV	3.31	U	N		UG/KG	6.62	UN	6.62	1	28.9
11SB340406	20111116	SO	CIS-1,2-DICHLOROETHENE	OV	122	U	N		UG/KG	243.000000	U	243	50	17.6
11SB350305	20111116	SO	CIS-1,2-DICHLOROETHENE	OV	2.88	U	N		UG/KG	5.750000	U	5.75	1	17.6
11SB360204	20111117	SO	CIS-1,2-DICHLOROETHENE	OV	117	U	N		UG/KG	233.000000	U	233	50	15.5
11SB360405	20111117	SO	CIS-1,2-DICHLOROETHENE	OV	113	U	N		UG/KG	226.000000	U	226	50	15.5
11SB360405-D	20111117	SO	CIS-1,2-DICHLOROETHENE	OV	109	U	N		UG/KG	219.000000	U	219	50	13.3
11SB370103	20111116	SO	CIS-1,2-DICHLOROETHENE	OV	2.62	U	N		UG/KG	5.240000	U	5.24	1	15.5
11SB370304	20111116	SO	CIS-1,2-DICHLOROETHENE	OV	2.32	U	N		UG/KG	4.630000	U	4.63	1	13.4
11SB390406	20111115	SO	CIS-1,2-DICHLOROETHENE	OV	2.8	U	N		UG/KG	5.610000	U	5.61	1	51.6
11SB420102	20111116	SO	CIS-1,2-DICHLOROETHENE	OV	2.29	U	N		UG/KG	4.580000	U	4.58	1	17.6
11SB420203	20111116	SO	CIS-1,2-DICHLOROETHENE	OV	2.33	U	N		UG/KG	4.650000	U	4.65	1	14.4
11SB430406	20111116	SO	CIS-1,2-DICHLOROETHENE	OV	2.69	U	N		UG/KG	5.380000	U	5.38	1	22.3
11SB440406	20111116	SO	CIS-1,2-DICHLOROETHENE	OV	2.32	U	N		UG/KG	4.640000	U	4.64	1	15.7
11SB450204	20111116	SO	CIS-1,2-DICHLOROETHENE	OV	136	U	N		UG/KG	272.000000	U	272	50	21.1
11SB450506	20111116	SO	CIS-1,2-DICHLOROETHENE	OV	2.25	U	N		UG/KG	4.500000	U	4.5	1	12
11SB470103	20111116	SO	CIS-1,2-DICHLOROETHENE	OV	2.8	U	N		UG/KG	5.600000	U	5.6	1	19.3
11SB470304	20111116	SO	CIS-1,2-DICHLOROETHENE	OV	2.45	U	N		UG/KG	4.910000	U	4.91	1	17.8
11SB480305	20111116	SO	CIS-1,2-DICHLOROETHENE	OV	2.84	U	N		UG/KG	5.680000	U	5.68	1	20.4
11SB480506	20111116	SO	CIS-1,2-DICHLOROETHENE	OV	2.45	U	N		UG/KG	4.890000	U	4.89	1	14.9
11SB490204	20111116	SO	CIS-1,2-DICHLOROETHENE	OV	2.79	U	N		UG/KG	5.580000	U	5.58	1	20.4
11SB490405	20111116	SO	CIS-1,2-DICHLOROETHENE	OV	2.41	U	N		UG/KG	4.810000	U	4.81	1	12.7
11SB500305	20111116	SO	CIS-1,2-DICHLOROETHENE	OV	2.5	U	N		UG/KG	4.990000	U	4.99	1	12.7
11SB500506	20111116	SO	CIS-1,2-DICHLOROETHENE	OV	2.22	U	N		UG/KG	4.440000	U	4.44	1	11.1
11SB010002	20110426	SO	CIS-1,3-DICHLOROPROPENE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	21.1
11SB010002-D	20110426	SO	CIS-1,3-DICHLOROPROPENE	OV	2.45	U	N		UG/KG	4.9	U	4.9	1	21
11SB010406	20110426	SO	CIS-1,3-DICHLOROPROPENE	OV	2.38	U	N		UG/KG	4.75	U	4.75	1	17.7
11SB010406-D	20110426	SO	CIS-1,3-DICHLOROPROPENE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	19.4
11SB020002	20110426	SO	CIS-1,3-DICHLOROPROPENE	OV	2.74	U	N		UG/KG	5.47	U	5.47	1	20.6
11SB020406	20110426	SO	CIS-1,3-DICHLOROPROPENE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	24.3
11SB030002	20110426	SO	CIS-1,3-DICHLOROPROPENE	OV	2.81	U	N		UG/KG	5.62	U	5.62	1	18.7
11SB030406	20110426	SO	CIS-1,3-DICHLOROPROPENE	OV	2.38	U	N		UG/KG	4.77	U	4.77	1	13.7
11SB040002	20110426	SO	CIS-1,3-DICHLOROPROPENE	OV	2.98	U	N		UG/KG	5.97	U	5.97	1	20.9
11SB040406	20110426	SO	CIS-1,3-DICHLOROPROPENE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	12.8
11SB250507	20110426	SO	CIS-1,3-DICHLOROPROPENE	OV	2.9	U	N		UG/KG	5.79	U	5.79	1	18.9
11SB260507	20110427	SO	CIS-1,3-DICHLOROPROPENE	OV	2.79	U	N		UG/KG	5.57	U	5.57	1	14.9
11SB270507	20110426	SO	CIS-1,3-DICHLOROPROPENE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	14.1
11SB280507	20110426	SO	CIS-1,3-DICHLOROPROPENE	OV	3.31	U	N		UG/KG	6.62	UN	6.62	1	28.9
11SB330406	20111116	SO	CIS-1,3-DICHLOROPROPENE	OV	2.31	U	N		UG/KG	4.620000	U	4.62	1	14.9
11SB330607	20111116	SO	CIS-1,3-DICHLOROPROPENE	OV	2.17	U	N		UG/KG	4.330000	U	4.33	1	14
11SB340406	20111116	SO	CIS-1,3-DICHLOROPROPENE	OV	122	U	N		UG/KG	243.000000	U	243	50	17.6
11SB340708	20111116	SO	CIS-1,3-DICHLOROPROPENE	OV	2.38	U	N		UG/KG	4.760000	U	4.76	1	17.6
11SB350305	20111116	SO	CIS-1,3-DICHLOROPROPENE	OV	2.88	U	N		UG/KG	5.750000	U	5.75	1	17.6
11SB350506	20111116	SO	CIS-1,3-DICHLOROPROPENE	OV	2.72	U	N		UG/KG	5.440000	U	5.44	1	17.6
11SB360204	20111117	SO	CIS-1,3-DICHLOROPROPENE	OV	117	U	N		UG/KG	233.000000	U	233	50	15.5
11SB360405	20111117	SO	CIS-1,3-DICHLOROPROPENE	OV	113	U	N		UG/KG	226.000000	U	226	50	15.5
11SB360405-D	20111117	SO	CIS-1,3-DICHLOROPROPENE	OV	109	U	N		UG/KG	219.000000	U	219	50	13.3
11SB370103	20111116	SO	CIS-1,3-DICHLOROPROPENE	OV	2.62	U	N		UG/KG	5.240000	U	5.24	1	15.5
11SB370304	20111116	SO	CIS-1,3-DICHLOROPROPENE	OV	2.32	U	N		UG/KG	4.630000	U	4.63	1	13.4
11SB380406	20111115	SO	CIS-1,3-DICHLOROPROPENE	OV	3.9	U	N		UG/KG	7.790000	U	7.79	1	40.38
11SB380607	20111115	SO	CIS-1,3-DICHLOROPROPENE	OV	3.42	U	N		UG/KG	6.840000	U	6.84	1	38.4

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB390406	20111115	SO	CIS-1,3-DICHLOROPROPENE	OV	2.8	U	N		UG/KG	5.610000	U	5.61	1	51.6
11SB390708	20111115	SO	CIS-1,3-DICHLOROPROPENE	OV	3.64	U	N		UG/KG	7.270000	U	7.27	1	39.4
11SB400305	20111115	SO	CIS-1,3-DICHLOROPROPENE	OV	157	U	N		UG/KG	314.000000	U	314	50	33.3
11SB400506	20111115	SO	CIS-1,3-DICHLOROPROPENE	OV	465	U	N		UG/KG	929.000000	U	929	100	51.6
11SB410204	20111117	SO	CIS-1,3-DICHLOROPROPENE	OV	114	U	N		UG/KG	228.000000	U	228	50	15.5
11SB410405	20111117	SO	CIS-1,3-DICHLOROPROPENE	OV	133	U	N		UG/KG	266.000000	U	266	50	15.5
11SB420102	20111116	SO	CIS-1,3-DICHLOROPROPENE	OV	2.29	U	N		UG/KG	4.580000	U	4.58	1	17.6
11SB420203	20111116	SO	CIS-1,3-DICHLOROPROPENE	OV	2.33	U	N		UG/KG	4.650000	U	4.65	1	14.4
11SB430406	20111116	SO	CIS-1,3-DICHLOROPROPENE	OV	2.69	U	N		UG/KG	5.380000	U	5.38	1	22.3
11SB430809	20111116	SO	CIS-1,3-DICHLOROPROPENE	OV	2.77	U	N		UG/KG	5.530000	U	5.53	1	15.7
11SB440406	20111116	SO	CIS-1,3-DICHLOROPROPENE	OV	2.32	U	N		UG/KG	4.640000	U	4.64	1	15.7
11SB440607	20111116	SO	CIS-1,3-DICHLOROPROPENE	OV	2.45	U	N		UG/KG	4.900000	U	4.9	1	11
11SB450204	20111116	SO	CIS-1,3-DICHLOROPROPENE	OV	136	U	N		UG/KG	272.000000	U	272	50	21.1
11SB450506	20111116	SO	CIS-1,3-DICHLOROPROPENE	OV	2.25	U	N		UG/KG	4.500000	U	4.5	1	12
11SB460305	20111117	SO	CIS-1,3-DICHLOROPROPENE	OV	2.28	U	N		UG/KG	4.550000	U	4.55	1	15.5
11SB460506	20111117	SO	CIS-1,3-DICHLOROPROPENE	OV	108	U	N		UG/KG	215.000000	U	215	50	8.5
11SB470103	20111116	SO	CIS-1,3-DICHLOROPROPENE	OV	2.8	U	N		UG/KG	5.600000	U	5.6	1	19.3
11SB470304	20111116	SO	CIS-1,3-DICHLOROPROPENE	OV	2.45	U	N		UG/KG	4.910000	U	4.91	1	17.8
11SB480305	20111116	SO	CIS-1,3-DICHLOROPROPENE	OV	2.84	U	N		UG/KG	5.680000	U	5.68	1	20.4
11SB480506	20111116	SO	CIS-1,3-DICHLOROPROPENE	OV	2.45	U	N		UG/KG	4.890000	U	4.89	1	14.9
11SB490204	20111116	SO	CIS-1,3-DICHLOROPROPENE	OV	2.79	U	N		UG/KG	5.580000	U	5.58	1	20.4
11SB490405	20111116	SO	CIS-1,3-DICHLOROPROPENE	OV	2.41	U	N		UG/KG	4.810000	U	4.81	1	12.7
11SB500305	20111116	SO	CIS-1,3-DICHLOROPROPENE	OV	2.5	U	N		UG/KG	4.990000	U	4.99	1	12.7
11SB500506	20111116	SO	CIS-1,3-DICHLOROPROPENE	OV	2.22	U	N		UG/KG	4.440000	U	4.44	1	11.1
11SB020002	20110426	SO	CYCLOHEXANE	OV	2.74	U	N		UG/KG	5.47	U	5.47	1	20.6
11SB030002	20110426	SO	CYCLOHEXANE	OV	2.81	U	N		UG/KG	5.62	U	5.62	1	18.7
11SB030406	20110426	SO	CYCLOHEXANE	OV	2.38	U	N		UG/KG	4.77	U	4.77	1	13.7
11SB260507	20110427	SO	CYCLOHEXANE	OV	2.79	U	N		UG/KG	5.57	U	5.57	1	14.9
11SB330406	20111116	SO	CYCLOHEXANE	OV	2.31	U	N		UG/KG	4.620000	U	4.62	1	14.9
11SB330607	20111116	SO	CYCLOHEXANE	OV	2.17	U	N		UG/KG	4.330000	U	4.33	1	14
11SB340406	20111116	SO	CYCLOHEXANE	OV	122	U	N		UG/KG	243.000000	U	243	50	17.6
11SB340708	20111116	SO	CYCLOHEXANE	OV	2.38	U	N		UG/KG	4.760000	U	4.76	1	17.6
11SB350305	20111116	SO	CYCLOHEXANE	OV	2.88	U	N		UG/KG	5.750000	U	5.75	1	17.6
11SB350506	20111116	SO	CYCLOHEXANE	OV	2.72	U	N		UG/KG	5.440000	U	5.44	1	17.6
11SB360204	20111117	SO	CYCLOHEXANE	OV	117	U	N		UG/KG	233.000000	U	233	50	15.5
11SB360405	20111117	SO	CYCLOHEXANE	OV	113	U	N		UG/KG	226.000000	U	226	50	15.5
11SB360405-D	20111117	SO	CYCLOHEXANE	OV	109	U	N		UG/KG	219.000000	U	219	50	13.3
11SB370103	20111116	SO	CYCLOHEXANE	OV	2.62	U	N		UG/KG	5.240000	U	5.24	1	15.5
11SB370304	20111116	SO	CYCLOHEXANE	OV	2.32	U	N		UG/KG	4.630000	U	4.63	1	13.4
11SB380406	20111115	SO	CYCLOHEXANE	OV	3.9	U	N		UG/KG	7.790000	U	7.79	1	40.38
11SB380607	20111115	SO	CYCLOHEXANE	OV	3.42	U	N		UG/KG	6.840000	U	6.84	1	38.4
11SB390406	20111115	SO	CYCLOHEXANE	OV	2.8	U	N		UG/KG	5.610000	U	5.61	1	51.6
11SB390708	20111115	SO	CYCLOHEXANE	OV	3.64	U	N		UG/KG	7.270000	U	7.27	1	39.4
11SB400305	20111115	SO	CYCLOHEXANE	OV	157	U	N		UG/KG	314.000000	U	314	50	33.3
11SB400506	20111115	SO	CYCLOHEXANE	OV	465	U	N		UG/KG	929.000000	U	929	100	51.6
11SB410204	20111117	SO	CYCLOHEXANE	OV	114	U	N		UG/KG	228.000000	U	228	50	15.5
11SB410405	20111117	SO	CYCLOHEXANE	OV	133	U	N		UG/KG	266.000000	U	266	50	15.5
11SB420102	20111116	SO	CYCLOHEXANE	OV	2.29	U	N		UG/KG	4.580000	U	4.58	1	17.6
11SB420203	20111116	SO	CYCLOHEXANE	OV	2.33	U	N		UG/KG	4.650000	U	4.65	1	14.4
11SB430406	20111116	SO	CYCLOHEXANE	OV	2.69	U	N		UG/KG	5.380000	U	5.38	1	22.3
11SB430809	20111116	SO	CYCLOHEXANE	OV	2.77	U	N		UG/KG	5.530000	U	5.53	1	15.7
11SB440406	20111116	SO	CYCLOHEXANE	OV	2.32	U	N		UG/KG	4.640000	U	4.64	1	15.7
11SB440607	20111116	SO	CYCLOHEXANE	OV	2.45	U	N		UG/KG	4.900000	U	4.9	1	11
11SB450204	20111116	SO	CYCLOHEXANE	OV	136	U	N		UG/KG	272.000000	U	272	50	21.1
11SB450506	20111116	SO	CYCLOHEXANE	OV	2.25	U	N		UG/KG	4.500000	U	4.5	1	12
11SB460305	20111117	SO	CYCLOHEXANE	OV	2.28	U	N		UG/KG	4.550000	U	4.55	1	15.5
11SB460506	20111117	SO	CYCLOHEXANE	OV	108	U	N		UG/KG	215.000000	U	215	50	8.5
11SB470103	20111116	SO	CYCLOHEXANE	OV	2.8	U	N		UG/KG	5.600000	U	5.6	1	19.3
11SB470304	20111116	SO	CYCLOHEXANE	OV	2.45	U	N		UG/KG	4.910000	U	4.91	1	17.8
11SB480305	20111116	SO	CYCLOHEXANE	OV	2.84	U	N		UG/KG	5.680000	U	5.68	1	20.4
11SB480506	20111116	SO	CYCLOHEXANE	OV	2.45	U	N		UG/KG	4.890000	U	4.89	1	14.9
11SB490204	20111116	SO	CYCLOHEXANE	OV	2.79	U	N		UG/KG	5.580000	U	5.58	1	20.4
11SB490405	20111116	SO	CYCLOHEXANE	OV	2.41	U	N		UG/KG	4.810000	U	4.81	1	12.7
11SB500305	20111116	SO	CYCLOHEXANE	OV	2.5	U	N		UG/KG	4.990000	U	4.99	1	12.7
11SB500506	20111116	SO	CYCLOHEXANE	OV	2.22	U	N		UG/KG	4.440000	U	4.44	1	11.1
11SB020002	20110426	SO	DICHLORODIFLUOROMETHANE	OV	5.47	U	N		UG/KG	10.9	U	10.9	1	20.6
11SB030002	20110426	SO	DICHLORODIFLUOROMETHANE	OV	5.62	U	N		UG/KG	11.2	U	11.2	1	18.7
11SB030406	20110426	SO	DICHLORODIFLUOROMETHANE	OV	4.77	U	N		UG/KG	9.53	U	9.53	1	13.7
11SB260507	20110427	SO	DICHLORODIFLUOROMETHANE	OV	5.57	U	N		UG/KG	11.1	U	11.1	1	14.9
11SB330406	20111116	SO	DICHLORODIFLUOROMETHANE	OV	4.62	U	N		UG/KG	9.230000	U	9.23	1	14.9
11SB330607	20111116	SO	DICHLORODIFLUOROMETHANE	OV	4.33	U	N		UG/KG	8.670000	U	8.67	1	14
11SB340406	20111116	SO	DICHLORODIFLUOROMETHANE	OV	243	U	N		UG/KG	487.000000	U	487	50	17.6
11SB340708	20111116	SO	DICHLORODIFLUOROMETHANE	OV	4.76	U	N		UG/KG	9.530000	U	9.53	1	17.6
11SB350305	20111116	SO	DICHLORODIFLUOROMETHANE	OV	5.75	U	N		UG/KG	11.500000	U	11.5	1	17.6
11SB350506	20111116	SO	DICHLORODIFLUOROMETHANE	OV	5.44	U	N		UG/KG	10.900000	U	10.9	1	17.6
11SB360204	20111117	SO	DICHLORODIFLUOROMETHANE	OV	233	U	N		UG/KG	466.000000	U	466	50	15.5
11SB360405	20111117	SO	DICHLORODIFLUOROMETHANE	OV	226	U	N		UG/KG	453.000000	U	453	50	15.5
11SB360405-D	20111117	SO	DICHLORODIFLUOROMETHANE	OV	219	U	N		UG/KG	437.000000	U	437	50	13.3
11SB370103	20111116	SO	DICHLORODIFLUOROMETHANE	OV	5.24	U	N		UG/KG	10.500000	U	10.5	1	15.5
11SB370304	20111116	SO	DICHLORODIFLUOROMETHANE	OV	4.63	U	N		UG/KG	9.260000	U	9.26	1	13.4
11SB380406	20111115	SO	DICHLORODIFLUOROMETHANE	OV	7.79	U	N		UG/KG	15.600000	U	15.6	1	40.38

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB380607	20111115	SO	DICHLORODIFLUOROMETHANE	OV	6.84	U	N		UG/KG	13.700000	U	13.7	1	38.4
11SB390406	20111115	SO	DICHLORODIFLUOROMETHANE	OV	5.61	U	N		UG/KG	11.200000	U	11.2	1	51.6
11SB390708	20111115	SO	DICHLORODIFLUOROMETHANE	OV	7.27	U	N		UG/KG	14.500000	U	14.5	1	39.4
11SB400305	20111115	SO	DICHLORODIFLUOROMETHANE	OV	314	U	N		UG/KG	628.000000	U	628	50	33.3
11SB400506	20111115	SO	DICHLORODIFLUOROMETHANE	OV	929	U	N		UG/KG	1860.00000	U	1860	100	51.6
11SB410204	20111117	SO	DICHLORODIFLUOROMETHANE	OV	228	U	N		UG/KG	456.000000	U	456	50	15.5
11SB410405	20111117	SO	DICHLORODIFLUOROMETHANE	OV	266	U	N		UG/KG	532.000000	U	532	50	15.5
11SB420102	20111116	SO	DICHLORODIFLUOROMETHANE	OV	4.58	U	N		UG/KG	9.160000	U	9.16	1	17.6
11SB420203	20111116	SO	DICHLORODIFLUOROMETHANE	OV	4.65	U	N		UG/KG	9.300000	U	9.3	1	14.4
11SB430406	20111116	SO	DICHLORODIFLUOROMETHANE	OV	5.38	U	N		UG/KG	10.800000	U	10.8	1	22.3
11SB430809	20111116	SO	DICHLORODIFLUOROMETHANE	OV	5.53	U	N		UG/KG	11.100000	U	11.1	1	15.7
11SB440406	20111116	SO	DICHLORODIFLUOROMETHANE	OV	4.64	U	N		UG/KG	9.280000	U	9.28	1	15.7
11SB440607	20111116	SO	DICHLORODIFLUOROMETHANE	OV	4.9	U	N		UG/KG	9.800000	U	9.8	1	11
11SB450204	20111116	SO	DICHLORODIFLUOROMETHANE	OV	272	U	N		UG/KG	543.000000	U	543	50	21.1
11SB450506	20111116	SO	DICHLORODIFLUOROMETHANE	OV	4.5	U	N		UG/KG	8.990000	U	8.99	1	12
11SB460305	20111117	SO	DICHLORODIFLUOROMETHANE	OV	4.55	U	N		UG/KG	9.100000	U	9.1	1	15.5
11SB460506	20111117	SO	DICHLORODIFLUOROMETHANE	OV	215	U	N		UG/KG	430.000000	U	430	50	8.5
11SB470103	20111116	SO	DICHLORODIFLUOROMETHANE	OV	5.6	U	N		UG/KG	11.200000	U	11.2	1	19.3
11SB470304	20111116	SO	DICHLORODIFLUOROMETHANE	OV	4.91	U	N		UG/KG	9.810000	U	9.81	1	17.8
11SB480305	20111116	SO	DICHLORODIFLUOROMETHANE	OV	5.68	U	N		UG/KG	11.400000	U	11.4	1	20.4
11SB480506	20111116	SO	DICHLORODIFLUOROMETHANE	OV	4.89	U	N		UG/KG	9.780000	U	9.78	1	14.9
11SB490204	20111116	SO	DICHLORODIFLUOROMETHANE	OV	5.58	U	N		UG/KG	11.200000	U	11.2	1	20.4
11SB490405	20111116	SO	DICHLORODIFLUOROMETHANE	OV	4.81	U	N		UG/KG	9.630000	U	9.63	1	12.7
11SB500305	20111116	SO	DICHLORODIFLUOROMETHANE	OV	4.99	U	N		UG/KG	9.980000	U	9.98	1	12.7
11SB500506	20111116	SO	DICHLORODIFLUOROMETHANE	OV	4.44	U	N		UG/KG	8.870000	U	8.87	1	11.1
11SB010002	20110426	SO	ETHYLBENZENE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	21.1
11SB010002-D	20110426	SO	ETHYLBENZENE	OV	2.45	U	N		UG/KG	4.9	U	4.9	1	21
11SB010406	20110426	SO	ETHYLBENZENE	OV	2.38	U	N		UG/KG	4.75	U	4.75	1	17.7
11SB010406-D	20110426	SO	ETHYLBENZENE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	19.4
11SB020002	20110426	SO	ETHYLBENZENE	OV	2.74	U	N		UG/KG	5.47	U	5.47	1	20.6
11SB020406	20110426	SO	ETHYLBENZENE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	24.3
11SB030002	20110426	SO	ETHYLBENZENE	OV	2.81	U	N		UG/KG	5.62	U	5.62	1	18.7
11SB030406	20110426	SO	ETHYLBENZENE	OV	2.38	U	N		UG/KG	4.77	U	4.77	1	13.7
11SB040002	20110426	SO	ETHYLBENZENE	OV	2.98	U	N		UG/KG	5.97	U	5.97	1	20.9
11SB040406	20110426	SO	ETHYLBENZENE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	12.8
11SB250507	20110426	SO	ETHYLBENZENE	OV	2.9	U	N		UG/KG	5.79	U	5.79	1	18.9
11SB260507	20110427	SO	ETHYLBENZENE	OV	2.79	U	N		UG/KG	5.57	U	5.57	1	14.9
11SB270507	20110426	SO	ETHYLBENZENE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	14.1
11SB280507	20110426	SO	ETHYLBENZENE	OV	3.31	U	N		UG/KG	6.62	UN	6.62	1	28.9
11SB330406	20111116	SO	ETHYLBENZENE	OV	2.31	U	N		UG/KG	4.620000	U	4.62	1	14.9
11SB330607	20111116	SO	ETHYLBENZENE	OV	2.17	U	N		UG/KG	4.330000	U	4.33	1	14
11SB340406	20111116	SO	ETHYLBENZENE	OV	122	U	N		UG/KG	243.000000	U	243	50	17.6
11SB340708	20111116	SO	ETHYLBENZENE	OV	2.38	U	N		UG/KG	4.760000	U	4.76	1	17.6
11SB350305	20111116	SO	ETHYLBENZENE	OV	2.88	U	N		UG/KG	5.750000	U	5.75	1	17.6
11SB350506	20111116	SO	ETHYLBENZENE	OV	2.72	U	N		UG/KG	5.440000	U	5.44	1	17.6
11SB360204	20111117	SO	ETHYLBENZENE	OV	117	U	N		UG/KG	233.000000	U	233	50	15.5
11SB360405	20111117	SO	ETHYLBENZENE	OV	113	U	N		UG/KG	226.000000	U	226	50	15.5
11SB360405-D	20111117	SO	ETHYLBENZENE	OV	109	U	N		UG/KG	219.000000	U	219	50	13.3
11SB370103	20111116	SO	ETHYLBENZENE	OV	2.62	U	N		UG/KG	5.240000	U	5.24	1	15.5
11SB370304	20111116	SO	ETHYLBENZENE	OV	2.32	U	N		UG/KG	4.630000	U	4.63	1	13.4
11SB380406	20111115	SO	ETHYLBENZENE	OV	3.9	U	N		UG/KG	7.790000	U	7.79	1	40.38
11SB380607	20111115	SO	ETHYLBENZENE	OV	3.42	U	N		UG/KG	6.840000	U	6.84	1	38.4
11SB390406	20111115	SO	ETHYLBENZENE	OV	2.8	U	N		UG/KG	5.610000	U	5.61	1	51.6
11SB390708	20111115	SO	ETHYLBENZENE	OV	3.64	U	N		UG/KG	7.270000	U	7.27	1	39.4
11SB400305	20111115	SO	ETHYLBENZENE	OV	157	U	N		UG/KG	314.000000	U	314	50	33.3
11SB400506	20111115	SO	ETHYLBENZENE	OV	465	U	N		UG/KG	929.000000	U	929	100	51.6
11SB410204	20111117	SO	ETHYLBENZENE	OV	114	U	N		UG/KG	228.000000	U	228	50	15.5
11SB410405	20111117	SO	ETHYLBENZENE	OV	133	U	N		UG/KG	266.000000	U	266	50	15.5
11SB420102	20111116	SO	ETHYLBENZENE	OV	2.29	U	N		UG/KG	4.580000	U	4.58	1	17.6
11SB420203	20111116	SO	ETHYLBENZENE	OV	2.33	U	N		UG/KG	4.650000	U	4.65	1	14.4
11SB430406	20111116	SO	ETHYLBENZENE	OV	2.69	U	N		UG/KG	5.380000	U	5.38	1	22.3
11SB430809	20111116	SO	ETHYLBENZENE	OV	2.77	U	N		UG/KG	5.530000	U	5.53	1	15.7
11SB440406	20111116	SO	ETHYLBENZENE	OV	2.32	U	N		UG/KG	4.640000	U	4.64	1	15.7
11SB440607	20111116	SO	ETHYLBENZENE	OV	2.45	U	N		UG/KG	4.900000	U	4.9	1	11
11SB450204	20111116	SO	ETHYLBENZENE	OV	136	U	N		UG/KG	272.000000	U	272	50	21.1
11SB460305	20111117	SO	ETHYLBENZENE	OV	2.28	U	N		UG/KG	4.550000	U	4.55	1	15.5
11SB460506	20111117	SO	ETHYLBENZENE	OV	108	U	N		UG/KG	215.000000	U	215	50	8.5
11SB470103	20111116	SO	ETHYLBENZENE	OV	2.8	U	N		UG/KG	5.600000	U	5.6	1	19.3
11SB470304	20111116	SO	ETHYLBENZENE	OV	2.45	U	N		UG/KG	4.910000	U	4.91	1	17.8
11SB480305	20111116	SO	ETHYLBENZENE	OV	2.84	U	N		UG/KG	5.680000	U	5.68	1	20.4
11SB480506	20111116	SO	ETHYLBENZENE	OV	2.45	U	N		UG/KG	4.890000	U	4.89	1	14.9
11SB490204	20111116	SO	ETHYLBENZENE	OV	2.79	U	N		UG/KG	5.580000	U	5.58	1	20.4
11SB490405	20111116	SO	ETHYLBENZENE	OV	2.41	U	N		UG/KG	4.810000	U	4.81	1	12.7
11SB500305	20111116	SO	ETHYLBENZENE	OV	2.5	U	N		UG/KG	4.990000	U	4.99	1	12.7
11SB500506	20111116	SO	ETHYLBENZENE	OV	2.22	U	N		UG/KG	4.440000	U	4.44	1	11.1
11SB010002	20110426	SO	ISOPROPYLBENZENE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	21.1
11SB010002-D	20110426	SO	ISOPROPYLBENZENE	OV	2.45	U	N		UG/KG	4.9	U	4.9	1	21
11SB010406	20110426	SO	ISOPROPYLBENZENE	OV	2.38	U	N		UG/KG	4.75	U	4.75	1	17.7
11SB010406-D	20110426	SO	ISOPROPYLBENZENE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	19.4
11SB020002	20110426	SO	ISOPROPYLBENZENE	OV	2.74	U	N		UG/KG	5.47	U	5.47	1	20.6
11SB020406	20110426	SO	ISOPROPYLBENZENE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	24.3

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB030002	20110426	SO	ISOPROPYLBENZENE	OV	2.81	U	N		UG/KG	5.62	U	5.62	1	18.7
11SB030406	20110426	SO	ISOPROPYLBENZENE	OV	2.38	U	N		UG/KG	4.77	U	4.77	1	13.7
11SB040002	20110426	SO	ISOPROPYLBENZENE	OV	2.98	U	N		UG/KG	5.97	U	5.97	1	20.9
11SB040406	20110426	SO	ISOPROPYLBENZENE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	12.8
11SB250507	20110426	SO	ISOPROPYLBENZENE	OV	2.9	U	N		UG/KG	5.79	U	5.79	1	18.9
11SB260507	20110427	SO	ISOPROPYLBENZENE	OV	2.79	U	N		UG/KG	5.57	U	5.57	1	14.9
11SB270507	20110426	SO	ISOPROPYLBENZENE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	14.1
11SB280507	20110426	SO	ISOPROPYLBENZENE	OV	3.31	U	N		UG/KG	6.62	UN	6.62	1	28.9
11SB330406	20111116	SO	ISOPROPYLBENZENE	OV	2.31	U	N		UG/KG	4.620000	U	4.62	1	14.9
11SB330607	20111116	SO	ISOPROPYLBENZENE	OV	2.17	U	N		UG/KG	4.330000	U	4.33	1	14
11SB340406	20111116	SO	ISOPROPYLBENZENE	OV	122	U	N		UG/KG	243.000000	U	243	50	17.6
11SB340708	20111116	SO	ISOPROPYLBENZENE	OV	2.38	U	N		UG/KG	4.760000	U	4.76	1	17.6
11SB350305	20111116	SO	ISOPROPYLBENZENE	OV	2.88	U	N		UG/KG	5.750000	U	5.75	1	17.6
11SB350506	20111116	SO	ISOPROPYLBENZENE	OV	2.72	U	N		UG/KG	5.440000	U	5.44	1	17.6
11SB360204	20111117	SO	ISOPROPYLBENZENE	OV	117	U	N		UG/KG	233.000000	U	233	50	15.5
11SB360405	20111117	SO	ISOPROPYLBENZENE	OV	113	U	N		UG/KG	226.000000	U	226	50	15.5
11SB360405-D	20111117	SO	ISOPROPYLBENZENE	OV	109	U	N		UG/KG	219.000000	U	219	50	13.3
11SB370103	20111116	SO	ISOPROPYLBENZENE	OV	2.62	U	N		UG/KG	5.240000	U	5.24	1	15.5
11SB370304	20111116	SO	ISOPROPYLBENZENE	OV	2.32	U	N		UG/KG	4.630000	U	4.63	1	13.4
11SB380406	20111115	SO	ISOPROPYLBENZENE	OV	3.9	U	N		UG/KG	7.790000	U	7.79	1	40.38
11SB380607	20111115	SO	ISOPROPYLBENZENE	OV	3.42	U	N		UG/KG	6.840000	U	6.84	1	38.4
11SB390406	20111115	SO	ISOPROPYLBENZENE	OV	2.8	U	N		UG/KG	5.610000	U	5.61	1	51.6
11SB390708	20111115	SO	ISOPROPYLBENZENE	OV	3.64	U	N		UG/KG	7.270000	U	7.27	1	39.4
11SB400305	20111115	SO	ISOPROPYLBENZENE	OV	157	U	N		UG/KG	314.000000	U	314	50	33.3
11SB400506	20111115	SO	ISOPROPYLBENZENE	OV	465	U	N		UG/KG	929.000000	U	929	100	51.6
11SB410204	20111117	SO	ISOPROPYLBENZENE	OV	114	U	N		UG/KG	228.000000	U	228	50	15.5
11SB410405	20111117	SO	ISOPROPYLBENZENE	OV	133	U	N		UG/KG	266.000000	U	266	50	15.5
11SB420102	20111116	SO	ISOPROPYLBENZENE	OV	2.29	U	N		UG/KG	4.580000	U	4.58	1	17.6
11SB420203	20111116	SO	ISOPROPYLBENZENE	OV	2.33	U	N		UG/KG	4.650000	U	4.65	1	14.4
11SB430406	20111116	SO	ISOPROPYLBENZENE	OV	2.69	U	N		UG/KG	5.380000	U	5.38	1	22.3
11SB430809	20111116	SO	ISOPROPYLBENZENE	OV	2.77	U	N		UG/KG	5.530000	U	5.53	1	15.7
11SB440406	20111116	SO	ISOPROPYLBENZENE	OV	2.32	U	N		UG/KG	4.640000	U	4.64	1	15.7
11SB460305	20111117	SO	ISOPROPYLBENZENE	OV	2.28	U	N		UG/KG	4.550000	U	4.55	1	15.5
11SB460506	20111117	SO	ISOPROPYLBENZENE	OV	108	U	N		UG/KG	215.000000	U	215	50	8.5
11SB470304	20111116	SO	ISOPROPYLBENZENE	OV	2.45	U	N		UG/KG	4.910000	U	4.91	1	17.8
11SB500305	20111116	SO	ISOPROPYLBENZENE	OV	2.5	U	N		UG/KG	4.990000	U	4.99	1	12.7
11SB010002	20110426	SO	METHYL ACETATE	OV	5.03	U	N		UG/KG	10.1	U	10.1	1	21.1
11SB010002-D	20110426	SO	METHYL ACETATE	OV	4.9	U	N		UG/KG	9.8	U	9.8	1	21
11SB010406	20110426	SO	METHYL ACETATE	OV	4.75	U	N		UG/KG	9.5	U	9.5	1	17.7
11SB010406-D	20110426	SO	METHYL ACETATE	OV	4.79	U	N		UG/KG	9.59	U	9.59	1	19.4
11SB020002	20110426	SO	METHYL ACETATE	OV	5.47	U	N		UG/KG	10.9	U	10.9	1	20.6
11SB020406	20110426	SO	METHYL ACETATE	OV	5.1	U	N		UG/KG	10.2	U	10.2	1	24.3
11SB030002	20110426	SO	METHYL ACETATE	OV	5.62	U	N		UG/KG	11.2	U	11.2	1	18.7
11SB030406	20110426	SO	METHYL ACETATE	OV	4.77	U	N		UG/KG	9.53	U	9.53	1	13.7
11SB040002	20110426	SO	METHYL ACETATE	OV	5.97	U	N		UG/KG	11.9	U	11.9	1	20.9
11SB040406	20110426	SO	METHYL ACETATE	OV	5.03	U	N		UG/KG	10.1	U	10.1	1	12.8
11SB250507	20110426	SO	METHYL ACETATE	OV	5.79	U	N		UG/KG	11.6	U	11.6	1	18.9
11SB260507	20110427	SO	METHYL ACETATE	OV	5.57	U	N		UG/KG	11.1	U	11.1	1	14.9
11SB270507	20110426	SO	METHYL ACETATE	OV	4.48	U	N		UG/KG	8.97	U	8.97	1	14.1
11SB280507	20110426	SO	METHYL ACETATE	OV	6.62	U	N		UG/KG	13.2	U	13.2	1	28.9
11SB330406	20111116	SO	METHYL ACETATE	OV	4.62	U	N		UG/KG	9.230000	U	9.23	1	14.9
11SB330607	20111116	SO	METHYL ACETATE	OV	4.33	U	N		UG/KG	8.670000	U	8.67	1	14
11SB340406	20111116	SO	METHYL ACETATE	OV	243	U	N		UG/KG	487.000000	U	487	50	17.6
11SB340708	20111116	SO	METHYL ACETATE	OV	4.76	U	N		UG/KG	9.530000	U	9.53	1	17.6
11SB350305	20111116	SO	METHYL ACETATE	OV	5.75	U	N		UG/KG	11.500000	U	11.5	1	17.6
11SB350506	20111116	SO	METHYL ACETATE	OV	5.44	U	N		UG/KG	10.900000	U	10.9	1	17.6
11SB360204	20111117	SO	METHYL ACETATE	OV	233	U	N		UG/KG	466.000000	U	466	50	15.5
11SB360405	20111117	SO	METHYL ACETATE	OV	226	U	N		UG/KG	453.000000	U	453	50	15.5
11SB360405-D	20111117	SO	METHYL ACETATE	OV	219	U	N		UG/KG	437.000000	U	437	50	13.3
11SB370103	20111116	SO	METHYL ACETATE	OV	5.24	U	N		UG/KG	10.500000	U	10.5	1	15.5
11SB370304	20111116	SO	METHYL ACETATE	OV	4.63	U	N		UG/KG	9.260000	U	9.26	1	13.4
11SB380406	20111115	SO	METHYL ACETATE	OV	7.79	U	N		UG/KG	15.600000	U	15.6	1	40.38
11SB380607	20111115	SO	METHYL ACETATE	OV	6.84	U	N		UG/KG	13.700000	U	13.7	1	38.4
11SB390406	20111115	SO	METHYL ACETATE	OV	5.61	U	N		UG/KG	11.200000	U	11.2	1	51.6
11SB390708	20111115	SO	METHYL ACETATE	OV	7.27	U	N		UG/KG	14.500000	U	14.5	1	39.4
11SB400305	20111115	SO	METHYL ACETATE	OV	314	U	N		UG/KG	628.000000	U	628	50	33.3
11SB400506	20111115	SO	METHYL ACETATE	OV	929	U	N		UG/KG	1860.00000	U	1860	100	51.6
11SB410204	20111117	SO	METHYL ACETATE	OV	228	U	N		UG/KG	456.000000	U	456	50	15.5
11SB410405	20111117	SO	METHYL ACETATE	OV	266	U	N		UG/KG	532.000000	U	532	50	15.5
11SB420102	20111116	SO	METHYL ACETATE	OV	4.58	U	N		UG/KG	9.160000	U	9.16	1	17.6
11SB420203	20111116	SO	METHYL ACETATE	OV	4.65	U	N		UG/KG	9.300000	U	9.3	1	14.4
11SB430406	20111116	SO	METHYL ACETATE	OV	5.38	U	N		UG/KG	10.800000	U	10.8	1	22.3
11SB430809	20111116	SO	METHYL ACETATE	OV	5.53	U	N		UG/KG	11.100000	U	11.1	1	15.7
11SB440406	20111116	SO	METHYL ACETATE	OV	4.64	U	N		UG/KG	9.280000	U	9.28	1	15.7
11SB440607	20111116	SO	METHYL ACETATE	OV	4.9	U	N		UG/KG	9.800000	U	9.8	1	11
11SB450204	20111116	SO	METHYL ACETATE	OV	272	U	N		UG/KG	543.000000	U	543	50	21.1
11SB450506	20111116	SO	METHYL ACETATE	OV	4.5	U	N		UG/KG	8.990000	U	8.99	1	12
11SB460305	20111117	SO	METHYL ACETATE	OV	4.55	U	N		UG/KG	9.100000	U	9.1	1	15.5
11SB460506	20111117	SO	METHYL ACETATE	OV	215	U	N		UG/KG	430.000000	U	430	50	8.5
11SB470103	20111116	SO	METHYL ACETATE	OV	5.6	U	N		UG/KG	11.200000	U	11.2	1	19.3
11SB470304	20111116	SO	METHYL ACETATE	OV	4.91	U	N		UG/KG	9.810000	U	9.81	1	17.8

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB480305	20111116	SO	METHYL ACETATE	OV	5.68	U	N		UG/KG	11.400000	U	11.4	1	20.4
11SB480506	20111116	SO	METHYL ACETATE	OV	4.89	U	N		UG/KG	9.780000	U	9.78	1	14.9
11SB490204	20111116	SO	METHYL ACETATE	OV	5.58	U	N		UG/KG	11.200000	U	11.2	1	20.4
11SB490405	20111116	SO	METHYL ACETATE	OV	4.81	U	N		UG/KG	9.630000	U	9.63	1	12.7
11SB500305	20111116	SO	METHYL ACETATE	OV	4.99	U	N		UG/KG	9.980000	U	9.98	1	12.7
11SB500506	20111116	SO	METHYL ACETATE	OV	4.44	U	N		UG/KG	8.870000	U	8.87	1	11.1
11SB010002	20110426	SO	METHYL CYCLOHEXANE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	21.1
11SB010002-D	20110426	SO	METHYL CYCLOHEXANE	OV	2.45	U	N		UG/KG	4.9	U	4.9	1	21
11SB010406	20110426	SO	METHYL CYCLOHEXANE	OV	2.38	U	N		UG/KG	4.75	U	4.75	1	17.7
11SB010406-D	20110426	SO	METHYL CYCLOHEXANE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	19.4
11SB020002	20110426	SO	METHYL CYCLOHEXANE	OV	2.74	U	N		UG/KG	5.47	U	5.47	1	20.6
11SB020406	20110426	SO	METHYL CYCLOHEXANE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	24.3
11SB030002	20110426	SO	METHYL CYCLOHEXANE	OV	2.81	U	N		UG/KG	5.62	U	5.62	1	18.7
11SB030406	20110426	SO	METHYL CYCLOHEXANE	OV	2.38	U	N		UG/KG	4.77	U	4.77	1	13.7
11SB040002	20110426	SO	METHYL CYCLOHEXANE	OV	2.98	U	N		UG/KG	5.97	U	5.97	1	20.9
11SB040406	20110426	SO	METHYL CYCLOHEXANE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	12.8
11SB250507	20110426	SO	METHYL CYCLOHEXANE	OV	2.9	U	N		UG/KG	5.79	U	5.79	1	18.9
11SB260507	20110427	SO	METHYL CYCLOHEXANE	OV	2.79	U	N		UG/KG	5.57	U	5.57	1	14.9
11SB270507	20110426	SO	METHYL CYCLOHEXANE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	14.1
11SB280507	20110426	SO	METHYL CYCLOHEXANE	OV	3.31	U	N		UG/KG	6.62	UN	6.62	1	28.9
11SB330406	20111116	SO	METHYL CYCLOHEXANE	OV	2.31	U	N		UG/KG	4.620000	U	4.62	1	14.9
11SB330607	20111116	SO	METHYL CYCLOHEXANE	OV	2.17	U	N		UG/KG	4.330000	U	4.33	1	14
11SB340406	20111116	SO	METHYL CYCLOHEXANE	OV	122	U	N		UG/KG	243.000000	U	243	50	17.6
11SB350305	20111116	SO	METHYL CYCLOHEXANE	OV	2.88	U	N		UG/KG	5.750000	U	5.75	1	17.6
11SB350506	20111116	SO	METHYL CYCLOHEXANE	OV	2.72	U	N		UG/KG	5.440000	U	5.44	1	17.6
11SB360204	20111117	SO	METHYL CYCLOHEXANE	OV	117	U	N		UG/KG	233.000000	U	233	50	15.5
11SB360405	20111117	SO	METHYL CYCLOHEXANE	OV	113	U	N		UG/KG	226.000000	U	226	50	15.5
11SB360405-D	20111117	SO	METHYL CYCLOHEXANE	OV	109	U	N		UG/KG	219.000000	U	219	50	13.3
11SB370103	20111116	SO	METHYL CYCLOHEXANE	OV	2.62	U	N		UG/KG	5.240000	U	5.24	1	15.5
11SB370304	20111116	SO	METHYL CYCLOHEXANE	OV	2.32	U	N		UG/KG	4.630000	U	4.63	1	13.4
11SB380406	20111115	SO	METHYL CYCLOHEXANE	OV	3.9	U	N		UG/KG	7.790000	U	7.79	1	40.38
11SB380607	20111115	SO	METHYL CYCLOHEXANE	OV	3.42	U	N		UG/KG	6.840000	U	6.84	1	38.4
11SB390406	20111115	SO	METHYL CYCLOHEXANE	OV	2.8	U	N		UG/KG	5.610000	U	5.61	1	51.6
11SB390708	20111115	SO	METHYL CYCLOHEXANE	OV	3.64	U	N		UG/KG	7.270000	U	7.27	1	39.4
11SB400305	20111115	SO	METHYL CYCLOHEXANE	OV	157	U	N		UG/KG	314.000000	U	314	50	33.3
11SB400506	20111115	SO	METHYL CYCLOHEXANE	OV	465	U	N		UG/KG	929.000000	U	929	100	51.6
11SB410204	20111117	SO	METHYL CYCLOHEXANE	OV	114	U	N		UG/KG	228.000000	U	228	50	15.5
11SB410405	20111117	SO	METHYL CYCLOHEXANE	OV	133	U	N		UG/KG	266.000000	U	266	50	15.5
11SB420102	20111116	SO	METHYL CYCLOHEXANE	OV	2.29	U	N		UG/KG	4.580000	U	4.58	1	17.6
11SB420203	20111116	SO	METHYL CYCLOHEXANE	OV	2.33	U	N		UG/KG	4.650000	U	4.65	1	14.4
11SB430406	20111116	SO	METHYL CYCLOHEXANE	OV	2.69	U	N		UG/KG	5.380000	U	5.38	1	22.3
11SB430809	20111116	SO	METHYL CYCLOHEXANE	OV	2.77	U	N		UG/KG	5.530000	U	5.53	1	15.7
11SB440406	20111116	SO	METHYL CYCLOHEXANE	OV	2.32	U	N		UG/KG	4.640000	U	4.64	1	15.7
11SB440607	20111116	SO	METHYL CYCLOHEXANE	OV	2.45	U	N		UG/KG	4.900000	U	4.9	1	11
11SB450204	20111116	SO	METHYL CYCLOHEXANE	OV	136	U	N		UG/KG	272.000000	U	272	50	21.1
11SB450506	20111116	SO	METHYL CYCLOHEXANE	OV	2.25	U	N		UG/KG	4.500000	U	4.5	1	12
11SB460305	20111117	SO	METHYL CYCLOHEXANE	OV	2.28	U	N		UG/KG	4.550000	U	4.55	1	15.5
11SB460506	20111117	SO	METHYL CYCLOHEXANE	OV	108	U	N		UG/KG	215.000000	U	215	50	8.5
11SB470103	20111116	SO	METHYL CYCLOHEXANE	OV	2.8	U	N		UG/KG	5.600000	U	5.6	1	19.3
11SB470304	20111116	SO	METHYL CYCLOHEXANE	OV	2.45	U	N		UG/KG	4.910000	U	4.91	1	17.8
11SB480305	20111116	SO	METHYL CYCLOHEXANE	OV	2.84	U	N		UG/KG	5.680000	U	5.68	1	20.4
11SB480506	20111116	SO	METHYL CYCLOHEXANE	OV	2.45	U	N		UG/KG	4.890000	U	4.89	1	14.9
11SB490204	20111116	SO	METHYL CYCLOHEXANE	OV	2.79	U	N		UG/KG	5.580000	U	5.58	1	20.4
11SB490405	20111116	SO	METHYL CYCLOHEXANE	OV	2.41	U	N		UG/KG	4.810000	U	4.81	1	12.7
11SB500305	20111116	SO	METHYL CYCLOHEXANE	OV	2.5	U	N		UG/KG	4.990000	U	4.99	1	12.7
11SB500506	20111116	SO	METHYL CYCLOHEXANE	OV	2.22	U	N		UG/KG	4.440000	U	4.44	1	11.1
11SB010002	20110426	SO	METHYL TERT-BUTYL ETHER	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	21.1
11SB010002-D	20110426	SO	METHYL TERT-BUTYL ETHER	OV	2.45	U	N		UG/KG	4.9	U	4.9	1	21
11SB010406	20110426	SO	METHYL TERT-BUTYL ETHER	OV	2.38	U	N		UG/KG	4.75	U	4.75	1	17.7
11SB010406-D	20110426	SO	METHYL TERT-BUTYL ETHER	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	19.4
11SB020002	20110426	SO	METHYL TERT-BUTYL ETHER	OV	2.74	U	N		UG/KG	5.47	U	5.47	1	20.6
11SB020406	20110426	SO	METHYL TERT-BUTYL ETHER	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	24.3
11SB030002	20110426	SO	METHYL TERT-BUTYL ETHER	OV	2.81	U	N		UG/KG	5.62	U	5.62	1	18.7
11SB030406	20110426	SO	METHYL TERT-BUTYL ETHER	OV	2.38	U	N		UG/KG	4.77	U	4.77	1	13.7
11SB040002	20110426	SO	METHYL TERT-BUTYL ETHER	OV	2.98	U	N		UG/KG	5.97	U	5.97	1	20.9
11SB040406	20110426	SO	METHYL TERT-BUTYL ETHER	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	12.8
11SB250507	20110426	SO	METHYL TERT-BUTYL ETHER	OV	2.9	U	N		UG/KG	5.79	U	5.79	1	18.9
11SB260507	20110427	SO	METHYL TERT-BUTYL ETHER	OV	2.79	U	N		UG/KG	5.57	U	5.57	1	14.9
11SB270507	20110426	SO	METHYL TERT-BUTYL ETHER	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	14.1
11SB280507	20110426	SO	METHYL TERT-BUTYL ETHER	OV	3.31	U	N		UG/KG	6.62	U	6.62	1	28.9
11SB330406	20111116	SO	METHYL TERT-BUTYL ETHER	OV	2.31	U	N		UG/KG	4.620000	U	4.62	1	14.9
11SB330607	20111116	SO	METHYL TERT-BUTYL ETHER	OV	2.17	U	N		UG/KG	4.330000	U	4.33	1	14
11SB340406	20111116	SO	METHYL TERT-BUTYL ETHER	OV	122	U	N		UG/KG	243.000000	U	243	50	17.6
11SB340708	20111116	SO	METHYL TERT-BUTYL ETHER	OV	2.38	U	N		UG/KG	4.760000	U	4.76	1	17.6
11SB350305	20111116	SO	METHYL TERT-BUTYL ETHER	OV	2.88	U	N		UG/KG	5.750000	U	5.75	1	17.6
11SB350506	20111116	SO	METHYL TERT-BUTYL ETHER	OV	2.72	U	N		UG/KG	5.440000	U	5.44	1	17.6
11SB360204	20111117	SO	METHYL TERT-BUTYL ETHER	OV	117	U	N		UG/KG	233.000000	U	233	50	15.5
11SB360405	20111117	SO	METHYL TERT-BUTYL ETHER	OV	113	U	N		UG/KG	226.000000	U	226	50	15.5
11SB360405-D	20111117	SO	METHYL TERT-BUTYL ETHER	OV	109	U	N		UG/KG	219.000000	U	219	50	13.3
11SB370103	20111116	SO	METHYL TERT-BUTYL ETHER	OV	2.62	U	N		UG/KG	5.240000	U	5.24	1	15.5
11SB370304	20111116	SO	METHYL TERT-BUTYL ETHER	OV	2.32	U	N		UG/KG	4.630000	U	4.63	1	13.4

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB380406	20111115	SO	METHYL TERT-BUTYL ETHER	OV	3.9	U	N		UG/KG	7.790000	U	7.79	1	40.38
11SB380607	20111115	SO	METHYL TERT-BUTYL ETHER	OV	3.42	U	N		UG/KG	6.840000	U	6.84	1	38.4
11SB390406	20111115	SO	METHYL TERT-BUTYL ETHER	OV	2.8	U	N		UG/KG	5.610000	U	5.61	1	51.6
11SB390708	20111115	SO	METHYL TERT-BUTYL ETHER	OV	3.64	U	N		UG/KG	7.270000	U	7.27	1	39.4
11SB400305	20111115	SO	METHYL TERT-BUTYL ETHER	OV	157	U	N		UG/KG	314.000000	U	314	50	33.3
11SB400506	20111115	SO	METHYL TERT-BUTYL ETHER	OV	465	U	N		UG/KG	929.000000	U	929	100	51.6
11SB410204	20111117	SO	METHYL TERT-BUTYL ETHER	OV	114	U	N		UG/KG	228.000000	U	228	50	15.5
11SB410405	20111117	SO	METHYL TERT-BUTYL ETHER	OV	133	U	N		UG/KG	266.000000	U	266	50	15.5
11SB420102	20111116	SO	METHYL TERT-BUTYL ETHER	OV	2.29	U	N		UG/KG	4.580000	U	4.58	1	17.6
11SB420203	20111116	SO	METHYL TERT-BUTYL ETHER	OV	2.33	U	N		UG/KG	4.650000	U	4.65	1	14.4
11SB430406	20111116	SO	METHYL TERT-BUTYL ETHER	OV	2.69	U	N		UG/KG	5.380000	U	5.38	1	22.3
11SB430809	20111116	SO	METHYL TERT-BUTYL ETHER	OV	2.77	U	N		UG/KG	5.530000	U	5.53	1	15.7
11SB440406	20111116	SO	METHYL TERT-BUTYL ETHER	OV	2.32	U	N		UG/KG	4.640000	U	4.64	1	15.7
11SB440607	20111116	SO	METHYL TERT-BUTYL ETHER	OV	2.45	U	N		UG/KG	4.900000	U	4.9	1	11
11SB450204	20111116	SO	METHYL TERT-BUTYL ETHER	OV	136	U	N		UG/KG	272.000000	U	272	50	21.1
11SB450506	20111116	SO	METHYL TERT-BUTYL ETHER	OV	2.25	U	N		UG/KG	4.500000	U	4.5	1	12
11SB460305	20111117	SO	METHYL TERT-BUTYL ETHER	OV	2.28	U	N		UG/KG	4.550000	U	4.55	1	15.5
11SB460506	20111117	SO	METHYL TERT-BUTYL ETHER	OV	108	U	N		UG/KG	215.000000	U	215	50	8.5
11SB470103	20111116	SO	METHYL TERT-BUTYL ETHER	OV	2.8	U	N		UG/KG	5.600000	U	5.6	1	19.3
11SB470304	20111116	SO	METHYL TERT-BUTYL ETHER	OV	2.45	U	N		UG/KG	4.910000	U	4.91	1	17.8
11SB480305	20111116	SO	METHYL TERT-BUTYL ETHER	OV	2.84	U	N		UG/KG	5.680000	U	5.68	1	20.4
11SB480506	20111116	SO	METHYL TERT-BUTYL ETHER	OV	2.45	U	N		UG/KG	4.890000	U	4.89	1	14.9
11SB490204	20111116	SO	METHYL TERT-BUTYL ETHER	OV	2.79	U	N		UG/KG	5.580000	U	5.58	1	20.4
11SB490405	20111116	SO	METHYL TERT-BUTYL ETHER	OV	2.41	U	N		UG/KG	4.810000	U	4.81	1	12.7
11SB500305	20111116	SO	METHYL TERT-BUTYL ETHER	OV	2.5	U	N		UG/KG	4.990000	U	4.99	1	12.7
11SB500506	20111116	SO	METHYL TERT-BUTYL ETHER	OV	2.22	U	N		UG/KG	4.440000	U	4.44	1	11.1
11SB010002	20110426	SO	METHYLENE CHLORIDE	OV	5.03	U	N		UG/KG	10.1	U	10.1	1	21.1
11SB010002-D	20110426	SO	METHYLENE CHLORIDE	OV	4.9	U	N		UG/KG	9.8	U	9.8	1	21
11SB010406	20110426	SO	METHYLENE CHLORIDE	OV	4.75	U	N		UG/KG	9.5	U	9.5	1	17.7
11SB010406-D	20110426	SO	METHYLENE CHLORIDE	OV	4.79	U	N		UG/KG	9.59	U	9.59	1	19.4
11SB020002	20110426	SO	METHYLENE CHLORIDE	OV	5.47	U	N		UG/KG	10.9	U	10.9	1	20.6
11SB020406	20110426	SO	METHYLENE CHLORIDE	OV	5.1	U	N		UG/KG	10.2	U	10.2	1	24.3
11SB030002	20110426	SO	METHYLENE CHLORIDE	OV	5.62	U	N		UG/KG	11.2	U	11.2	1	18.7
11SB030406	20110426	SO	METHYLENE CHLORIDE	OV	4.77	U	N		UG/KG	9.53	U	9.53	1	13.7
11SB040002	20110426	SO	METHYLENE CHLORIDE	OV	5.97	U	N		UG/KG	11.9	U	11.9	1	20.9
11SB040406	20110426	SO	METHYLENE CHLORIDE	OV	5.03	U	N		UG/KG	10.1	U	10.1	1	12.8
11SB250507	20110426	SO	METHYLENE CHLORIDE	OV	5.79	U	N		UG/KG	11.6	U	11.6	1	18.9
11SB270507	20110426	SO	METHYLENE CHLORIDE	OV	4.48	U	N		UG/KG	8.97	U	8.97	1	14.1
11SB280507	20110426	SO	METHYLENE CHLORIDE	OV	6.62	U	N		UG/KG	13.2	U	13.2	1	28.9
11SB330406	20111116	SO	METHYLENE CHLORIDE	OV	4.62	U	N		UG/KG	9.230000	U	9.23	1	14.9
11SB330607	20111116	SO	METHYLENE CHLORIDE	OV	4.33	U	N		UG/KG	8.670000	U	8.67	1	14
11SB340406	20111116	SO	METHYLENE CHLORIDE	OV	243	U	N		UG/KG	487.000000	U	487	50	17.6
11SB340708	20111116	SO	METHYLENE CHLORIDE	OV	4.76	U	N		UG/KG	9.530000	U	9.53	1	17.6
11SB350305	20111116	SO	METHYLENE CHLORIDE	OV	5.75	U	N		UG/KG	11.500000	U	11.5	1	17.6
11SB350506	20111116	SO	METHYLENE CHLORIDE	OV	5.44	U	N		UG/KG	10.900000	U	10.9	1	17.6
11SB360204	20111117	SO	METHYLENE CHLORIDE	OV	233	U	N		UG/KG	466.000000	U	466	50	15.5
11SB360405	20111117	SO	METHYLENE CHLORIDE	OV	226	U	N		UG/KG	453.000000	U	453	50	15.5
11SB360405-D	20111117	SO	METHYLENE CHLORIDE	OV	219	U	N		UG/KG	437.000000	U	437	50	13.3
11SB370103	20111116	SO	METHYLENE CHLORIDE	OV	5.24	U	N		UG/KG	10.500000	U	10.5	1	15.5
11SB370304	20111116	SO	METHYLENE CHLORIDE	OV	4.63	U	N		UG/KG	9.260000	U	9.26	1	13.4
11SB380406	20111115	SO	METHYLENE CHLORIDE	OV	7.79	U	N		UG/KG	15.600000	U	15.6	1	40.38
11SB380607	20111115	SO	METHYLENE CHLORIDE	OV	6.84	U	N		UG/KG	13.700000	U	13.7	1	38.4
11SB390406	20111115	SO	METHYLENE CHLORIDE	OV	5.61	U	N		UG/KG	11.200000	U	11.2	1	51.6
11SB390708	20111115	SO	METHYLENE CHLORIDE	OV	7.27	U	N		UG/KG	14.500000	U	14.5	1	39.4
11SB410204	20111117	SO	METHYLENE CHLORIDE	OV	228	U	N		UG/KG	456.000000	U	456	50	15.5
11SB410405	20111117	SO	METHYLENE CHLORIDE	OV	266	U	N		UG/KG	532.000000	U	532	50	15.5
11SB420102	20111116	SO	METHYLENE CHLORIDE	OV	4.58	U	N		UG/KG	9.160000	U	9.16	1	17.6
11SB420203	20111116	SO	METHYLENE CHLORIDE	OV	4.65	U	N		UG/KG	9.300000	U	9.3	1	14.4
11SB430406	20111116	SO	METHYLENE CHLORIDE	OV	5.38	U	N		UG/KG	10.800000	U	10.8	1	22.3
11SB430809	20111116	SO	METHYLENE CHLORIDE	OV	5.53	U	N		UG/KG	11.100000	U	11.1	1	15.7
11SB440406	20111116	SO	METHYLENE CHLORIDE	OV	4.64	U	N		UG/KG	9.280000	U	9.28	1	15.7
11SB440607	20111116	SO	METHYLENE CHLORIDE	OV	4.9	U	N		UG/KG	9.800000	U	9.8	1	11
11SB450506	20111116	SO	METHYLENE CHLORIDE	OV	4.5	U	N		UG/KG	8.990000	U	8.99	1	12
11SB460305	20111117	SO	METHYLENE CHLORIDE	OV	4.55	U	N		UG/KG	9.100000	U	9.1	1	15.5
11SB460506	20111117	SO	METHYLENE CHLORIDE	OV	215	U	N		UG/KG	430.000000	U	430	50	8.5
11SB470103	20111116	SO	METHYLENE CHLORIDE	OV	5.6	U	N		UG/KG	11.200000	U	11.2	1	19.3
11SB470304	20111116	SO	METHYLENE CHLORIDE	OV	4.91	U	N		UG/KG	9.810000	U	9.81	1	17.8
11SB480305	20111116	SO	METHYLENE CHLORIDE	OV	5.68	U	N		UG/KG	11.400000	U	11.4	1	20.4
11SB480506	20111116	SO	METHYLENE CHLORIDE	OV	4.89	U	N		UG/KG	9.780000	U	9.78	1	14.9
11SB490204	20111116	SO	METHYLENE CHLORIDE	OV	5.58	U	N		UG/KG	11.200000	U	11.2	1	20.4
11SB490405	20111116	SO	METHYLENE CHLORIDE	OV	4.81	U	N		UG/KG	9.630000	U	9.63	1	12.7
11SB500506	20111116	SO	METHYLENE CHLORIDE	OV	4.44	U	N		UG/KG	8.870000	U	8.87	1	11.1
11SB010002	20110426	SO	STYRENE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	21.1
11SB010002-D	20110426	SO	STYRENE	OV	2.45	U	N		UG/KG	4.9	U	4.9	1	21
11SB010406	20110426	SO	STYRENE	OV	2.38	U	N		UG/KG	4.75	U	4.75	1	17.7
11SB010406-D	20110426	SO	STYRENE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	19.4
11SB020002	20110426	SO	STYRENE	OV	2.74	U	N		UG/KG	5.47	U	5.47	1	20.6
11SB020406	20110426	SO	STYRENE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	24.3
11SB030002	20110426	SO	STYRENE	OV	2.81	U	N		UG/KG	5.62	U	5.62	1	18.7
11SB030406	20110426	SO	STYRENE	OV	2.38	U	N		UG/KG	4.77	U	4.77	1	13.7
11SB040002	20110426	SO	STYRENE	OV	2.98	U	N		UG/KG	5.97	U	5.97	1	20.9

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB040406	20110426	SO	STYRENE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	12.8
11SB250507	20110426	SO	STYRENE	OV	2.9	U	N		UG/KG	5.79	U	5.79	1	18.9
11SB260507	20110427	SO	STYRENE	OV	2.79	U	N		UG/KG	5.57	U	5.57	1	14.9
11SB270507	20110426	SO	STYRENE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	14.1
11SB280507	20110426	SO	STYRENE	OV	3.31	U	N		UG/KG	6.62	UN	6.62	1	28.9
11SB330406	20111116	SO	STYRENE	OV	2.31	U	N		UG/KG	4.620000	U	4.62	1	14.9
11SB330607	20111116	SO	STYRENE	OV	2.17	U	N		UG/KG	4.330000	U	4.33	1	14
11SB340406	20111116	SO	STYRENE	OV	122	U	N		UG/KG	243.000000	U	243	50	17.6
11SB340708	20111116	SO	STYRENE	OV	2.38	U	N		UG/KG	4.760000	U	4.76	1	17.6
11SB360204	20111117	SO	STYRENE	OV	117	U	N		UG/KG	233.000000	U	233	50	15.5
11SB360405	20111117	SO	STYRENE	OV	113	U	N		UG/KG	226.000000	U	226	50	15.5
11SB360405-D	20111117	SO	STYRENE	OV	109	U	N		UG/KG	219.000000	U	219	50	13.3
11SB370103	20111116	SO	STYRENE	OV	2.62	U	N		UG/KG	5.240000	U	5.24	1	15.5
11SB370304	20111116	SO	STYRENE	OV	2.32	U	N		UG/KG	4.630000	U	4.63	1	13.4
11SB380406	20111115	SO	STYRENE	OV	3.9	U	N		UG/KG	7.790000	U	7.79	1	40.38
11SB380607	20111115	SO	STYRENE	OV	3.42	U	N		UG/KG	6.840000	U	6.84	1	38.4
11SB390406	20111115	SO	STYRENE	OV	2.8	U	N		UG/KG	5.610000	U	5.61	1	51.6
11SB390708	20111115	SO	STYRENE	OV	3.64	U	N		UG/KG	7.270000	U	7.27	1	39.4
11SB400305	20111115	SO	STYRENE	OV	157	U	N		UG/KG	314.000000	U	314	50	33.3
11SB400506	20111115	SO	STYRENE	OV	465	U	N		UG/KG	929.000000	U	929	100	51.6
11SB410204	20111117	SO	STYRENE	OV	114	U	N		UG/KG	228.000000	U	228	50	15.5
11SB410405	20111117	SO	STYRENE	OV	133	U	N		UG/KG	266.000000	U	266	50	15.5
11SB420102	20111116	SO	STYRENE	OV	2.29	U	N		UG/KG	4.580000	U	4.58	1	17.6
11SB420203	20111116	SO	STYRENE	OV	2.33	U	N		UG/KG	4.650000	U	4.65	1	14.4
11SB430406	20111116	SO	STYRENE	OV	2.69	U	N		UG/KG	5.380000	U	5.38	1	22.3
11SB430809	20111116	SO	STYRENE	OV	2.77	U	N		UG/KG	5.530000	U	5.53	1	15.7
11SB440406	20111116	SO	STYRENE	OV	2.32	U	N		UG/KG	4.640000	U	4.64	1	15.7
11SB460305	20111117	SO	STYRENE	OV	2.28	U	N		UG/KG	4.550000	U	4.55	1	15.5
11SB460506	20111117	SO	STYRENE	OV	108	U	N		UG/KG	215.000000	U	215	50	8.5
11SB470304	20111116	SO	STYRENE	OV	2.45	U	N		UG/KG	4.910000	U	4.91	1	17.8
11SB500305	20111116	SO	STYRENE	OV	2.5	U	N		UG/KG	4.990000	U	4.99	1	12.7
11SB020002	20110426	SO	TETRACHLOROETHENE	OV	2.74	U	N		UG/KG	5.47	U	5.47	1	20.6
11SB030002	20110426	SO	TETRACHLOROETHENE	OV	2.81	U	N		UG/KG	5.62	U	5.62	1	18.7
11SB260507	20110427	SO	TETRACHLOROETHENE	OV	2.79	U	N		UG/KG	5.57	U	5.57	1	14.9
11SB340406	20111116	SO	TETRACHLOROETHENE	OV	122	U	N		UG/KG	243.000000	U	243	50	17.6
11SB360204	20111117	SO	TETRACHLOROETHENE	OV	117	U	N		UG/KG	233.000000	U	233	50	15.5
11SB360405	20111117	SO	TETRACHLOROETHENE	OV	113	U	N		UG/KG	226.000000	U	226	50	15.5
11SB360405-D	20111117	SO	TETRACHLOROETHENE	OV	109	U	N		UG/KG	219.000000	U	219	50	13.3
11SB370103	20111116	SO	TETRACHLOROETHENE	OV	2.62	U	N		UG/KG	5.240000	U	5.24	1	15.5
11SB370304	20111116	SO	TETRACHLOROETHENE	OV	2.32	U	N		UG/KG	4.630000	U	4.63	1	13.4
11SB390406	20111115	SO	TETRACHLOROETHENE	OV	2.8	U	N		UG/KG	5.610000	U	5.61	1	51.6
11SB390708	20111115	SO	TETRACHLOROETHENE	OV	3.64	U	N		UG/KG	7.270000	U	7.27	1	39.4
11SB410204	20111117	SO	TETRACHLOROETHENE	OV	114	U	N		UG/KG	228.000000	U	228	50	15.5
11SB410405	20111117	SO	TETRACHLOROETHENE	OV	133	U	N		UG/KG	266.000000	U	266	50	15.5
11SB420102	20111116	SO	TETRACHLOROETHENE	OV	2.29	U	N		UG/KG	4.580000	U	4.58	1	17.6
11SB420203	20111116	SO	TETRACHLOROETHENE	OV	2.33	U	N		UG/KG	4.650000	U	4.65	1	14.4
11SB430406	20111116	SO	TETRACHLOROETHENE	OV	2.69	U	N		UG/KG	5.380000	U	5.38	1	22.3
11SB450204	20111116	SO	TETRACHLOROETHENE	OV	136	U	N		UG/KG	272.000000	U	272	50	21.1
11SB450506	20111116	SO	TETRACHLOROETHENE	OV	2.25	U	N		UG/KG	4.500000	U	4.5	1	12
11SB470103	20111116	SO	TETRACHLOROETHENE	OV	2.8	U	N		UG/KG	5.600000	U	5.6	1	19.3
11SB470304	20111116	SO	TETRACHLOROETHENE	OV	2.45	U	N		UG/KG	4.910000	U	4.91	1	17.8
11SB480305	20111116	SO	TETRACHLOROETHENE	OV	2.84	U	N		UG/KG	5.680000	U	5.68	1	20.4
11SB480506	20111116	SO	TETRACHLOROETHENE	OV	2.45	U	N		UG/KG	4.890000	U	4.89	1	14.9
11SB490204	20111116	SO	TETRACHLOROETHENE	OV	2.79	U	N		UG/KG	5.580000	U	5.58	1	20.4
11SB490405	20111116	SO	TETRACHLOROETHENE	OV	2.41	U	N		UG/KG	4.810000	U	4.81	1	12.7
11SB500305	20111116	SO	TETRACHLOROETHENE	OV	2.5	U	N		UG/KG	4.990000	U	4.99	1	12.7
11SB500506	20111116	SO	TETRACHLOROETHENE	OV	2.22	U	N		UG/KG	4.440000	U	4.44	1	11.1
11SB010002	20110426	SO	TOLUENE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	21.1
11SB010002-D	20110426	SO	TOLUENE	OV	2.45	U	N		UG/KG	4.9	U	4.9	1	21
11SB010406	20110426	SO	TOLUENE	OV	2.38	U	N		UG/KG	4.75	U	4.75	1	17.7
11SB010406-D	20110426	SO	TOLUENE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	19.4
11SB020002	20110426	SO	TOLUENE	OV	2.74	U	N		UG/KG	5.47	U	5.47	1	20.6
11SB030002	20110426	SO	TOLUENE	OV	2.81	U	N		UG/KG	5.62	U	5.62	1	18.7
11SB030406	20110426	SO	TOLUENE	OV	2.38	U	N		UG/KG	4.77	U	4.77	1	13.7
11SB040002	20110426	SO	TOLUENE	OV	2.98	U	N		UG/KG	5.97	U	5.97	1	20.9
11SB040406	20110426	SO	TOLUENE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	12.8
11SB250507	20110426	SO	TOLUENE	OV	2.9	U	N		UG/KG	5.79	U	5.79	1	18.9
11SB260507	20110427	SO	TOLUENE	OV	2.79	U	N		UG/KG	5.57	U	5.57	1	14.9
11SB270507	20110426	SO	TOLUENE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	14.1
11SB280507	20110426	SO	TOLUENE	OV	3.31	U	N		UG/KG	6.62	UN	6.62	1	28.9
11SB330406	20111116	SO	TOLUENE	OV	2.31	U	N		UG/KG	4.620000	U	4.62	1	14.9
11SB330607	20111116	SO	TOLUENE	OV	2.17	U	N		UG/KG	4.330000	U	4.33	1	14
11SB340406	20111116	SO	TOLUENE	OV	122	U	N		UG/KG	243.000000	U	243	50	17.6
11SB340708	20111116	SO	TOLUENE	OV	2.38	U	N		UG/KG	4.760000	U	4.76	1	17.6
11SB350305	20111116	SO	TOLUENE	OV	2.88	U	N		UG/KG	5.750000	U	5.75	1	17.6
11SB350506	20111116	SO	TOLUENE	OV	2.72	U	N		UG/KG	5.440000	U	5.44	1	17.6
11SB360204	20111117	SO	TOLUENE	OV	117	U	N		UG/KG	233.000000	U	233	50	15.5
11SB360405	20111117	SO	TOLUENE	OV	113	U	N		UG/KG	226.000000	U	226	50	15.5
11SB360405-D	20111117	SO	TOLUENE	OV	109	U	N		UG/KG	219.000000	U	219	50	13.3
11SB370103	20111116	SO	TOLUENE	OV	2.62	U	N		UG/KG	5.240000	U	5.24	1	15.5
11SB370304	20111116	SO	TOLUENE	OV	2.32	U	N		UG/KG	4.630000	U	4.63	1	13.4

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB380406	20111115	SO	TOLUENE	OV	3.9	U	N		UG/KG	7.790000	U	7.79	1	40.38
11SB380607	20111115	SO	TOLUENE	OV	3.42	U	N		UG/KG	6.840000	U	6.84	1	38.4
11SB390406	20111115	SO	TOLUENE	OV	2.8	U	N		UG/KG	5.610000	U	5.61	1	51.6
11SB390708	20111115	SO	TOLUENE	OV	3.64	U	N		UG/KG	7.270000	U	7.27	1	39.4
11SB400305	20111115	SO	TOLUENE	OV	157	U	N		UG/KG	314.000000	U	314	50	33.3
11SB400506	20111115	SO	TOLUENE	OV	465	U	N		UG/KG	929.000000	U	929	100	51.6
11SB410204	20111117	SO	TOLUENE	OV	114	U	N		UG/KG	228.000000	U	228	50	15.5
11SB410405	20111117	SO	TOLUENE	OV	133	U	N		UG/KG	266.000000	U	266	50	15.5
11SB420102	20111116	SO	TOLUENE	OV	2.29	U	N		UG/KG	4.580000	U	4.58	1	17.6
11SB420203	20111116	SO	TOLUENE	OV	2.33	U	N		UG/KG	4.650000	U	4.65	1	14.4
11SB430406	20111116	SO	TOLUENE	OV	2.69	U	N		UG/KG	5.380000	U	5.38	1	22.3
11SB430809	20111116	SO	TOLUENE	OV	2.77	U	N		UG/KG	5.530000	U	5.53	1	15.7
11SB440406	20111116	SO	TOLUENE	OV	2.32	U	N		UG/KG	4.640000	U	4.64	1	15.7
11SB440607	20111116	SO	TOLUENE	OV	2.45	U	N		UG/KG	4.900000	U	4.9	1	11
11SB450204	20111116	SO	TOLUENE	OV	136	U	N		UG/KG	272.000000	U	272	50	21.1
11SB460305	20111117	SO	TOLUENE	OV	2.28	U	N		UG/KG	4.550000	U	4.55	1	15.5
11SB460506	20111117	SO	TOLUENE	OV	108	U	N		UG/KG	215.000000	U	215	50	8.5
11SB470103	20111116	SO	TOLUENE	OV	2.8	U	N		UG/KG	5.600000	U	5.6	1	19.3
11SB470304	20111116	SO	TOLUENE	OV	2.45	U	N		UG/KG	4.910000	U	4.91	1	17.8
11SB480305	20111116	SO	TOLUENE	OV	2.84	U	N		UG/KG	5.680000	U	5.68	1	20.4
11SB480506	20111116	SO	TOLUENE	OV	2.45	U	N		UG/KG	4.890000	U	4.89	1	14.9
11SB490204	20111116	SO	TOLUENE	OV	2.79	U	N		UG/KG	5.580000	U	5.58	1	20.4
11SB490405	20111116	SO	TOLUENE	OV	2.41	U	N		UG/KG	4.810000	U	4.81	1	12.7
11SB500305	20111116	SO	TOLUENE	OV	2.5	U	N		UG/KG	4.990000	U	4.99	1	12.7
11SB500506	20111116	SO	TOLUENE	OV	2.22	U	N		UG/KG	4.440000	U	4.44	1	11.1
11SB010002	20110426	SO	TOTAL XYLENES	OV	7.54	U	N		UG/KG	15.1	U	15.1	1	21.1
11SB010002-D	20110426	SO	TOTAL XYLENES	OV	7.35	U	N		UG/KG	14.7	U	14.7	1	21
11SB010406	20110426	SO	TOTAL XYLENES	OV	7.13	U	N		UG/KG	14.3	U	14.3	1	17.7
11SB010406-D	20110426	SO	TOTAL XYLENES	OV	7.19	U	N		UG/KG	14.4	U	14.4	1	19.4
11SB020002	20110426	SO	TOTAL XYLENES	OV	8.21	U	N		UG/KG	16.4	U	16.4	1	20.6
11SB020406	20110426	SO	TOTAL XYLENES	OV	7.66	U	N		UG/KG	15.3	U	15.3	1	24.3
11SB030002	20110426	SO	TOTAL XYLENES	OV	8.44	U	N		UG/KG	16.9	U	16.9	1	18.7
11SB030406	20110426	SO	TOTAL XYLENES	OV	7.15	U	N		UG/KG	14.3	U	14.3	1	13.7
11SB040002	20110426	SO	TOTAL XYLENES	OV	8.95	U	N		UG/KG	17.9	U	17.9	1	20.9
11SB040406	20110426	SO	TOTAL XYLENES	OV	7.54	U	N		UG/KG	15.1	U	15.1	1	12.8
11SB250507	20110426	SO	TOTAL XYLENES	OV	8.69	U	N		UG/KG	17.4	U	17.4	1	18.9
11SB260507	20110427	SO	TOTAL XYLENES	OV	8.36	U	N		UG/KG	16.7	U	16.7	1	14.9
11SB270507	20110426	SO	TOTAL XYLENES	OV	6.73	U	N		UG/KG	13.5	U	13.5	1	14.1
11SB280507	20110426	SO	TOTAL XYLENES	OV	9.93	U	N		UG/KG	19.9	UN	19.9	1	28.9
11SB330406	20111116	SO	TOTAL XYLENES	OV	6.93	U	N		UG/KG	13.900000	U	13.9	1	14.9
11SB330607	20111116	SO	TOTAL XYLENES	OV	6.5	U	N		UG/KG	13.000000	U	13	1	14
11SB340406	20111116	SO	TOTAL XYLENES	OV	365	U	N		UG/KG	730.000000	U	730	50	17.6
11SB340708	20111116	SO	TOTAL XYLENES	OV	7.15	U	N		UG/KG	14.300000	U	14.3	1	17.6
11SB350305	20111116	SO	TOTAL XYLENES	OV	8.63	U	N		UG/KG	17.300000	U	17.3	1	17.6
11SB350506	20111116	SO	TOTAL XYLENES	OV	8.16	U	N		UG/KG	16.300000	U	16.3	1	17.6
11SB360204	20111117	SO	TOTAL XYLENES	OV	350	U	N		UG/KG	700.000000	U	700	50	15.5
11SB360405	20111117	SO	TOTAL XYLENES	OV	340	U	N		UG/KG	679.000000	U	679	50	15.5
11SB360405-D	20111117	SO	TOTAL XYLENES	OV	328	U	N		UG/KG	656.000000	U	656	50	13.3
11SB370103	20111116	SO	TOTAL XYLENES	OV	7.85	U	N		UG/KG	15.700000	U	15.7	1	15.5
11SB370304	20111116	SO	TOTAL XYLENES	OV	6.95	U	N		UG/KG	13.900000	U	13.9	1	13.4
11SB380406	20111115	SO	TOTAL XYLENES	OV	11.7	U	N		UG/KG	23.400000	U	23.4	1	40.38
11SB380607	20111115	SO	TOTAL XYLENES	OV	10.3	U	N		UG/KG	20.500000	U	20.5	1	38.4
11SB390406	20111115	SO	TOTAL XYLENES	OV	8.41	U	N		UG/KG	16.800000	U	16.8	1	51.6
11SB390708	20111115	SO	TOTAL XYLENES	OV	10.9	U	N		UG/KG	21.800000	U	21.8	1	39.4
11SB400305	20111115	SO	TOTAL XYLENES	OV	471	U	N		UG/KG	942.000000	U	942	50	33.3
11SB400506	20111115	SO	TOTAL XYLENES	OV	1390	U	N		UG/KG	2790.00000	U	2790	100	51.6
11SB410204	20111117	SO	TOTAL XYLENES	OV	342	U	N		UG/KG	683.000000	U	683	50	15.5
11SB410405	20111117	SO	TOTAL XYLENES	OV	399	U	N		UG/KG	798.000000	U	798	50	15.5
11SB420102	20111116	SO	TOTAL XYLENES	OV	6.87	U	N		UG/KG	13.700000	U	13.7	1	17.6
11SB420203	20111116	SO	TOTAL XYLENES	OV	6.98	U	N		UG/KG	14.000000	U	14	1	14.4
11SB430406	20111116	SO	TOTAL XYLENES	OV	8.07	U	N		UG/KG	16.100000	U	16.1	1	22.3
11SB430809	20111116	SO	TOTAL XYLENES	OV	8.3	U	N		UG/KG	16.600000	U	16.6	1	15.7
11SB440406	20111116	SO	TOTAL XYLENES	OV	6.96	U	N		UG/KG	13.900000	U	13.9	1	15.7
11SB440607	20111116	SO	TOTAL XYLENES	OV	7.35	U	N		UG/KG	14.700000	U	14.7	1	11
11SB450204	20111116	SO	TOTAL XYLENES	OV	407	U	N		UG/KG	815.000000	U	815	50	21.1
11SB450506	20111116	SO	TOTAL XYLENES	OV	6.74	U	N		UG/KG	13.500000	U	13.5	1	12
11SB460305	20111117	SO	TOTAL XYLENES	OV	6.83	U	N		UG/KG	13.700000	U	13.7	1	15.5
11SB460506	20111117	SO	TOTAL XYLENES	OV	323	U	N		UG/KG	645.000000	U	645	50	8.5
11SB470103	20111116	SO	TOTAL XYLENES	OV	8.4	U	N		UG/KG	16.800000	U	16.8	1	19.3
11SB470304	20111116	SO	TOTAL XYLENES	OV	7.36	U	N		UG/KG	14.700000	U	14.7	1	17.8
11SB480305	20111116	SO	TOTAL XYLENES	OV	8.52	U	N		UG/KG	17.000000	U	17	1	20.4
11SB480506	20111116	SO	TOTAL XYLENES	OV	7.34	U	N		UG/KG	14.700000	U	14.7	1	14.9
11SB490204	20111116	SO	TOTAL XYLENES	OV	8.36	U	N		UG/KG	16.700000	U	16.7	1	20.4
11SB490405	20111116	SO	TOTAL XYLENES	OV	7.22	U	N		UG/KG	14.400000	U	14.4	1	12.7
11SB500305	20111116	SO	TOTAL XYLENES	OV	7.49	U	N		UG/KG	15.000000	U	15	1	12.7
11SB500506	20111116	SO	TOTAL XYLENES	OV	6.65	U	N		UG/KG	13.300000	U	13.3	1	11.1
11SB010002	20110426	SO	TRANS-1,2-DICHLOROETHENE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	21.1
11SB010002-D	20110426	SO	TRANS-1,2-DICHLOROETHENE	OV	2.45	U	N		UG/KG	4.9	U	4.9	1	21
11SB010406	20110426	SO	TRANS-1,2-DICHLOROETHENE	OV	2.38	U	N		UG/KG	4.75	U	4.75	1	17.7
11SB010406-D	20110426	SO	TRANS-1,2-DICHLOROETHENE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	19.4
11SB020002	20110426	SO	TRANS-1,2-DICHLOROETHENE	OV	2.74	U	N		UG/KG	5.47	U	5.47	1	20.6

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB030002	20110426	SO	TRANS-1,2-DICHLOROETHENE	OV	2.81	U	N		UG/KG	5.62	U	5.62	1	18.7
11SB030406	20110426	SO	TRANS-1,2-DICHLOROETHENE	OV	2.38	U	N		UG/KG	4.77	U	4.77	1	13.7
11SB040002	20110426	SO	TRANS-1,2-DICHLOROETHENE	OV	2.98	U	N		UG/KG	5.97	U	5.97	1	20.9
11SB040406	20110426	SO	TRANS-1,2-DICHLOROETHENE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	12.8
11SB250507	20110426	SO	TRANS-1,2-DICHLOROETHENE	OV	2.9	U	N		UG/KG	5.79	U	5.79	1	18.9
11SB260507	20110427	SO	TRANS-1,2-DICHLOROETHENE	OV	2.79	U	N		UG/KG	5.57	U	5.57	1	14.9
11SB270507	20110426	SO	TRANS-1,2-DICHLOROETHENE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	14.1
11SB280507	20110426	SO	TRANS-1,2-DICHLOROETHENE	OV	3.31	U	N		UG/KG	6.62	UN	6.62	1	28.9
11SB330406	20111116	SO	TRANS-1,2-DICHLOROETHENE	OV	2.31	U	N		UG/KG	4.620000	U	4.62	1	14.9
11SB330607	20111116	SO	TRANS-1,2-DICHLOROETHENE	OV	2.17	U	N		UG/KG	4.330000	U	4.33	1	14
11SB340406	20111116	SO	TRANS-1,2-DICHLOROETHENE	OV	122	U	N		UG/KG	243.000000	U	243	50	17.6
11SB340708	20111116	SO	TRANS-1,2-DICHLOROETHENE	OV	2.38	U	N		UG/KG	4.760000	U	4.76	1	17.6
11SB350305	20111116	SO	TRANS-1,2-DICHLOROETHENE	OV	2.88	U	N		UG/KG	5.750000	U	5.75	1	17.6
11SB350506	20111116	SO	TRANS-1,2-DICHLOROETHENE	OV	2.72	U	N		UG/KG	5.440000	U	5.44	1	17.6
11SB360204	20111117	SO	TRANS-1,2-DICHLOROETHENE	OV	117	U	N		UG/KG	233.000000	U	233	50	15.5
11SB360405	20111117	SO	TRANS-1,2-DICHLOROETHENE	OV	113	U	N		UG/KG	226.000000	U	226	50	15.5
11SB360405-D	20111117	SO	TRANS-1,2-DICHLOROETHENE	OV	109	U	N		UG/KG	219.000000	U	219	50	13.3
11SB370103	20111116	SO	TRANS-1,2-DICHLOROETHENE	OV	2.62	U	N		UG/KG	5.240000	U	5.24	1	15.5
11SB370304	20111116	SO	TRANS-1,2-DICHLOROETHENE	OV	2.32	U	N		UG/KG	4.630000	U	4.63	1	13.4
11SB380406	20111115	SO	TRANS-1,2-DICHLOROETHENE	OV	3.9	U	N		UG/KG	7.790000	U	7.79	1	40.38
11SB380607	20111115	SO	TRANS-1,2-DICHLOROETHENE	OV	3.42	U	N		UG/KG	6.840000	U	6.84	1	38.4
11SB390406	20111115	SO	TRANS-1,2-DICHLOROETHENE	OV	2.8	U	N		UG/KG	5.610000	U	5.61	1	51.6
11SB390708	20111115	SO	TRANS-1,2-DICHLOROETHENE	OV	3.64	U	N		UG/KG	7.270000	U	7.27	1	39.4
11SB400305	20111115	SO	TRANS-1,2-DICHLOROETHENE	OV	157	U	N		UG/KG	314.000000	U	314	50	33.3
11SB400506	20111115	SO	TRANS-1,2-DICHLOROETHENE	OV	465	U	N		UG/KG	929.000000	U	929	100	51.6
11SB410204	20111117	SO	TRANS-1,2-DICHLOROETHENE	OV	114	U	N		UG/KG	228.000000	U	228	50	15.5
11SB410405	20111117	SO	TRANS-1,2-DICHLOROETHENE	OV	133	U	N		UG/KG	266.000000	U	266	50	15.5
11SB420102	20111116	SO	TRANS-1,2-DICHLOROETHENE	OV	2.29	U	N		UG/KG	4.580000	U	4.58	1	17.6
11SB420203	20111116	SO	TRANS-1,2-DICHLOROETHENE	OV	2.33	U	N		UG/KG	4.650000	U	4.65	1	14.4
11SB430406	20111116	SO	TRANS-1,2-DICHLOROETHENE	OV	2.69	U	N		UG/KG	5.380000	U	5.38	1	22.3
11SB430809	20111116	SO	TRANS-1,2-DICHLOROETHENE	OV	2.77	U	N		UG/KG	5.530000	U	5.53	1	15.7
11SB440406	20111116	SO	TRANS-1,2-DICHLOROETHENE	OV	2.32	U	N		UG/KG	4.640000	U	4.64	1	15.7
11SB440607	20111116	SO	TRANS-1,2-DICHLOROETHENE	OV	2.45	U	N		UG/KG	4.900000	U	4.9	1	11
11SB450204	20111116	SO	TRANS-1,2-DICHLOROETHENE	OV	136	U	N		UG/KG	272.000000	U	272	50	21.1
11SB450506	20111116	SO	TRANS-1,2-DICHLOROETHENE	OV	2.25	U	N		UG/KG	4.500000	U	4.5	1	12
11SB460305	20111117	SO	TRANS-1,2-DICHLOROETHENE	OV	2.28	U	N		UG/KG	4.550000	U	4.55	1	15.5
11SB460506	20111117	SO	TRANS-1,2-DICHLOROETHENE	OV	108	U	N		UG/KG	215.000000	U	215	50	8.5
11SB470103	20111116	SO	TRANS-1,2-DICHLOROETHENE	OV	2.8	U	N		UG/KG	5.600000	U	5.6	1	19.3
11SB470304	20111116	SO	TRANS-1,2-DICHLOROETHENE	OV	2.45	U	N		UG/KG	4.910000	U	4.91	1	17.8
11SB480305	20111116	SO	TRANS-1,2-DICHLOROETHENE	OV	2.84	U	N		UG/KG	5.680000	U	5.68	1	20.4
11SB480506	20111116	SO	TRANS-1,2-DICHLOROETHENE	OV	2.45	U	N		UG/KG	4.890000	U	4.89	1	14.9
11SB490204	20111116	SO	TRANS-1,2-DICHLOROETHENE	OV	2.79	U	N		UG/KG	5.580000	U	5.58	1	20.4
11SB490405	20111116	SO	TRANS-1,2-DICHLOROETHENE	OV	2.41	U	N		UG/KG	4.810000	U	4.81	1	12.7
11SB500305	20111116	SO	TRANS-1,2-DICHLOROETHENE	OV	2.5	U	N		UG/KG	4.990000	U	4.99	1	12.7
11SB500506	20111116	SO	TRANS-1,2-DICHLOROETHENE	OV	2.22	U	N		UG/KG	4.440000	U	4.44	1	11.1
11SB010002	20110426	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	21.1
11SB010002-D	20110426	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.45	U	N		UG/KG	4.9	U	4.9	1	21
11SB010406	20110426	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.38	U	N		UG/KG	4.75	U	4.75	1	17.7
11SB010406-D	20110426	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	19.4
11SB020002	20110426	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.74	U	N		UG/KG	5.47	U	5.47	1	20.6
11SB020406	20110426	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	24.3
11SB030002	20110426	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.81	U	N		UG/KG	5.62	U	5.62	1	18.7
11SB030406	20110426	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.38	U	N		UG/KG	4.77	U	4.77	1	13.7
11SB040002	20110426	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.98	U	N		UG/KG	5.97	U	5.97	1	20.9
11SB040406	20110426	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	12.8
11SB250507	20110426	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.9	U	N		UG/KG	5.79	U	5.79	1	18.9
11SB260507	20110427	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.79	U	N		UG/KG	5.57	U	5.57	1	14.9
11SB270507	20110426	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	14.1
11SB280507	20110426	SO	TRANS-1,3-DICHLOROPROPENE	OV	3.31	U	N		UG/KG	6.62	U	6.62	1	28.9
11SB330406	20111116	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.31	U	N		UG/KG	4.620000	U	4.62	1	14.9
11SB330607	20111116	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.17	U	N		UG/KG	4.330000	U	4.33	1	14
11SB340406	20111116	SO	TRANS-1,3-DICHLOROPROPENE	OV	122	U	N		UG/KG	243.000000	U	243	50	17.6
11SB340708	20111116	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.38	U	N		UG/KG	4.760000	U	4.76	1	17.6
11SB350305	20111116	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.88	U	N		UG/KG	5.750000	U	5.75	1	17.6
11SB350506	20111116	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.72	U	N		UG/KG	5.440000	U	5.44	1	17.6
11SB360204	20111117	SO	TRANS-1,3-DICHLOROPROPENE	OV	117	U	N		UG/KG	233.000000	U	233	50	15.5
11SB360405	20111117	SO	TRANS-1,3-DICHLOROPROPENE	OV	113	U	N		UG/KG	226.000000	U	226	50	15.5
11SB360405-D	20111117	SO	TRANS-1,3-DICHLOROPROPENE	OV	109	U	N		UG/KG	219.000000	U	219	50	13.3
11SB370103	20111116	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.62	U	N		UG/KG	5.240000	U	5.24	1	15.5
11SB370304	20111116	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.32	U	N		UG/KG	4.630000	U	4.63	1	13.4
11SB380406	20111115	SO	TRANS-1,3-DICHLOROPROPENE	OV	3.9	U	N		UG/KG	7.790000	U	7.79	1	40.38
11SB380607	20111115	SO	TRANS-1,3-DICHLOROPROPENE	OV	3.42	U	N		UG/KG	6.840000	U	6.84	1	38.4
11SB390406	20111115	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.8	U	N		UG/KG	5.610000	U	5.61	1	51.6
11SB390708	20111115	SO	TRANS-1,3-DICHLOROPROPENE	OV	3.64	U	N		UG/KG	7.270000	U	7.27	1	39.4
11SB400305	20111115	SO	TRANS-1,3-DICHLOROPROPENE	OV	157	U	N		UG/KG	314.000000	U	314	50	33.3
11SB400506	20111115	SO	TRANS-1,3-DICHLOROPROPENE	OV	465	U	N		UG/KG	929.000000	U	929	100	51.6
11SB410204	20111117	SO	TRANS-1,3-DICHLOROPROPENE	OV	114	U	N		UG/KG	228.000000	U	228	50	15.5
11SB410405	20111117	SO	TRANS-1,3-DICHLOROPROPENE	OV	133	U	N		UG/KG	266.000000	U	266	50	15.5
11SB420102	20111116	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.29	U	N		UG/KG	4.580000	U	4.58	1	17.6
11SB420203	20111116	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.33	U	N		UG/KG	4.650000	U	4.65	1	14.4
11SB430406	20111116	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.69	U	N		UG/KG	5.380000	U	5.38	1	22.3

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB430809	20111116	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.77	U	N		UG/KG	5.530000	U	5.53	1	15.7
11SB440406	20111116	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.32	U	N		UG/KG	4.640000	U	4.64	1	15.7
11SB440607	20111116	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.45	U	N		UG/KG	4.900000	U	4.9	1	11
11SB450204	20111116	SO	TRANS-1,3-DICHLOROPROPENE	OV	136	U	N		UG/KG	272.000000	U	272	50	21.1
11SB450506	20111116	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.25	U	N		UG/KG	4.500000	U	4.5	1	12
11SB460305	20111117	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.28	U	N		UG/KG	4.550000	U	4.55	1	15.5
11SB460506	20111117	SO	TRANS-1,3-DICHLOROPROPENE	OV	108	U	N		UG/KG	215.000000	U	215	50	8.5
11SB470103	20111116	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.8	U	N		UG/KG	5.600000	U	5.6	1	19.3
11SB470304	20111116	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.45	U	N		UG/KG	4.910000	U	4.91	1	17.8
11SB480305	20111116	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.84	U	N		UG/KG	5.680000	U	5.68	1	20.4
11SB480506	20111116	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.45	U	N		UG/KG	4.890000	U	4.89	1	14.9
11SB490204	20111116	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.79	U	N		UG/KG	5.580000	U	5.58	1	20.4
11SB490405	20111116	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.41	U	N		UG/KG	4.810000	U	4.81	1	12.7
11SB500305	20111116	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.5	U	N		UG/KG	4.990000	U	4.99	1	12.7
11SB500506	20111116	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.22	U	N		UG/KG	4.440000	U	4.44	1	11.1
11SB010002	20110426	SO	TRICHLOROETHENE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	21.1
11SB020002	20110426	SO	TRICHLOROETHENE	OV	2.74	U	N		UG/KG	5.47	U	5.47	1	20.6
11SB030002	20110426	SO	TRICHLOROETHENE	OV	2.81	U	N		UG/KG	5.62	U	5.62	1	18.7
11SB030406	20110426	SO	TRICHLOROETHENE	OV	2.38	U	N		UG/KG	4.77	U	4.77	1	13.7
11SB040002	20110426	SO	TRICHLOROETHENE	OV	2.98	U	N		UG/KG	5.97	U	5.97	1	20.9
11SB040406	20110426	SO	TRICHLOROETHENE	OV	2.51	U	N		UG/KG	5.03	U	5.03	1	12.8
11SB250507	20110426	SO	TRICHLOROETHENE	OV	2.9	U	N		UG/KG	5.79	U	5.79	1	18.9
11SB260507	20110427	SO	TRICHLOROETHENE	OV	2.79	U	N		UG/KG	5.57	U	5.57	1	14.9
11SB270507	20110426	SO	TRICHLOROETHENE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	14.1
11SB280507	20110426	SO	TRICHLOROETHENE	OV	3.31	U	N		UG/KG	6.62	UN	6.62	1	28.9
11SB340406	20111116	SO	TRICHLOROETHENE	OV	122	U	N		UG/KG	243.000000	U	243	50	17.6
11SB350305	20111116	SO	TRICHLOROETHENE	OV	2.88	U	N		UG/KG	5.750000	U	5.75	1	17.6
11SB360204	20111117	SO	TRICHLOROETHENE	OV	117	U	N		UG/KG	233.000000	U	233	50	15.5
11SB360405	20111117	SO	TRICHLOROETHENE	OV	113	U	N		UG/KG	226.000000	U	226	50	15.5
11SB360405-D	20111117	SO	TRICHLOROETHENE	OV	109	U	N		UG/KG	219.000000	U	219	50	13.3
11SB370103	20111116	SO	TRICHLOROETHENE	OV	2.62	U	N		UG/KG	5.240000	U	5.24	1	15.5
11SB370304	20111116	SO	TRICHLOROETHENE	OV	2.32	U	N		UG/KG	4.630000	U	4.63	1	13.4
11SB390406	20111115	SO	TRICHLOROETHENE	OV	2.8	U	N		UG/KG	5.610000	U	5.61	1	51.6
11SB390708	20111115	SO	TRICHLOROETHENE	OV	3.64	U	N		UG/KG	7.270000	U	7.27	1	39.4
11SB410405	20111117	SO	TRICHLOROETHENE	OV	133	U	N		UG/KG	266.000000	U	266	50	15.5
11SB420102	20111116	SO	TRICHLOROETHENE	OV	2.29	U	N		UG/KG	4.580000	U	4.58	1	17.6
11SB420203	20111116	SO	TRICHLOROETHENE	OV	2.33	U	N		UG/KG	4.650000	U	4.65	1	14.4
11SB430406	20111116	SO	TRICHLOROETHENE	OV	2.69	U	N		UG/KG	5.380000	U	5.38	1	22.3
11SB450204	20111116	SO	TRICHLOROETHENE	OV	136	U	N		UG/KG	272.000000	U	272	50	21.1
11SB450506	20111116	SO	TRICHLOROETHENE	OV	2.25	U	N		UG/KG	4.500000	U	4.5	1	12
11SB470103	20111116	SO	TRICHLOROETHENE	OV	2.8	U	N		UG/KG	5.600000	U	5.6	1	19.3
11SB470304	20111116	SO	TRICHLOROETHENE	OV	2.45	U	N		UG/KG	4.910000	U	4.91	1	17.8
11SB480305	20111116	SO	TRICHLOROETHENE	OV	2.84	U	N		UG/KG	5.680000	U	5.68	1	20.4
11SB480506	20111116	SO	TRICHLOROETHENE	OV	2.45	U	N		UG/KG	4.890000	U	4.89	1	14.9
11SB490204	20111116	SO	TRICHLOROETHENE	OV	2.79	U	N		UG/KG	5.580000	U	5.58	1	20.4
11SB490405	20111116	SO	TRICHLOROETHENE	OV	2.41	U	N		UG/KG	4.810000	U	4.81	1	12.7
11SB500305	20111116	SO	TRICHLOROETHENE	OV	2.5	U	N		UG/KG	4.990000	U	4.99	1	12.7
11SB500506	20111116	SO	TRICHLOROETHENE	OV	2.22	U	N		UG/KG	4.440000	U	4.44	1	11.1
11SB010002	20110426	SO	TRICHLOROFLUOROMETHANE	OV	5.03	U	N		UG/KG	10.1	U	10.1	1	21.1
11SB010002-D	20110426	SO	TRICHLOROFLUOROMETHANE	OV	4.9	U	N		UG/KG	9.8	U	9.8	1	21
11SB010406	20110426	SO	TRICHLOROFLUOROMETHANE	OV	4.75	U	N		UG/KG	9.5	U	9.5	1	17.7
11SB010406-D	20110426	SO	TRICHLOROFLUOROMETHANE	OV	4.79	U	N		UG/KG	9.59	U	9.59	1	19.4
11SB020002	20110426	SO	TRICHLOROFLUOROMETHANE	OV	5.47	U	N		UG/KG	10.9	U	10.9	1	20.6
11SB020406	20110426	SO	TRICHLOROFLUOROMETHANE	OV	5.1	U	N		UG/KG	10.2	U	10.2	1	24.3
11SB030002	20110426	SO	TRICHLOROFLUOROMETHANE	OV	5.62	U	N		UG/KG	11.2	U	11.2	1	18.7
11SB030406	20110426	SO	TRICHLOROFLUOROMETHANE	OV	4.77	U	N		UG/KG	9.53	U	9.53	1	13.7
11SB040002	20110426	SO	TRICHLOROFLUOROMETHANE	OV	5.97	U	N		UG/KG	11.9	U	11.9	1	20.9
11SB040406	20110426	SO	TRICHLOROFLUOROMETHANE	OV	5.03	U	N		UG/KG	10.1	U	10.1	1	12.8
11SB250507	20110426	SO	TRICHLOROFLUOROMETHANE	OV	5.79	U	N		UG/KG	11.6	U	11.6	1	18.9
11SB260507	20110427	SO	TRICHLOROFLUOROMETHANE	OV	5.57	U	N		UG/KG	11.1	U	11.1	1	14.9
11SB270507	20110426	SO	TRICHLOROFLUOROMETHANE	OV	4.48	U	N		UG/KG	8.97	U	8.97	1	14.1
11SB280507	20110426	SO	TRICHLOROFLUOROMETHANE	OV	6.62	U	N		UG/KG	13.2	U	13.2	1	28.9
11SB330406	20111116	SO	TRICHLOROFLUOROMETHANE	OV	4.62	U	N		UG/KG	9.230000	U	9.23	1	14.9
11SB330607	20111116	SO	TRICHLOROFLUOROMETHANE	OV	4.33	U	N		UG/KG	8.670000	U	8.67	1	14
11SB340406	20111116	SO	TRICHLOROFLUOROMETHANE	OV	243	U	N		UG/KG	487.000000	U	487	50	17.6
11SB340708	20111116	SO	TRICHLOROFLUOROMETHANE	OV	4.76	U	N		UG/KG	9.530000	U	9.53	1	17.6
11SB350305	20111116	SO	TRICHLOROFLUOROMETHANE	OV	5.75	U	N		UG/KG	11.500000	U	11.5	1	17.6
11SB350506	20111116	SO	TRICHLOROFLUOROMETHANE	OV	5.44	U	N		UG/KG	10.900000	U	10.9	1	17.6
11SB360204	20111117	SO	TRICHLOROFLUOROMETHANE	OV	233	U	N		UG/KG	466.000000	U	466	50	15.5
11SB360405	20111117	SO	TRICHLOROFLUOROMETHANE	OV	226	U	N		UG/KG	453.000000	U	453	50	15.5
11SB360405-D	20111117	SO	TRICHLOROFLUOROMETHANE	OV	219	U	N		UG/KG	437.000000	U	437	50	13.3
11SB370103	20111116	SO	TRICHLOROFLUOROMETHANE	OV	5.24	U	N		UG/KG	10.500000	U	10.5	1	15.5
11SB370304	20111116	SO	TRICHLOROFLUOROMETHANE	OV	4.63	U	N		UG/KG	9.260000	U	9.26	1	13.4
11SB380406	20111115	SO	TRICHLOROFLUOROMETHANE	OV	7.79	U	N		UG/KG	15.600000	U	15.6	1	40.38
11SB380607	20111115	SO	TRICHLOROFLUOROMETHANE	OV	6.84	U	N		UG/KG	13.700000	U	13.7	1	38.4
11SB390406	20111115	SO	TRICHLOROFLUOROMETHANE	OV	5.61	U	N		UG/KG	11.200000	U	11.2	1	51.6
11SB390708	20111115	SO	TRICHLOROFLUOROMETHANE	OV	7.27	U	N		UG/KG	14.500000	U	14.5	1	39.4
11SB400305	20111115	SO	TRICHLOROFLUOROMETHANE	OV	314	U	N		UG/KG	628.000000	U	628	50	33.3
11SB400506	20111115	SO	TRICHLOROFLUOROMETHANE	OV	929	U	N		UG/KG	1860.000000	U	1860	100	51.6
11SB410204	20111117	SO	TRICHLOROFLUOROMETHANE	OV	228	U	N		UG/KG	456.000000	U	456	50	15.5
11SB410405	20111117	SO	TRICHLOROFLUOROMETHANE	OV	266	U	N		UG/KG	532.000000	U	532	50	15.5

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB420102	20111116	SO	TRICHLOROFLUOROMETHANE	OV	4.58	U	N		UG/KG	9.160000	U	9.16	1	17.6
11SB420203	20111116	SO	TRICHLOROFLUOROMETHANE	OV	4.65	U	N		UG/KG	9.300000	U	9.3	1	14.4
11SB430406	20111116	SO	TRICHLOROFLUOROMETHANE	OV	5.38	U	N		UG/KG	10.800000	U	10.8	1	22.3
11SB430809	20111116	SO	TRICHLOROFLUOROMETHANE	OV	5.53	U	N		UG/KG	11.100000	U	11.1	1	15.7
11SB440406	20111116	SO	TRICHLOROFLUOROMETHANE	OV	4.64	U	N		UG/KG	9.280000	U	9.28	1	15.7
11SB440607	20111116	SO	TRICHLOROFLUOROMETHANE	OV	4.9	U	N		UG/KG	9.800000	U	9.8	1	11
11SB450204	20111116	SO	TRICHLOROFLUOROMETHANE	OV	272	U	N		UG/KG	543.000000	U	543	50	21.1
11SB450506	20111116	SO	TRICHLOROFLUOROMETHANE	OV	4.5	U	N		UG/KG	8.990000	U	8.99	1	12
11SB460305	20111117	SO	TRICHLOROFLUOROMETHANE	OV	4.55	U	N		UG/KG	9.100000	U	9.1	1	15.5
11SB460506	20111117	SO	TRICHLOROFLUOROMETHANE	OV	215	U	N		UG/KG	430.000000	U	430	50	8.5
11SB470103	20111116	SO	TRICHLOROFLUOROMETHANE	OV	5.6	U	N		UG/KG	11.200000	U	11.2	1	19.3
11SB470304	20111116	SO	TRICHLOROFLUOROMETHANE	OV	4.91	U	N		UG/KG	9.810000	U	9.81	1	17.8
11SB480305	20111116	SO	TRICHLOROFLUOROMETHANE	OV	5.68	U	N		UG/KG	11.400000	U	11.4	1	20.4
11SB480506	20111116	SO	TRICHLOROFLUOROMETHANE	OV	4.89	U	N		UG/KG	9.780000	U	9.78	1	14.9
11SB490204	20111116	SO	TRICHLOROFLUOROMETHANE	OV	5.58	U	N		UG/KG	11.200000	U	11.2	1	20.4
11SB490405	20111116	SO	TRICHLOROFLUOROMETHANE	OV	4.81	U	N		UG/KG	9.630000	U	9.63	1	12.7
11SB500305	20111116	SO	TRICHLOROFLUOROMETHANE	OV	4.99	U	N		UG/KG	9.980000	U	9.98	1	12.7
11SB500506	20111116	SO	TRICHLOROFLUOROMETHANE	OV	4.44	U	N		UG/KG	8.870000	U	8.87	1	11.1
11SB010002	20110426	SO	VINYL CHLORIDE	OV	2.51	U	N		UG/KG	10.1	U	10.1	1	21.1
11SB010002-D	20110426	SO	VINYL CHLORIDE	OV	2.45	U	N		UG/KG	9.8	U	9.8	1	21
11SB010406	20110426	SO	VINYL CHLORIDE	OV	2.38	U	N		UG/KG	9.5	U	9.5	1	17.7
11SB010406-D	20110426	SO	VINYL CHLORIDE	OV	2.4	U	N		UG/KG	9.59	U	9.59	1	19.4
11SB020002	20110426	SO	VINYL CHLORIDE	OV	2.74	U	N		UG/KG	10.9	U	10.9	1	20.6
11SB030002	20110426	SO	VINYL CHLORIDE	OV	2.81	U	N		UG/KG	11.2	U	11.2	1	18.7
11SB030406	20110426	SO	VINYL CHLORIDE	OV	2.38	U	N		UG/KG	9.53	U	9.53	1	13.7
11SB040002	20110426	SO	VINYL CHLORIDE	OV	2.98	U	N		UG/KG	11.9	U	11.9	1	20.9
11SB040406	20110426	SO	VINYL CHLORIDE	OV	2.51	U	N		UG/KG	10.1	U	10.1	1	12.8
11SB250507	20110426	SO	VINYL CHLORIDE	OV	2.9	U	N		UG/KG	11.6	UN	11.6	1	18.9
11SB260507	20110427	SO	VINYL CHLORIDE	OV	2.79	U	N		UG/KG	11.1	U	11.1	1	14.9
11SB270507	20110426	SO	VINYL CHLORIDE	OV	2.24	U	N		UG/KG	8.97	U	8.97	1	14.1
11SB280507	20110426	SO	VINYL CHLORIDE	OV	3.31	U	N		UG/KG	13.2	U	13.2	1	28.9
11SB330406	20111116	SO	VINYL CHLORIDE	OV	2.31	U	N		UG/KG	9.230000	U	9.23	1	14.9
11SB330607	20111116	SO	VINYL CHLORIDE	OV	2.17	U	N		UG/KG	8.670000	U	8.67	1	14
11SB350305	20111116	SO	VINYL CHLORIDE	OV	2.88	U	N		UG/KG	11.500000	UQ	11.5	1	17.6
11SB350506	20111116	SO	VINYL CHLORIDE	OV	2.72	U	N		UG/KG	10.900000	UQ	10.9	1	17.6
11SB380406	20111115	SO	VINYL CHLORIDE	OV	3.9	U	N		UG/KG	15.600000	U	15.6	1	40.38
11SB380607	20111115	SO	VINYL CHLORIDE	OV	3.42	U	N		UG/KG	13.700000	QU	13.7	1	38.4
11SB390406	20111115	SO	VINYL CHLORIDE	OV	2.8	U	N		UG/KG	11.200000	U	11.2	1	51.6
11SB390708	20111115	SO	VINYL CHLORIDE	OV	3.64	U	N		UG/KG	14.500000	QU	14.5	1	39.4
11SB400305	20111115	SO	VINYL CHLORIDE	OV	157	U	N		UG/KG	628.000000	QU	628	50	33.3
11SB400506	20111115	SO	VINYL CHLORIDE	OV	465	U	N		UG/KG	1860.00000	QU	1860	100	51.6
11SB430406	20111116	SO	VINYL CHLORIDE	OV	2.69	U	N		UG/KG	10.800000	U	10.8	1	22.3
11SB430809	20111116	SO	VINYL CHLORIDE	OV	2.77	U	N		UG/KG	11.100000	U	11.1	1	15.7
11SB440607	20111116	SO	VINYL CHLORIDE	OV	2.45	U	N		UG/KG	9.800000	UQ	9.8	1	11
11SB450204	20111116	SO	VINYL CHLORIDE	OV	136	U	N		UG/KG	543.000000	UQ	543	50	21.1
11SB470103	20111116	SO	VINYL CHLORIDE	OV	2.8	U	N		UG/KG	11.200000	UQ	11.2	1	19.3
11SB480305	20111116	SO	VINYL CHLORIDE	OV	2.84	U	N		UG/KG	11.400000	UQ	11.4	1	20.4
11SB480506	20111116	SO	VINYL CHLORIDE	OV	2.45	U	N		UG/KG	9.780000	UQ	9.78	1	14.9
11SB490204	20111116	SO	VINYL CHLORIDE	OV	2.79	U	N		UG/KG	11.200000	UQ	11.2	1	20.4
11SB490405	20111116	SO	VINYL CHLORIDE	OV	2.41	U	N		UG/KG	9.630000	UQ	9.63	1	12.7
11SB500506	20111116	SO	VINYL CHLORIDE	OV	2.22	U	N		UG/KG	8.870000	UQ	8.87	1	11.1
11SB010002	20110426	SO	2-METHYLNAPHTHALENE	PAH	4.22	U	N		UG/KG	8.45	U	8.45	1	21.1
11SB010002-D	20110426	SO	2-METHYLNAPHTHALENE	PAH	4.11	U	N		UG/KG	8.23	U	8.23	1	21
11SB010406	20110426	SO	2-METHYLNAPHTHALENE	PAH	3.84	U	N		UG/KG	7.69	U	7.69	1	17.7
11SB010406-D	20110426	SO	2-METHYLNAPHTHALENE	PAH	3.92	U	N		UG/KG	7.86	U	7.86	1	19.4
11SB020002	20110426	SO	2-METHYLNAPHTHALENE	PAH	4.11	U	N		UG/KG	8.23	U	8.23	1	20.6
11SB020406	20110426	SO	2-METHYLNAPHTHALENE	PAH	4.2	U	N		UG/KG	8.42	U	8.42	1	24.3
11SB030002	20110426	SO	2-METHYLNAPHTHALENE	PAH	3.99	U	N		UG/KG	8	U	8	1	18.7
11SB030406	20110426	SO	2-METHYLNAPHTHALENE	PAH	3.76	U	N		UG/KG	7.53	U	7.53	1	13.7
11SB040002	20110426	SO	2-METHYLNAPHTHALENE	PAH	4.1	U	N		UG/KG	8.22	U	8.22	1	20.9
11SB040406	20110426	SO	2-METHYLNAPHTHALENE	PAH	3.77	U	N		UG/KG	7.55	U	7.55	1	12.8
11SB260507	20110427	SO	2-METHYLNAPHTHALENE	PAH	3.71	U	N		UG/KG	7.44	QU	7.44	1	14.9
11SB270507	20110426	SO	2-METHYLNAPHTHALENE	PAH	3.85	U	N		UG/KG	7.71	U	7.71	1	14.1
11SB280507	20110426	SO	2-METHYLNAPHTHALENE	PAH	4.5	U	N		UG/KG	9.02	U	9.02	1	28.9
11SS050002	20110426	SO	2-METHYLNAPHTHALENE	PAH	3.94	U	N		UG/KG	7.9	U	7.9	1	16.6
11SS060002	20110426	SO	2-METHYLNAPHTHALENE	PAH	3.91	U	N		UG/KG	7.84	U	7.84	1	19.2
11SS070002	20110426	SO	2-METHYLNAPHTHALENE	PAH	4.13	U	N		UG/KG	8.27	U	8.27	1	21.9
11SS080002	20110426	SO	2-METHYLNAPHTHALENE	PAH	3.85	U	N		UG/KG	7.72	U	7.72	1	16.9
11SS090002	20110426	SO	2-METHYLNAPHTHALENE	PAH	4.34	U	N		UG/KG	8.69	U	8.69	1	23.2
11SS100002	20110426	SO	2-METHYLNAPHTHALENE	PAH	4.43	U	N		UG/KG	8.88	U	8.88	1	27.3
11SS110002	20110426	SO	2-METHYLNAPHTHALENE	PAH	3.84	U	N		UG/KG	7.7	U	7.7	1	17.8
11SS110002-D	20110426	SO	2-METHYLNAPHTHALENE	PAH	4.08	U	N		UG/KG	8.16	QU	8.16	1	18.8
11SS120002	20110426	SO	2-METHYLNAPHTHALENE	PAH	3.91	U	N		UG/KG	7.83	QU	7.83	1	17
11SS140002	20110426	SO	2-METHYLNAPHTHALENE	PAH	4.05	U	N		UG/KG	8.1	QU	8.1	1	18.8
11SS150002	20110426	SO	2-METHYLNAPHTHALENE	PAH	4.13	U	N		UG/KG	8.27	QU	8.27	1	19.4
11SS160002	20110426	SO	2-METHYLNAPHTHALENE	PAH	4.28	U	N		UG/KG	8.57	QU	8.57	1	22.6
11SS170002	20110426	SO	2-METHYLNAPHTHALENE	PAH	3.98	U	N		UG/KG	7.97	QU	7.97	1	16.3
11SS180002	20110426	SO	2-METHYLNAPHTHALENE	PAH	3.87	U	N		UG/KG	7.75	QU	7.75	1	17.8
11SS290002	20110427	SO	2-METHYLNAPHTHALENE	PAH	4.25	U	N		UG/KG	8.51	QU	8.51	1	22.6
11SS300002	20110427	SO	2-METHYLNAPHTHALENE	PAH	3.77	U	N		UG/KG	7.54	QU	7.54	1	15
11SS310002-D	20110427	SO	2-METHYLNAPHTHALENE	PAH	4.19	U	N		UG/KG	8.4	QU	8.4	1	21.7

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB010002	20110426	SO	ACENAPHTHENE	PAH	4.22	U	N		UG/KG	8.45	U	8.45	1	21.1
11SB010002-D	20110426	SO	ACENAPHTHENE	PAH	4.11	U	N		UG/KG	8.23	U	8.23	1	21
11SB010406	20110426	SO	ACENAPHTHENE	PAH	3.84	U	N		UG/KG	7.69	U	7.69	1	17.7
11SB010406-D	20110426	SO	ACENAPHTHENE	PAH	3.92	U	N		UG/KG	7.86	U	7.86	1	19.4
11SB020002	20110426	SO	ACENAPHTHENE	PAH	4.11	U	N		UG/KG	8.23	U	8.23	1	20.6
11SB020406	20110426	SO	ACENAPHTHENE	PAH	4.2	U	N		UG/KG	8.42	U	8.42	1	24.3
11SB030002	20110426	SO	ACENAPHTHENE	PAH	3.99	U	N		UG/KG	8	U	8	1	18.7
11SB030406	20110426	SO	ACENAPHTHENE	PAH	3.76	U	N		UG/KG	7.53	U	7.53	1	13.7
11SB040002	20110426	SO	ACENAPHTHENE	PAH	4.1	U	N		UG/KG	8.22	U	8.22	1	20.9
11SB040406	20110426	SO	ACENAPHTHENE	PAH	3.77	U	N		UG/KG	7.55	U	7.55	1	12.8
11SB260507	20110427	SO	ACENAPHTHENE	PAH	3.71	U	N		UG/KG	7.44	QU	7.44	1	14.9
11SB270507	20110426	SO	ACENAPHTHENE	PAH	3.85	U	N		UG/KG	7.71	U	7.71	1	14.1
11SB280507	20110426	SO	ACENAPHTHENE	PAH	4.5	U	N		UG/KG	9.02	U	9.02	1	28.9
11SS050002	20110426	SO	ACENAPHTHENE	PAH	3.94	U	N		UG/KG	7.9	U	7.9	1	16.6
11SS060002	20110426	SO	ACENAPHTHENE	PAH	3.91	U	N		UG/KG	7.84	U	7.84	1	19.2
11SS070002	20110426	SO	ACENAPHTHENE	PAH	4.13	U	N		UG/KG	8.27	U	8.27	1	21.9
11SS080002	20110426	SO	ACENAPHTHENE	PAH	3.85	U	N		UG/KG	7.72	U	7.72	1	16.9
11SS090002	20110426	SO	ACENAPHTHENE	PAH	4.34	U	N		UG/KG	8.69	U	8.69	1	23.2
11SS100002	20110426	SO	ACENAPHTHENE	PAH	4.43	U	N		UG/KG	8.88	U	8.88	1	27.3
11SS120002	20110426	SO	ACENAPHTHENE	PAH	3.91	U	N		UG/KG	7.83	QU	7.83	1	17
11SS130002	20110426	SO	ACENAPHTHENE	PAH	19.2	U	N		UG/KG	38.4	QU	38.4	5	18.2
11SS140002	20110426	SO	ACENAPHTHENE	PAH	4.05	U	N		UG/KG	8.1	QU	8.1	1	18.8
11SS150002	20110426	SO	ACENAPHTHENE	PAH	4.13	U	N		UG/KG	8.27	QU	8.27	1	19.4
11SS160002	20110426	SO	ACENAPHTHENE	PAH	4.28	U	N		UG/KG	8.57	QU	8.57	1	22.6
11SS170002	20110426	SO	ACENAPHTHENE	PAH	3.98	U	N		UG/KG	7.97	QU	7.97	1	16.3
11SS180002	20110426	SO	ACENAPHTHENE	PAH	3.87	U	N		UG/KG	7.75	QU	7.75	1	17.8
11SS290002	20110427	SO	ACENAPHTHENE	PAH	4.25	U	N		UG/KG	8.51	QU	8.51	1	22.6
11SS300002	20110427	SO	ACENAPHTHENE	PAH	3.91	U	N		UG/KG	3.91	QJ	7.54	1	15
11SS310002	20110426	SO	ACENAPHTHENE	PAH	4.05	U	N		UG/KG	8.12	QU	8.12	1	19.5
11SS310002-D	20110427	SO	ACENAPHTHENE	PAH	4.19	U	N		UG/KG	8.4	QU	8.4	1	21.7
11SB010002	20110426	SO	ACENAPHTHYLENE	PAH	4.22	U	N		UG/KG	8.45	U	8.45	1	21.1
11SB010002-D	20110426	SO	ACENAPHTHYLENE	PAH	4.11	U	N		UG/KG	8.23	U	8.23	1	21
11SB010406	20110426	SO	ACENAPHTHYLENE	PAH	3.84	U	N		UG/KG	7.69	U	7.69	1	17.7
11SB010406-D	20110426	SO	ACENAPHTHYLENE	PAH	3.92	U	N		UG/KG	7.86	U	7.86	1	19.4
11SB020002	20110426	SO	ACENAPHTHYLENE	PAH	4.11	U	N		UG/KG	8.23	U	8.23	1	20.6
11SB020406	20110426	SO	ACENAPHTHYLENE	PAH	4.2	U	N		UG/KG	8.42	U	8.42	1	24.3
11SB030002	20110426	SO	ACENAPHTHYLENE	PAH	3.99	U	N		UG/KG	8	U	8	1	18.7
11SB030406	20110426	SO	ACENAPHTHYLENE	PAH	3.76	U	N		UG/KG	7.53	U	7.53	1	13.7
11SB040002	20110426	SO	ACENAPHTHYLENE	PAH	4.1	U	N		UG/KG	8.22	U	8.22	1	20.9
11SB040406	20110426	SO	ACENAPHTHYLENE	PAH	3.77	U	N		UG/KG	7.55	U	7.55	1	12.8
11SB260507	20110427	SO	ACENAPHTHYLENE	PAH	3.71	U	N		UG/KG	7.44	U	7.44	1	14.9
11SB270507	20110426	SO	ACENAPHTHYLENE	PAH	3.85	U	N		UG/KG	7.71	U	7.71	1	14.1
11SB280507	20110426	SO	ACENAPHTHYLENE	PAH	4.5	U	N		UG/KG	9.02	U	9.02	1	28.9
11SS050002	20110426	SO	ACENAPHTHYLENE	PAH	3.94	U	N		UG/KG	7.9	U	7.9	1	16.6
11SS060002	20110426	SO	ACENAPHTHYLENE	PAH	3.91	U	N		UG/KG	7.84	U	7.84	1	19.2
11SS070002	20110426	SO	ACENAPHTHYLENE	PAH	4.13	U	N		UG/KG	8.27	U	8.27	1	21.9
11SS080002	20110426	SO	ACENAPHTHYLENE	PAH	3.85	U	N		UG/KG	7.72	U	7.72	1	16.9
11SS090002	20110426	SO	ACENAPHTHYLENE	PAH	4.34	U	N		UG/KG	8.69	U	8.69	1	23.2
11SS100002	20110426	SO	ACENAPHTHYLENE	PAH	4.43	U	N		UG/KG	8.88	U	8.88	1	27.3
11SS120002	20110426	SO	ACENAPHTHYLENE	PAH	3.91	U	N		UG/KG	7.83	U	7.83	1	17
11SS150002	20110426	SO	ACENAPHTHYLENE	PAH	4.13	U	N		UG/KG	8.27	U	8.27	1	19.4
11SS160002	20110426	SO	ACENAPHTHYLENE	PAH	4.28	U	N		UG/KG	8.57	U	8.57	1	22.6
11SS170002	20110426	SO	ACENAPHTHYLENE	PAH	3.98	U	N		UG/KG	7.97	U	7.97	1	16.3
11SS180002	20110426	SO	ACENAPHTHYLENE	PAH	3.87	U	N		UG/KG	7.75	U	7.75	1	17.8
11SB010002	20110426	SO	ANTHRACENE	PAH	4.22	U	N		UG/KG	8.45	U	8.45	1	21.1
11SB010002-D	20110426	SO	ANTHRACENE	PAH	4.11	U	N		UG/KG	8.23	U	8.23	1	21
11SB010406	20110426	SO	ANTHRACENE	PAH	3.84	U	N		UG/KG	7.69	U	7.69	1	17.7
11SB010406-D	20110426	SO	ANTHRACENE	PAH	3.92	U	N		UG/KG	7.86	U	7.86	1	19.4
11SB020002	20110426	SO	ANTHRACENE	PAH	4.11	U	N		UG/KG	8.23	U	8.23	1	20.6
11SB020406	20110426	SO	ANTHRACENE	PAH	4.2	U	N		UG/KG	8.42	U	8.42	1	24.3
11SB030002	20110426	SO	ANTHRACENE	PAH	3.99	U	N		UG/KG	8	U	8	1	18.7
11SB030406	20110426	SO	ANTHRACENE	PAH	3.76	U	N		UG/KG	7.53	U	7.53	1	13.7
11SB040002	20110426	SO	ANTHRACENE	PAH	4.1	U	N		UG/KG	8.22	U	8.22	1	20.9
11SB040406	20110426	SO	ANTHRACENE	PAH	3.77	U	N		UG/KG	7.55	U	7.55	1	12.8
11SB260507	20110427	SO	ANTHRACENE	PAH	3.71	U	N		UG/KG	7.44	U	7.44	1	14.9
11SB270507	20110426	SO	ANTHRACENE	PAH	3.85	U	N		UG/KG	7.71	U	7.71	1	14.1
11SB280507	20110426	SO	ANTHRACENE	PAH	4.5	U	N		UG/KG	9.02	U	9.02	1	28.9
11SS050002	20110426	SO	ANTHRACENE	PAH	3.94	U	N		UG/KG	7.9	U	7.9	1	16.6
11SS060002	20110426	SO	ANTHRACENE	PAH	3.91	U	N		UG/KG	7.84	U	7.84	1	19.2
11SS070002	20110426	SO	ANTHRACENE	PAH	4.13	U	N		UG/KG	8.27	U	8.27	1	21.9
11SS080002	20110426	SO	ANTHRACENE	PAH	3.85	U	N		UG/KG	7.72	U	7.72	1	16.9
11SS090002	20110426	SO	ANTHRACENE	PAH	4.34	U	N		UG/KG	8.69	U	8.69	1	23.2
11SS100002	20110426	SO	ANTHRACENE	PAH	4.43	U	N		UG/KG	8.88	U	8.88	1	27.3
11SS120002	20110426	SO	ANTHRACENE	PAH	3.91	U	N		UG/KG	7.83	U	7.83	1	17
11SS150002	20110426	SO	ANTHRACENE	PAH	4.13	U	N		UG/KG	8.27	U	8.27	1	19.4
11SS160002	20110426	SO	ANTHRACENE	PAH	4.28	U	N		UG/KG	8.57	U	8.57	1	22.6
11SS170002	20110426	SO	ANTHRACENE	PAH	3.98	U	N		UG/KG	7.97	U	7.97	1	16.3
11SS180002	20110426	SO	ANTHRACENE	PAH	3.87	U	N		UG/KG	7.75	U	7.75	1	17.8
11SS290002	20110427	SO	ANTHRACENE	PAH	4.25	U	N		UG/KG	8.51	U	8.51	1	22.6
11SB010002	20110426	SO	BENZO(A)ANTHRACENE	PAH	4.22	U	N		UG/KG	8.45	U	8.45	1	21.1
11SB010002-D	20110426	SO	BENZO(A)ANTHRACENE	PAH	4.11	U	N		UG/KG	8.23	U	8.23	1	21

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB010406	20110426	SO	BENZO(A)ANTHRACENE	PAH	3.84	U	N		UG/KG	7.69	U	7.69	1	17.7
11SB010406-D	20110426	SO	BENZO(A)ANTHRACENE	PAH	3.92	U	N		UG/KG	7.86	U	7.86	1	19.4
11SB020002	20110426	SO	BENZO(A)ANTHRACENE	PAH	4.11	U	N		UG/KG	8.23	U	8.23	1	20.6
11SB020406	20110426	SO	BENZO(A)ANTHRACENE	PAH	4.2	U	N		UG/KG	8.42	U	8.42	1	24.3
11SB030002	20110426	SO	BENZO(A)ANTHRACENE	PAH	3.99	U	N		UG/KG	8	U	8	1	18.7
11SB030406	20110426	SO	BENZO(A)ANTHRACENE	PAH	3.76	U	N		UG/KG	7.53	U	7.53	1	13.7
11SB040002	20110426	SO	BENZO(A)ANTHRACENE	PAH	4.1	U	N		UG/KG	8.22	U	8.22	1	20.9
11SB040406	20110426	SO	BENZO(A)ANTHRACENE	PAH	3.77	U	N		UG/KG	7.55	U	7.55	1	12.8
11SB260507	20110427	SO	BENZO(A)ANTHRACENE	PAH	3.71	U	N		UG/KG	7.44	U	7.44	1	14.9
11SB270507	20110426	SO	BENZO(A)ANTHRACENE	PAH	3.85	U	N		UG/KG	7.71	U	7.71	1	14.1
11SB280507	20110426	SO	BENZO(A)ANTHRACENE	PAH	4.5	U	N		UG/KG	9.02	U	9.02	1	28.9
11SS050002	20110426	SO	BENZO(A)ANTHRACENE	PAH	3.94	U	N		UG/KG	7.9	U	7.9	1	16.6
11SS060002	20110426	SO	BENZO(A)ANTHRACENE	PAH	3.91	U	N		UG/KG	7.84	U	7.84	1	19.2
11SS080002	20110426	SO	BENZO(A)ANTHRACENE	PAH	3.85	U	N		UG/KG	7.72	U	7.72	1	16.9
11SS090002	20110426	SO	BENZO(A)ANTHRACENE	PAH	4.34	U	N		UG/KG	8.69	U	8.69	1	23.2
11SS100002	20110426	SO	BENZO(A)ANTHRACENE	PAH	4.43	U	N		UG/KG	8.88	U	8.88	1	27.3
11SS120002	20110426	SO	BENZO(A)ANTHRACENE	PAH	3.91	U	N		UG/KG	7.83	U	7.83	1	17
11SS150002	20110426	SO	BENZO(A)ANTHRACENE	PAH	4.13	U	N		UG/KG	8.27	U	8.27	1	19.4
11SS160002	20110426	SO	BENZO(A)ANTHRACENE	PAH	4.28	U	N		UG/KG	8.57	U	8.57	1	22.6
11SS170002	20110426	SO	BENZO(A)ANTHRACENE	PAH	3.98	U	N		UG/KG	7.97	U	7.97	1	16.3
11SS180002	20110426	SO	BENZO(A)ANTHRACENE	PAH	3.87	U	N		UG/KG	7.75	U	7.75	1	17.8
11SB010002	20110426	SO	BENZO(A)PYRENE	PAH	4.22	U	N		UG/KG	8.45	U	8.45	1	21.1
11SB010002-D	20110426	SO	BENZO(A)PYRENE	PAH	4.11	U	N		UG/KG	8.23	U	8.23	1	21
11SB010406	20110426	SO	BENZO(A)PYRENE	PAH	3.84	U	N		UG/KG	7.69	U	7.69	1	17.7
11SB010406-D	20110426	SO	BENZO(A)PYRENE	PAH	3.92	U	N		UG/KG	7.86	U	7.86	1	19.4
11SB020002	20110426	SO	BENZO(A)PYRENE	PAH	4.11	U	N		UG/KG	8.23	U	8.23	1	20.6
11SB020406	20110426	SO	BENZO(A)PYRENE	PAH	4.2	U	N		UG/KG	8.42	U	8.42	1	24.3
11SB030002	20110426	SO	BENZO(A)PYRENE	PAH	3.99	U	N		UG/KG	8	U	8	1	18.7
11SB030406	20110426	SO	BENZO(A)PYRENE	PAH	3.76	U	N		UG/KG	7.53	U	7.53	1	13.7
11SB040002	20110426	SO	BENZO(A)PYRENE	PAH	4.1	U	N		UG/KG	8.22	U	8.22	1	20.9
11SB040406	20110426	SO	BENZO(A)PYRENE	PAH	3.77	U	N		UG/KG	7.55	U	7.55	1	12.8
11SB260507	20110427	SO	BENZO(A)PYRENE	PAH	3.71	U	N		UG/KG	7.44	U	7.44	1	14.9
11SB270507	20110426	SO	BENZO(A)PYRENE	PAH	3.85	U	N		UG/KG	7.71	U	7.71	1	14.1
11SB280507	20110426	SO	BENZO(A)PYRENE	PAH	4.5	U	N		UG/KG	9.02	U	9.02	1	28.9
11SS050002	20110426	SO	BENZO(A)PYRENE	PAH	3.94	U	N		UG/KG	7.9	U	7.9	1	16.6
11SS060002	20110426	SO	BENZO(A)PYRENE	PAH	3.91	U	N		UG/KG	7.84	U	7.84	1	19.2
11SS080002	20110426	SO	BENZO(A)PYRENE	PAH	3.85	U	N		UG/KG	7.72	U	7.72	1	16.9
11SS090002	20110426	SO	BENZO(A)PYRENE	PAH	4.34	U	N		UG/KG	8.69	U	8.69	1	23.2
11SS100002	20110426	SO	BENZO(A)PYRENE	PAH	4.43	U	N		UG/KG	8.88	U	8.88	1	27.3
11SS120002	20110426	SO	BENZO(A)PYRENE	PAH	3.91	U	N		UG/KG	7.83	U	7.83	1	17
11SS150002	20110426	SO	BENZO(A)PYRENE	PAH	4.13	U	N		UG/KG	8.27	U	8.27	1	19.4
11SS160002	20110426	SO	BENZO(A)PYRENE	PAH	4.28	U	N		UG/KG	8.57	U	8.57	1	22.6
11SS170002	20110426	SO	BENZO(A)PYRENE	PAH	3.98	U	N		UG/KG	7.97	U	7.97	1	16.3
11SS180002	20110426	SO	BENZO(A)PYRENE	PAH	3.87	U	N		UG/KG	7.75	U	7.75	1	17.8
11SB010002	20110426	SO	BENZO(B)FLUORANTHENE	PAH	4.22	U	N		UG/KG	8.45	U	8.45	1	21.1
11SB010002-D	20110426	SO	BENZO(B)FLUORANTHENE	PAH	4.11	U	N		UG/KG	8.23	U	8.23	1	21
11SB010406	20110426	SO	BENZO(B)FLUORANTHENE	PAH	3.84	U	N		UG/KG	7.69	U	7.69	1	17.7
11SB010406-D	20110426	SO	BENZO(B)FLUORANTHENE	PAH	3.92	U	N		UG/KG	7.86	U	7.86	1	19.4
11SB020002	20110426	SO	BENZO(B)FLUORANTHENE	PAH	4.11	U	N		UG/KG	8.23	U	8.23	1	20.6
11SB020406	20110426	SO	BENZO(B)FLUORANTHENE	PAH	4.2	U	N		UG/KG	8.42	U	8.42	1	24.3
11SB030002	20110426	SO	BENZO(B)FLUORANTHENE	PAH	3.99	U	N		UG/KG	8	U	8	1	18.7
11SB030406	20110426	SO	BENZO(B)FLUORANTHENE	PAH	3.76	U	N		UG/KG	7.53	U	7.53	1	13.7
11SB040002	20110426	SO	BENZO(B)FLUORANTHENE	PAH	4.1	U	N		UG/KG	8.22	U	8.22	1	20.9
11SB040406	20110426	SO	BENZO(B)FLUORANTHENE	PAH	3.77	U	N		UG/KG	7.55	U	7.55	1	12.8
11SB260507	20110427	SO	BENZO(B)FLUORANTHENE	PAH	3.71	U	N		UG/KG	7.44	U	7.44	1	14.9
11SB270507	20110426	SO	BENZO(B)FLUORANTHENE	PAH	3.85	U	N		UG/KG	7.71	U	7.71	1	14.1
11SB280507	20110426	SO	BENZO(B)FLUORANTHENE	PAH	4.5	U	N		UG/KG	9.02	U	9.02	1	28.9
11SS060002	20110426	SO	BENZO(B)FLUORANTHENE	PAH	3.91	U	N		UG/KG	7.84	U	7.84	1	19.2
11SS080002	20110426	SO	BENZO(B)FLUORANTHENE	PAH	3.85	U	N		UG/KG	7.72	U	7.72	1	16.9
11SS090002	20110426	SO	BENZO(B)FLUORANTHENE	PAH	4.34	U	N		UG/KG	8.69	U	8.69	1	23.2
11SS100002	20110426	SO	BENZO(B)FLUORANTHENE	PAH	4.43	U	N		UG/KG	8.88	U	8.88	1	27.3
11SS120002	20110426	SO	BENZO(B)FLUORANTHENE	PAH	3.91	U	N		UG/KG	7.83	U	7.83	1	17
11SS150002	20110426	SO	BENZO(B)FLUORANTHENE	PAH	4.13	U	N		UG/KG	8.27	U	8.27	1	19.4
11SS160002	20110426	SO	BENZO(B)FLUORANTHENE	PAH	4.28	U	N		UG/KG	8.57	U	8.57	1	22.6
11SS180002	20110426	SO	BENZO(B)FLUORANTHENE	PAH	3.87	U	N		UG/KG	7.75	U	7.75	1	17.8
11SB010002	20110426	SO	BENZO(G,H,I)PERYLENE	PAH	4.22	U	N		UG/KG	8.45	U	8.45	1	21.1
11SB010002-D	20110426	SO	BENZO(G,H,I)PERYLENE	PAH	4.11	U	N		UG/KG	8.23	U	8.23	1	21
11SB010406	20110426	SO	BENZO(G,H,I)PERYLENE	PAH	3.84	U	N		UG/KG	7.69	U	7.69	1	17.7
11SB010406-D	20110426	SO	BENZO(G,H,I)PERYLENE	PAH	3.92	U	N		UG/KG	7.86	U	7.86	1	19.4
11SB020002	20110426	SO	BENZO(G,H,I)PERYLENE	PAH	4.11	U	N		UG/KG	8.23	U	8.23	1	20.6
11SB020406	20110426	SO	BENZO(G,H,I)PERYLENE	PAH	4.2	U	N		UG/KG	8.42	U	8.42	1	24.3
11SB030002	20110426	SO	BENZO(G,H,I)PERYLENE	PAH	3.99	U	N		UG/KG	8	U	8	1	18.7
11SB030406	20110426	SO	BENZO(G,H,I)PERYLENE	PAH	3.76	U	N		UG/KG	7.53	U	7.53	1	13.7
11SB040002	20110426	SO	BENZO(G,H,I)PERYLENE	PAH	4.1	U	N		UG/KG	8.22	U	8.22	1	20.9
11SB040406	20110426	SO	BENZO(G,H,I)PERYLENE	PAH	3.77	U	N		UG/KG	7.55	U	7.55	1	12.8
11SB260507	20110427	SO	BENZO(G,H,I)PERYLENE	PAH	3.71	U	N		UG/KG	7.44	U	7.44	1	14.9
11SB270507	20110426	SO	BENZO(G,H,I)PERYLENE	PAH	3.85	U	N		UG/KG	7.71	U	7.71	1	14.1
11SB280507	20110426	SO	BENZO(G,H,I)PERYLENE	PAH	4.5	U	N		UG/KG	9.02	U	9.02	1	28.9
11SS050002	20110426	SO	BENZO(G,H,I)PERYLENE	PAH	3.94	U	N		UG/KG	7.9	U	7.9	1	16.6
11SS080002	20110426	SO	BENZO(G,H,I)PERYLENE	PAH	3.85	U	N		UG/KG	7.72	U	7.72	1	16.9
11SS090002	20110426	SO	BENZO(G,H,I)PERYLENE	PAH	4.34	U	N		UG/KG	8.69	U	8.69	1	23.2

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SS100002	20110426	SO	BENZO(G,H,I)PERYLENE	PAH	4.43	U	N		UG/KG	8.88	U	8.88	1	27.3
11SS120002	20110426	SO	BENZO(G,H,I)PERYLENE	PAH	3.91	U	N		UG/KG	7.83	U	7.83	1	17
11SS150002	20110426	SO	BENZO(G,H,I)PERYLENE	PAH	4.13	U	N		UG/KG	8.27	U	8.27	1	19.4
11SS160002	20110426	SO	BENZO(G,H,I)PERYLENE	PAH	4.28	U	N		UG/KG	8.57	U	8.57	1	22.6
11SS170002	20110426	SO	BENZO(G,H,I)PERYLENE	PAH	3.98	U	N		UG/KG	7.97	U	7.97	1	16.3
11SS180002	20110426	SO	BENZO(G,H,I)PERYLENE	PAH	3.87	U	N		UG/KG	7.75	U	7.75	1	17.8
11SB010002	20110426	SO	BENZO(K)FLUORANTHENE	PAH	4.22	U	N		UG/KG	8.45	U	8.45	1	21.1
11SB010002-D	20110426	SO	BENZO(K)FLUORANTHENE	PAH	4.11	U	N		UG/KG	8.23	U	8.23	1	21
11SB010406	20110426	SO	BENZO(K)FLUORANTHENE	PAH	3.84	U	N		UG/KG	7.69	U	7.69	1	17.7
11SB010406-D	20110426	SO	BENZO(K)FLUORANTHENE	PAH	3.92	U	N		UG/KG	7.86	U	7.86	1	19.4
11SB020002	20110426	SO	BENZO(K)FLUORANTHENE	PAH	4.11	U	N		UG/KG	8.23	U	8.23	1	20.6
11SB020406	20110426	SO	BENZO(K)FLUORANTHENE	PAH	4.2	U	N		UG/KG	8.42	U	8.42	1	24.3
11SB030002	20110426	SO	BENZO(K)FLUORANTHENE	PAH	3.99	U	N		UG/KG	8	U	8	1	18.7
11SB030406	20110426	SO	BENZO(K)FLUORANTHENE	PAH	3.76	U	N		UG/KG	7.53	U	7.53	1	13.7
11SB040002	20110426	SO	BENZO(K)FLUORANTHENE	PAH	4.1	U	N		UG/KG	8.22	U	8.22	1	20.9
11SB040406	20110426	SO	BENZO(K)FLUORANTHENE	PAH	3.77	U	N		UG/KG	7.55	U	7.55	1	12.8
11SB260507	20110427	SO	BENZO(K)FLUORANTHENE	PAH	3.71	U	N		UG/KG	7.44	U	7.44	1	14.9
11SB270507	20110426	SO	BENZO(K)FLUORANTHENE	PAH	3.85	U	N		UG/KG	7.71	U	7.71	1	14.1
11SB280507	20110426	SO	BENZO(K)FLUORANTHENE	PAH	4.5	U	N		UG/KG	9.02	U	9.02	1	28.9
11SS060002	20110426	SO	BENZO(K)FLUORANTHENE	PAH	3.91	U	N		UG/KG	7.84	U	7.84	1	19.2
11SS070002	20110426	SO	BENZO(K)FLUORANTHENE	PAH	4.13	U	N		UG/KG	8.27	U	8.27	1	21.9
11SS080002	20110426	SO	BENZO(K)FLUORANTHENE	PAH	3.85	U	N		UG/KG	7.72	U	7.72	1	16.9
11SS090002	20110426	SO	BENZO(K)FLUORANTHENE	PAH	4.34	U	N		UG/KG	8.69	U	8.69	1	23.2
11SS100002	20110426	SO	BENZO(K)FLUORANTHENE	PAH	4.43	U	N		UG/KG	8.88	U	8.88	1	27.3
11SS120002	20110426	SO	BENZO(K)FLUORANTHENE	PAH	3.91	U	N		UG/KG	7.83	U	7.83	1	17
11SS150002	20110426	SO	BENZO(K)FLUORANTHENE	PAH	4.13	U	N		UG/KG	8.27	U	8.27	1	19.4
11SS160002	20110426	SO	BENZO(K)FLUORANTHENE	PAH	4.28	U	N		UG/KG	8.57	U	8.57	1	22.6
11SS180002	20110426	SO	BENZO(K)FLUORANTHENE	PAH	3.87	U	N		UG/KG	7.75	U	7.75	1	17.8
11SB010002	20110426	SO	CHRYSENE	PAH	4.22	U	N		UG/KG	8.45	U	8.45	1	21.1
11SB010002-D	20110426	SO	CHRYSENE	PAH	4.11	U	N		UG/KG	8.23	U	8.23	1	21
11SB010406	20110426	SO	CHRYSENE	PAH	3.84	U	N		UG/KG	7.69	U	7.69	1	17.7
11SB010406-D	20110426	SO	CHRYSENE	PAH	3.92	U	N		UG/KG	7.86	U	7.86	1	19.4
11SB020002	20110426	SO	CHRYSENE	PAH	4.11	U	N		UG/KG	8.23	U	8.23	1	20.6
11SB020406	20110426	SO	CHRYSENE	PAH	4.2	U	N		UG/KG	8.42	U	8.42	1	24.3
11SB030002	20110426	SO	CHRYSENE	PAH	3.99	U	N		UG/KG	8	U	8	1	18.7
11SB030406	20110426	SO	CHRYSENE	PAH	3.76	U	N		UG/KG	7.53	U	7.53	1	13.7
11SB040002	20110426	SO	CHRYSENE	PAH	4.1	U	N		UG/KG	8.22	U	8.22	1	20.9
11SB040406	20110426	SO	CHRYSENE	PAH	3.77	U	N		UG/KG	7.55	U	7.55	1	12.8
11SB260507	20110427	SO	CHRYSENE	PAH	3.71	U	N		UG/KG	7.44	U	7.44	1	14.9
11SB270507	20110426	SO	CHRYSENE	PAH	3.85	U	N		UG/KG	7.71	U	7.71	1	14.1
11SB280507	20110426	SO	CHRYSENE	PAH	4.5	U	N		UG/KG	9.02	U	9.02	1	28.9
11SS050002	20110426	SO	CHRYSENE	PAH	3.94	U	N		UG/KG	7.9	U	7.9	1	16.6
11SS080002	20110426	SO	CHRYSENE	PAH	3.85	U	N		UG/KG	7.72	U	7.72	1	16.9
11SS090002	20110426	SO	CHRYSENE	PAH	4.34	U	N		UG/KG	8.69	U	8.69	1	23.2
11SS100002	20110426	SO	CHRYSENE	PAH	4.43	U	N		UG/KG	8.88	U	8.88	1	27.3
11SS120002	20110426	SO	CHRYSENE	PAH	3.91	U	N		UG/KG	7.83	U	7.83	1	17
11SS150002	20110426	SO	CHRYSENE	PAH	4.13	U	N		UG/KG	8.27	U	8.27	1	19.4
11SS160002	20110426	SO	CHRYSENE	PAH	4.28	U	N		UG/KG	8.57	U	8.57	1	22.6
11SS170002	20110426	SO	CHRYSENE	PAH	3.98	U	N		UG/KG	7.97	U	7.97	1	16.3
11SS180002	20110426	SO	CHRYSENE	PAH	3.87	U	N		UG/KG	7.75	U	7.75	1	17.8
11SB010002	20110426	SO	DIBENZO(A,H)ANTHRACENE	PAH	4.22	U	N		UG/KG	8.45	U	8.45	1	21.1
11SB010002-D	20110426	SO	DIBENZO(A,H)ANTHRACENE	PAH	4.11	U	N		UG/KG	8.23	U	8.23	1	21
11SB010406	20110426	SO	DIBENZO(A,H)ANTHRACENE	PAH	3.84	U	N		UG/KG	7.69	U	7.69	1	17.7
11SB010406-D	20110426	SO	DIBENZO(A,H)ANTHRACENE	PAH	3.92	U	N		UG/KG	7.86	U	7.86	1	19.4
11SB020002	20110426	SO	DIBENZO(A,H)ANTHRACENE	PAH	4.11	U	N		UG/KG	8.23	U	8.23	1	20.6
11SB020406	20110426	SO	DIBENZO(A,H)ANTHRACENE	PAH	4.2	U	N		UG/KG	8.42	U	8.42	1	24.3
11SB030002	20110426	SO	DIBENZO(A,H)ANTHRACENE	PAH	3.99	U	N		UG/KG	8	U	8	1	18.7
11SB030406	20110426	SO	DIBENZO(A,H)ANTHRACENE	PAH	3.76	U	N		UG/KG	7.53	U	7.53	1	13.7
11SB040002	20110426	SO	DIBENZO(A,H)ANTHRACENE	PAH	4.1	U	N		UG/KG	8.22	U	8.22	1	20.9
11SB040406	20110426	SO	DIBENZO(A,H)ANTHRACENE	PAH	3.77	U	N		UG/KG	7.55	U	7.55	1	12.8
11SB260507	20110427	SO	DIBENZO(A,H)ANTHRACENE	PAH	3.71	U	N		UG/KG	7.44	U	7.44	1	14.9
11SB270507	20110426	SO	DIBENZO(A,H)ANTHRACENE	PAH	3.85	U	N		UG/KG	7.71	U	7.71	1	14.1
11SB280507	20110426	SO	DIBENZO(A,H)ANTHRACENE	PAH	4.5	U	N		UG/KG	9.02	U	9.02	1	28.9
11SS050002	20110426	SO	DIBENZO(A,H)ANTHRACENE	PAH	3.94	U	N		UG/KG	7.9	U	7.9	1	16.6
11SS060002	20110426	SO	DIBENZO(A,H)ANTHRACENE	PAH	3.91	U	N		UG/KG	7.84	U	7.84	1	19.2
11SS070002	20110426	SO	DIBENZO(A,H)ANTHRACENE	PAH	4.13	U	N		UG/KG	8.27	U	8.27	1	21.9
11SS080002	20110426	SO	DIBENZO(A,H)ANTHRACENE	PAH	3.85	U	N		UG/KG	7.72	U	7.72	1	16.9
11SS090002	20110426	SO	DIBENZO(A,H)ANTHRACENE	PAH	4.34	U	N		UG/KG	8.69	U	8.69	1	23.2
11SS100002	20110426	SO	DIBENZO(A,H)ANTHRACENE	PAH	4.43	U	N		UG/KG	8.88	U	8.88	1	27.3
11SS120002	20110426	SO	DIBENZO(A,H)ANTHRACENE	PAH	3.91	U	N		UG/KG	7.83	U	7.83	1	17
11SS150002	20110426	SO	DIBENZO(A,H)ANTHRACENE	PAH	4.13	U	N		UG/KG	8.27	U	8.27	1	19.4
11SS160002	20110426	SO	DIBENZO(A,H)ANTHRACENE	PAH	4.28	U	N		UG/KG	8.57	U	8.57	1	22.6
11SS170002	20110426	SO	DIBENZO(A,H)ANTHRACENE	PAH	3.98	U	N		UG/KG	7.97	U	7.97	1	16.3
11SS180002	20110426	SO	DIBENZO(A,H)ANTHRACENE	PAH	3.87	U	N		UG/KG	7.75	U	7.75	1	17.8
11SS290002	20110427	SO	DIBENZO(A,H)ANTHRACENE	PAH	4.25	U	N		UG/KG	8.51	U	8.51	1	22.6
11SB010002	20110426	SO	FLUORANTHENE	PAH	4.22	U	N		UG/KG	8.45	U	8.45	1	21.1
11SB010002-D	20110426	SO	FLUORANTHENE	PAH	4.11	U	N		UG/KG	8.23	U	8.23	1	21
11SB010406	20110426	SO	FLUORANTHENE	PAH	3.84	U	N		UG/KG	7.69	U	7.69	1	17.7
11SB010406-D	20110426	SO	FLUORANTHENE	PAH	3.92	U	N		UG/KG	7.86	U	7.86	1	19.4
11SB020002	20110426	SO	FLUORANTHENE	PAH	4.11	U	N		UG/KG	8.23	U	8.23	1	20.6
11SB020406	20110426	SO	FLUORANTHENE	PAH	4.2	U	N		UG/KG	8.42	U	8.42	1	24.3

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB030002	20110426	SO	FLUORANTHENE	PAH	3.99	U	N		UG/KG	8	U	8	1	18.7
11SB030406	20110426	SO	FLUORANTHENE	PAH	3.76	U	N		UG/KG	7.53	U	7.53	1	13.7
11SB040002	20110426	SO	FLUORANTHENE	PAH	4.1	U	N		UG/KG	8.22	U	8.22	1	20.9
11SB040406	20110426	SO	FLUORANTHENE	PAH	3.77	U	N		UG/KG	7.55	U	7.55	1	12.8
11SB260507	20110427	SO	FLUORANTHENE	PAH	3.71	U	N		UG/KG	7.44	U	7.44	1	14.9
11SB270507	20110426	SO	FLUORANTHENE	PAH	3.85	U	N		UG/KG	7.71	U	7.71	1	14.1
11SB280507	20110426	SO	FLUORANTHENE	PAH	4.5	U	N		UG/KG	9.02	U	9.02	1	28.9
11SS050002	20110426	SO	FLUORANTHENE	PAH	3.94	U	N		UG/KG	7.9	U	7.9	1	16.6
11SS080002	20110426	SO	FLUORANTHENE	PAH	3.85	U	N		UG/KG	7.72	U	7.72	1	16.9
11SS090002	20110426	SO	FLUORANTHENE	PAH	4.34	U	N		UG/KG	8.69	U	8.69	1	23.2
11SS100002	20110426	SO	FLUORANTHENE	PAH	4.43	U	N		UG/KG	8.88	U	8.88	1	27.3
11SS120002	20110426	SO	FLUORANTHENE	PAH	3.91	U	N		UG/KG	7.83	U	7.83	1	17
11SS150002	20110426	SO	FLUORANTHENE	PAH	4.13	U	N		UG/KG	8.27	U	8.27	1	19.4
11SS160002	20110426	SO	FLUORANTHENE	PAH	4.28	U	N		UG/KG	8.57	U	8.57	1	22.6
11SS180002	20110426	SO	FLUORANTHENE	PAH	3.87	U	N		UG/KG	7.75	U	7.75	1	17.8
11SB010002	20110426	SO	FLUORENE	PAH	4.22	U	N		UG/KG	8.45	U	8.45	1	21.1
11SB010002-D	20110426	SO	FLUORENE	PAH	4.11	U	N		UG/KG	8.23	U	8.23	1	21
11SB010406	20110426	SO	FLUORENE	PAH	3.84	U	N		UG/KG	7.69	U	7.69	1	17.7
11SB010406-D	20110426	SO	FLUORENE	PAH	3.92	U	N		UG/KG	7.86	U	7.86	1	19.4
11SB020002	20110426	SO	FLUORENE	PAH	4.11	U	N		UG/KG	8.23	U	8.23	1	20.6
11SB020406	20110426	SO	FLUORENE	PAH	4.2	U	N		UG/KG	8.42	U	8.42	1	24.3
11SB030002	20110426	SO	FLUORENE	PAH	3.99	U	N		UG/KG	8	U	8	1	18.7
11SB030406	20110426	SO	FLUORENE	PAH	3.76	U	N		UG/KG	7.53	U	7.53	1	13.7
11SB040002	20110426	SO	FLUORENE	PAH	4.1	U	N		UG/KG	8.22	U	8.22	1	20.9
11SB040406	20110426	SO	FLUORENE	PAH	3.77	U	N		UG/KG	7.55	U	7.55	1	12.8
11SB260507	20110427	SO	FLUORENE	PAH	3.71	U	N		UG/KG	7.44	QU	7.44	1	14.9
11SB270507	20110426	SO	FLUORENE	PAH	3.85	U	N		UG/KG	7.71	U	7.71	1	14.1
11SB280507	20110426	SO	FLUORENE	PAH	4.5	U	N		UG/KG	9.02	U	9.02	1	28.9
11SS050002	20110426	SO	FLUORENE	PAH	3.94	U	N		UG/KG	7.9	U	7.9	1	16.6
11SS060002	20110426	SO	FLUORENE	PAH	3.91	U	N		UG/KG	7.84	U	7.84	1	19.2
11SS070002	20110426	SO	FLUORENE	PAH	4.13	U	N		UG/KG	8.27	U	8.27	1	21.9
11SS080002	20110426	SO	FLUORENE	PAH	3.85	U	N		UG/KG	7.72	U	7.72	1	16.9
11SS090002	20110426	SO	FLUORENE	PAH	4.34	U	N		UG/KG	8.69	U	8.69	1	23.2
11SS100002	20110426	SO	FLUORENE	PAH	4.43	U	N		UG/KG	8.88	U	8.88	1	27.3
11SS110002-D	20110426	SO	FLUORENE	PAH	4.08	U	N		UG/KG	8.16	QU	8.16	1	18.8
11SS120002	20110426	SO	FLUORENE	PAH	3.91	U	N		UG/KG	7.83	QU	7.83	1	17
11SS140002	20110426	SO	FLUORENE	PAH	4.05	U	N		UG/KG	8.1	QU	8.1	1	18.8
11SS150002	20110426	SO	FLUORENE	PAH	4.13	U	N		UG/KG	8.27	QU	8.27	1	19.4
11SS160002	20110426	SO	FLUORENE	PAH	4.28	U	N		UG/KG	8.57	QU	8.57	1	22.6
11SS170002	20110426	SO	FLUORENE	PAH	3.98	U	N		UG/KG	7.97	QU	7.97	1	16.3
11SS180002	20110426	SO	FLUORENE	PAH	3.87	U	N		UG/KG	7.75	QU	7.75	1	17.8
11SS290002	20110427	SO	FLUORENE	PAH	4.25	U	N		UG/KG	8.51	QU	8.51	1	22.6
11SS310002	20110426	SO	FLUORENE	PAH	4.05	U	N		UG/KG	8.12	QU	8.12	1	19.5
11SS310002-D	20110427	SO	FLUORENE	PAH	4.19	U	N		UG/KG	8.4	QU	8.4	1	21.7
11SB010002	20110426	SO	INDENO(1,2,3-CD)PYRENE	PAH	4.22	U	N		UG/KG	8.45	U	8.45	1	21.1
11SB010002-D	20110426	SO	INDENO(1,2,3-CD)PYRENE	PAH	4.11	U	N		UG/KG	8.23	U	8.23	1	21
11SB010406	20110426	SO	INDENO(1,2,3-CD)PYRENE	PAH	3.84	U	N		UG/KG	7.69	U	7.69	1	17.7
11SB010406-D	20110426	SO	INDENO(1,2,3-CD)PYRENE	PAH	3.92	U	N		UG/KG	7.86	U	7.86	1	19.4
11SB020002	20110426	SO	INDENO(1,2,3-CD)PYRENE	PAH	4.11	U	N		UG/KG	8.23	U	8.23	1	20.6
11SB020406	20110426	SO	INDENO(1,2,3-CD)PYRENE	PAH	4.2	U	N		UG/KG	8.42	U	8.42	1	24.3
11SB030002	20110426	SO	INDENO(1,2,3-CD)PYRENE	PAH	3.99	U	N		UG/KG	8	U	8	1	18.7
11SB030406	20110426	SO	INDENO(1,2,3-CD)PYRENE	PAH	3.76	U	N		UG/KG	7.53	U	7.53	1	13.7
11SB040002	20110426	SO	INDENO(1,2,3-CD)PYRENE	PAH	4.1	U	N		UG/KG	8.22	U	8.22	1	20.9
11SB040406	20110426	SO	INDENO(1,2,3-CD)PYRENE	PAH	3.77	U	N		UG/KG	7.55	U	7.55	1	12.8
11SB260507	20110427	SO	INDENO(1,2,3-CD)PYRENE	PAH	3.71	U	N		UG/KG	7.44	U	7.44	1	14.9
11SB270507	20110426	SO	INDENO(1,2,3-CD)PYRENE	PAH	3.85	U	N		UG/KG	7.71	U	7.71	1	14.1
11SB280507	20110426	SO	INDENO(1,2,3-CD)PYRENE	PAH	4.5	U	N		UG/KG	9.02	U	9.02	1	28.9
11SS050002	20110426	SO	INDENO(1,2,3-CD)PYRENE	PAH	3.94	U	N		UG/KG	7.9	U	7.9	1	16.6
11SS080002	20110426	SO	INDENO(1,2,3-CD)PYRENE	PAH	3.85	U	N		UG/KG	7.72	U	7.72	1	16.9
11SS090002	20110426	SO	INDENO(1,2,3-CD)PYRENE	PAH	4.34	U	N		UG/KG	8.69	U	8.69	1	23.2
11SS100002	20110426	SO	INDENO(1,2,3-CD)PYRENE	PAH	4.43	U	N		UG/KG	8.88	U	8.88	1	27.3
11SS120002	20110426	SO	INDENO(1,2,3-CD)PYRENE	PAH	3.91	U	N		UG/KG	7.83	U	7.83	1	17
11SS150002	20110426	SO	INDENO(1,2,3-CD)PYRENE	PAH	4.13	U	N		UG/KG	8.27	U	8.27	1	19.4
11SS160002	20110426	SO	INDENO(1,2,3-CD)PYRENE	PAH	4.28	U	N		UG/KG	8.57	U	8.57	1	22.6
11SS180002	20110426	SO	INDENO(1,2,3-CD)PYRENE	PAH	3.87	U	N		UG/KG	7.75	U	7.75	1	17.8
11SB010002	20110426	SO	NAPHTHALENE	PAH	4.22	U	N		UG/KG	8.45	U	8.45	1	21.1
11SB010002-D	20110426	SO	NAPHTHALENE	PAH	4.11	U	N		UG/KG	8.23	U	8.23	1	21
11SB010406	20110426	SO	NAPHTHALENE	PAH	3.84	U	N		UG/KG	7.69	U	7.69	1	17.7
11SB010406-D	20110426	SO	NAPHTHALENE	PAH	3.92	U	N		UG/KG	7.86	U	7.86	1	19.4
11SB020002	20110426	SO	NAPHTHALENE	PAH	4.11	U	N		UG/KG	8.23	U	8.23	1	20.6
11SB020406	20110426	SO	NAPHTHALENE	PAH	4.2	U	N		UG/KG	8.42	U	8.42	1	24.3
11SB030002	20110426	SO	NAPHTHALENE	PAH	3.99	U	N		UG/KG	8	U	8	1	18.7
11SB030406	20110426	SO	NAPHTHALENE	PAH	3.76	U	N		UG/KG	7.53	U	7.53	1	13.7
11SB040002	20110426	SO	NAPHTHALENE	PAH	4.1	U	N		UG/KG	8.22	U	8.22	1	20.9
11SB040406	20110426	SO	NAPHTHALENE	PAH	3.77	U	N		UG/KG	7.55	U	7.55	1	12.8
11SB260507	20110427	SO	NAPHTHALENE	PAH	3.71	U	N		UG/KG	7.44	QU	7.44	1	14.9
11SB270507	20110426	SO	NAPHTHALENE	PAH	3.85	U	N		UG/KG	7.71	U	7.71	1	14.1
11SB280507	20110426	SO	NAPHTHALENE	PAH	4.5	U	N		UG/KG	9.02	U	9.02	1	28.9
11SS050002	20110426	SO	NAPHTHALENE	PAH	3.94	U	N		UG/KG	7.9	U	7.9	1	16.6
11SS060002	20110426	SO	NAPHTHALENE	PAH	3.91	U	N		UG/KG	7.84	U	7.84	1	19.2
11SS070002	20110426	SO	NAPHTHALENE	PAH	4.13	U	N		UG/KG	8.27	U	8.27	1	21.9

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SS080002	20110426	SO	NAPHTHALENE	PAH	3.85	U	N		UG/KG	7.72	U	7.72	1	16.9
11SS090002	20110426	SO	NAPHTHALENE	PAH	4.34	U	N		UG/KG	8.69	U	8.69	1	23.2
11SS100002	20110426	SO	NAPHTHALENE	PAH	4.43	U	N		UG/KG	8.88	U	8.88	1	27.3
11SS120002	20110426	SO	NAPHTHALENE	PAH	3.91	U	N		UG/KG	7.83	QU	7.83	1	17
11SS140002	20110426	SO	NAPHTHALENE	PAH	4.05	U	N		UG/KG	8.1	QU	8.1	1	18.8
11SS150002	20110426	SO	NAPHTHALENE	PAH	4.13	U	N		UG/KG	8.27	QU	8.27	1	19.4
11SS160002	20110426	SO	NAPHTHALENE	PAH	4.28	U	N		UG/KG	8.57	QU	8.57	1	22.6
11SS170002	20110426	SO	NAPHTHALENE	PAH	3.98	U	N		UG/KG	7.97	QU	7.97	1	16.3
11SS180002	20110426	SO	NAPHTHALENE	PAH	3.87	U	N		UG/KG	7.75	QU	7.75	1	17.8
11SS290002	20110427	SO	NAPHTHALENE	PAH	4.25	U	N		UG/KG	8.51	QU	8.51	1	22.6
11SB010002	20110426	SO	PHENANTHRENE	PAH	4.22	U	N		UG/KG	8.45	U	8.45	1	21.1
11SB010002-D	20110426	SO	PHENANTHRENE	PAH	4.11	U	N		UG/KG	8.23	U	8.23	1	21
11SB010406	20110426	SO	PHENANTHRENE	PAH	3.84	U	N		UG/KG	7.69	U	7.69	1	17.7
11SB010406-D	20110426	SO	PHENANTHRENE	PAH	3.92	U	N		UG/KG	7.86	U	7.86	1	19.4
11SB020406	20110426	SO	PHENANTHRENE	PAH	4.2	U	N		UG/KG	8.42	U	8.42	1	24.3
11SB030002	20110426	SO	PHENANTHRENE	PAH	3.99	U	N		UG/KG	8	U	8	1	18.7
11SB030406	20110426	SO	PHENANTHRENE	PAH	3.76	U	N		UG/KG	7.53	U	7.53	1	13.7
11SB040002	20110426	SO	PHENANTHRENE	PAH	4.1	U	N		UG/KG	8.22	U	8.22	1	20.9
11SB040406	20110426	SO	PHENANTHRENE	PAH	3.77	U	N		UG/KG	7.55	U	7.55	1	12.8
11SB260507	20110427	SO	PHENANTHRENE	PAH	3.71	U	N		UG/KG	7.44	QU	7.44	1	14.9
11SB270507	20110426	SO	PHENANTHRENE	PAH	3.85	U	N		UG/KG	7.71	U	7.71	1	14.1
11SB280507	20110426	SO	PHENANTHRENE	PAH	4.5	U	N		UG/KG	9.02	U	9.02	1	28.9
11SS050002	20110426	SO	PHENANTHRENE	PAH	3.94	U	N		UG/KG	7.9	U	7.9	1	16.6
11SS080002	20110426	SO	PHENANTHRENE	PAH	3.85	U	N		UG/KG	7.72	U	7.72	1	16.9
11SS090002	20110426	SO	PHENANTHRENE	PAH	4.34	U	N		UG/KG	8.69	U	8.69	1	23.2
11SS100002	20110426	SO	PHENANTHRENE	PAH	4.43	U	N		UG/KG	8.88	U	8.88	1	27.3
11SS120002	20110426	SO	PHENANTHRENE	PAH	3.91	U	N		UG/KG	7.83	QU	7.83	1	17
11SS150002	20110426	SO	PHENANTHRENE	PAH	4.13	U	N		UG/KG	8.27	QU	8.27	1	19.4
11SS160002	20110426	SO	PHENANTHRENE	PAH	4.28	U	N		UG/KG	8.57	QU	8.57	1	22.6
11SS170002	20110426	SO	PHENANTHRENE	PAH	3.98	U	N		UG/KG	7.97	QU	7.97	1	16.3
11SS180002	20110426	SO	PHENANTHRENE	PAH	3.87	U	N		UG/KG	7.75	QU	7.75	1	17.8
11SB010002	20110426	SO	PYRENE	PAH	4.22	U	N		UG/KG	8.45	U	8.45	1	21.1
11SB010002-D	20110426	SO	PYRENE	PAH	4.11	U	N		UG/KG	8.23	U	8.23	1	21
11SB010406	20110426	SO	PYRENE	PAH	3.84	U	N		UG/KG	7.69	U	7.69	1	17.7
11SB010406-D	20110426	SO	PYRENE	PAH	3.92	U	N		UG/KG	7.86	U	7.86	1	19.4
11SB020002	20110426	SO	PYRENE	PAH	4.11	U	N		UG/KG	8.23	U	8.23	1	20.6
11SB020406	20110426	SO	PYRENE	PAH	4.2	U	N		UG/KG	8.42	U	8.42	1	24.3
11SB030002	20110426	SO	PYRENE	PAH	3.99	U	N		UG/KG	8	U	8	1	18.7
11SB030406	20110426	SO	PYRENE	PAH	3.76	U	N		UG/KG	7.53	U	7.53	1	13.7
11SB040002	20110426	SO	PYRENE	PAH	4.1	U	N		UG/KG	8.22	U	8.22	1	20.9
11SB040406	20110426	SO	PYRENE	PAH	3.77	U	N		UG/KG	7.55	U	7.55	1	12.8
11SB260507	20110427	SO	PYRENE	PAH	3.71	U	N		UG/KG	7.44	QU	7.44	1	14.9
11SB270507	20110426	SO	PYRENE	PAH	3.85	U	N		UG/KG	7.71	U	7.71	1	14.1
11SB280507	20110426	SO	PYRENE	PAH	4.5	U	N		UG/KG	9.02	U	9.02	1	28.9
11SS080002	20110426	SO	PYRENE	PAH	3.85	U	N		UG/KG	7.72	U	7.72	1	16.9
11SS090002	20110426	SO	PYRENE	PAH	4.34	U	N		UG/KG	8.69	U	8.69	1	23.2
11SS100002	20110426	SO	PYRENE	PAH	4.43	U	N		UG/KG	8.88	U	8.88	1	27.3
11SS120002	20110426	SO	PYRENE	PAH	3.91	U	N		UG/KG	7.83	QU	7.83	1	17
11SS150002	20110426	SO	PYRENE	PAH	4.13	U	N		UG/KG	8.27	QU	8.27	1	19.4
11SS160002	20110426	SO	PYRENE	PAH	4.28	U	N		UG/KG	8.57	QU	8.57	1	22.6
11SS180002	20110426	SO	PYRENE	PAH	3.87	U	N		UG/KG	7.75	QU	7.75	1	17.8
11SB010406-D	20110426	SO	AROCLOR-1016	PCB	9.94	U	N		UG/KG	20.3	UX	20.3	1	19.4
11SS050002	20110426	SO	AROCLOR-1016	PCB	9.67	U	N		UG/KG	19.7	UX	19.7	1	16.6
11SS060002	20110426	SO	AROCLOR-1016	PCB	9.85	U	N		UG/KG	20.1	UX	20.1	1	19.2
11SS070002	20110426	SO	AROCLOR-1016	PCB	10.3	U	N		UG/KG	21.1	UX	21.1	1	21.9
11SS080002	20110426	SO	AROCLOR-1016	PCB	10	U	N		UG/KG	20.5	UX	20.5	1	16.9
11SS090002	20110426	SO	AROCLOR-1016	PCB	10.4	U	N		UG/KG	21.3	UX	21.3	1	23.2
11SS100002	20110426	SO	AROCLOR-1016	PCB	11.3	U	N		UG/KG	23.1	UX	23.1	1	27.3
11SS110002	20110426	SO	AROCLOR-1016	PCB	10.1	U	N		UG/KG	20.5	UX	20.5	1	17.8
11SS110002-D	20110426	SO	AROCLOR-1016	PCB	10.3	U	N		UG/KG	20.9	UX	20.9	1	18.8
11SS120002	20110426	SO	AROCLOR-1016	PCB	9.59	U	N		UG/KG	19.6	UX	19.6	1	17
11SS130002	20110426	SO	AROCLOR-1016	PCB	9.85	U	N		UG/KG	20.1	UX	20.1	1	18.2
11SS140002	20110426	SO	AROCLOR-1016	PCB	10.1	U	N		UG/KG	20.5	UX	20.5	1	18.8
11SS150002	20110426	SO	AROCLOR-1016	PCB	9.93	U	N		UG/KG	20.3	UX	20.3	1	19.4
11SS160002	20110426	SO	AROCLOR-1016	PCB	10.6	U	N		UG/KG	21.5	UX	21.5	1	22.6
11SS170002	20110426	SO	AROCLOR-1016	PCB	9.63	U	N		UG/KG	19.7	UX	19.7	1	16.3
11SS180002	20110426	SO	AROCLOR-1016	PCB	9.8	U	N		UG/KG	20	UX	20	1	17.8
11SS290002	20110427	SO	AROCLOR-1016	PCB	10.3	U	N		UG/KG	21	UX	21	1	22.6
11SS300002	20110427	SO	AROCLOR-1016	PCB	9.54	U	N		UG/KG	19.5	UX	19.5	1	15
11SS310002	20110426	SO	AROCLOR-1016	PCB	10.1	U	N		UG/KG	20.6	UX	20.6	1	19.5
11SS310002-D	20110427	SO	AROCLOR-1016	PCB	10.2	U	N		UG/KG	20.9	UX	20.9	1	21.7
11SS320002	20110426	SO	AROCLOR-1016	PCB	10.1	U	N		UG/KG	20.7	UX	20.7	1	20.4
11SB010002	20110426	SO	AROCLOR-1221	PCB	10.2	U	N		UG/KG	20.9	U	20.9	1	21.1
11SB010002-D	20110426	SO	AROCLOR-1221	PCB	10.5	U	N		UG/KG	21.4	U	21.4	1	21
11SB010406	20110426	SO	AROCLOR-1221	PCB	9.85	U	N		UG/KG	20.1	U	20.1	1	17.7
11SB010406-D	20110426	SO	AROCLOR-1221	PCB	9.94	U	N		UG/KG	20.3	U	20.3	1	19.4
11SB020002	20110426	SO	AROCLOR-1221	PCB	10.3	U	N		UG/KG	21	U	21	1	20.6
11SB020406	20110426	SO	AROCLOR-1221	PCB	10.7	U	N		UG/KG	21.9	U	21.9	1	24.3
11SB030002	20110426	SO	AROCLOR-1221	PCB	10.2	U	N		UG/KG	20.8	U	20.8	1	18.7
11SB030406	20110426	SO	AROCLOR-1221	PCB	9.65	U	N		UG/KG	19.7	U	19.7	1	13.7
11SB040002	20110426	SO	AROCLOR-1221	PCB	10.3	U	N		UG/KG	20.9	U	20.9	1	20.9

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB040406	20110426	SO	AROCLOR-1221	PCB	9.24	U	N		UG/KG	18.9	U	18.9	1	12.8
11SS050002	20110426	SO	AROCLOR-1221	PCB	9.67	U	N		UG/KG	19.7	U	19.7	1	16.6
11SS060002	20110426	SO	AROCLOR-1221	PCB	9.85	U	N		UG/KG	20.1	U	20.1	1	19.2
11SS070002	20110426	SO	AROCLOR-1221	PCB	10.3	U	N		UG/KG	21.1	U	21.1	1	21.9
11SS080002	20110426	SO	AROCLOR-1221	PCB	10	U	N		UG/KG	20.5	U	20.5	1	16.9
11SS090002	20110426	SO	AROCLOR-1221	PCB	10.4	U	N		UG/KG	21.3	U	21.3	1	23.2
11SS100002	20110426	SO	AROCLOR-1221	PCB	11.3	U	N		UG/KG	23.1	U	23.1	1	27.3
11SS110002	20110426	SO	AROCLOR-1221	PCB	10.1	U	N		UG/KG	20.5	U	20.5	1	17.8
11SS110002-D	20110426	SO	AROCLOR-1221	PCB	10.3	U	N		UG/KG	20.9	U	20.9	1	18.8
11SS120002	20110426	SO	AROCLOR-1221	PCB	9.59	U	N		UG/KG	19.6	U	19.6	1	17
11SS130002	20110426	SO	AROCLOR-1221	PCB	9.85	U	N		UG/KG	20.1	U	20.1	1	18.2
11SS140002	20110426	SO	AROCLOR-1221	PCB	10.1	U	N		UG/KG	20.5	U	20.5	1	18.8
11SS150002	20110426	SO	AROCLOR-1221	PCB	9.93	U	N		UG/KG	20.3	U	20.3	1	19.4
11SS160002	20110426	SO	AROCLOR-1221	PCB	10.6	U	N		UG/KG	21.5	U	21.5	1	22.6
11SS170002	20110426	SO	AROCLOR-1221	PCB	9.63	U	N		UG/KG	19.7	U	19.7	1	16.3
11SS180002	20110426	SO	AROCLOR-1221	PCB	9.8	U	N		UG/KG	20	U	20	1	17.8
11SS290002	20110427	SO	AROCLOR-1221	PCB	10.3	U	N		UG/KG	21	U	21	1	22.6
11SS300002	20110427	SO	AROCLOR-1221	PCB	9.54	U	N		UG/KG	19.5	U	19.5	1	15
11SS310002	20110426	SO	AROCLOR-1221	PCB	10.1	U	N		UG/KG	20.6	U	20.6	1	19.5
11SS310002-D	20110427	SO	AROCLOR-1221	PCB	10.2	U	N		UG/KG	20.9	U	20.9	1	21.7
11SS320002	20110426	SO	AROCLOR-1221	PCB	10.1	U	N		UG/KG	20.7	U	20.7	1	20.4
11SB010002	20110426	SO	AROCLOR-1232	PCB	10.2	U	N		UG/KG	20.9	U	20.9	1	21.1
11SB010002-D	20110426	SO	AROCLOR-1232	PCB	10.5	U	N		UG/KG	21.4	U	21.4	1	21
11SB010406	20110426	SO	AROCLOR-1232	PCB	9.85	U	N		UG/KG	20.1	U	20.1	1	17.7
11SB010406-D	20110426	SO	AROCLOR-1232	PCB	9.94	U	N		UG/KG	20.3	U	20.3	1	19.4
11SB020002	20110426	SO	AROCLOR-1232	PCB	10.3	U	N		UG/KG	21	U	21	1	20.6
11SB020406	20110426	SO	AROCLOR-1232	PCB	10.7	U	N		UG/KG	21.9	U	21.9	1	24.3
11SB030002	20110426	SO	AROCLOR-1232	PCB	10.2	U	N		UG/KG	20.8	U	20.8	1	18.7
11SB030406	20110426	SO	AROCLOR-1232	PCB	9.65	U	N		UG/KG	19.7	U	19.7	1	13.7
11SB040002	20110426	SO	AROCLOR-1232	PCB	10.3	U	N		UG/KG	20.9	U	20.9	1	20.9
11SB040406	20110426	SO	AROCLOR-1232	PCB	9.24	U	N		UG/KG	18.9	U	18.9	1	12.8
11SS050002	20110426	SO	AROCLOR-1232	PCB	9.67	U	N		UG/KG	19.7	U	19.7	1	16.6
11SS060002	20110426	SO	AROCLOR-1232	PCB	9.85	U	N		UG/KG	20.1	U	20.1	1	19.2
11SS070002	20110426	SO	AROCLOR-1232	PCB	10.3	U	N		UG/KG	21.1	U	21.1	1	21.9
11SS080002	20110426	SO	AROCLOR-1232	PCB	10	U	N		UG/KG	20.5	U	20.5	1	16.9
11SS090002	20110426	SO	AROCLOR-1232	PCB	10.4	U	N		UG/KG	21.3	U	21.3	1	23.2
11SS100002	20110426	SO	AROCLOR-1232	PCB	11.3	U	N		UG/KG	23.1	U	23.1	1	27.3
11SS110002	20110426	SO	AROCLOR-1232	PCB	10.1	U	N		UG/KG	20.5	U	20.5	1	17.8
11SS110002-D	20110426	SO	AROCLOR-1232	PCB	10.3	U	N		UG/KG	20.9	U	20.9	1	18.8
11SS120002	20110426	SO	AROCLOR-1232	PCB	9.59	U	N		UG/KG	19.6	U	19.6	1	17
11SS130002	20110426	SO	AROCLOR-1232	PCB	9.85	U	N		UG/KG	20.1	U	20.1	1	18.2
11SS140002	20110426	SO	AROCLOR-1232	PCB	10.1	U	N		UG/KG	20.5	U	20.5	1	18.8
11SS150002	20110426	SO	AROCLOR-1232	PCB	9.93	U	N		UG/KG	20.3	U	20.3	1	19.4
11SS160002	20110426	SO	AROCLOR-1232	PCB	10.6	U	N		UG/KG	21.5	U	21.5	1	22.6
11SS170002	20110426	SO	AROCLOR-1232	PCB	9.63	U	N		UG/KG	19.7	U	19.7	1	16.3
11SS180002	20110426	SO	AROCLOR-1232	PCB	9.8	U	N		UG/KG	20	U	20	1	17.8
11SS290002	20110427	SO	AROCLOR-1232	PCB	10.3	U	N		UG/KG	21	U	21	1	22.6
11SS300002	20110427	SO	AROCLOR-1232	PCB	9.54	U	N		UG/KG	19.5	U	19.5	1	15
11SS310002	20110426	SO	AROCLOR-1232	PCB	10.1	U	N		UG/KG	20.6	U	20.6	1	19.5
11SS310002-D	20110427	SO	AROCLOR-1232	PCB	10.2	U	N		UG/KG	20.9	U	20.9	1	21.7
11SS320002	20110426	SO	AROCLOR-1232	PCB	10.1	U	N		UG/KG	20.7	U	20.7	1	20.4
11SB010002	20110426	SO	AROCLOR-1242	PCB	10.2	U	N		UG/KG	20.9	U	20.9	1	21.1
11SB010002-D	20110426	SO	AROCLOR-1242	PCB	10.5	U	N		UG/KG	21.4	U	21.4	1	21
11SB010406	20110426	SO	AROCLOR-1242	PCB	9.85	U	N		UG/KG	20.1	U	20.1	1	17.7
11SB010406-D	20110426	SO	AROCLOR-1242	PCB	9.94	U	N		UG/KG	20.3	U	20.3	1	19.4
11SB020002	20110426	SO	AROCLOR-1242	PCB	10.3	U	N		UG/KG	21	U	21	1	20.6
11SB020406	20110426	SO	AROCLOR-1242	PCB	10.7	U	N		UG/KG	21.9	U	21.9	1	24.3
11SB030002	20110426	SO	AROCLOR-1242	PCB	10.2	U	N		UG/KG	20.8	U	20.8	1	18.7
11SB030406	20110426	SO	AROCLOR-1242	PCB	9.65	U	N		UG/KG	19.7	U	19.7	1	13.7
11SB040002	20110426	SO	AROCLOR-1242	PCB	10.3	U	N		UG/KG	20.9	U	20.9	1	20.9
11SB040406	20110426	SO	AROCLOR-1242	PCB	9.24	U	N		UG/KG	18.9	U	18.9	1	12.8
11SS050002	20110426	SO	AROCLOR-1242	PCB	9.67	U	N		UG/KG	19.7	U	19.7	1	16.6
11SS060002	20110426	SO	AROCLOR-1242	PCB	9.85	U	N		UG/KG	20.1	U	20.1	1	19.2
11SS070002	20110426	SO	AROCLOR-1242	PCB	10.3	U	N		UG/KG	21.1	U	21.1	1	21.9
11SS080002	20110426	SO	AROCLOR-1242	PCB	10	U	N		UG/KG	20.5	U	20.5	1	16.9
11SS090002	20110426	SO	AROCLOR-1242	PCB	10.4	U	N		UG/KG	21.3	U	21.3	1	23.2
11SS100002	20110426	SO	AROCLOR-1242	PCB	11.3	U	N		UG/KG	23.1	U	23.1	1	27.3
11SS110002	20110426	SO	AROCLOR-1242	PCB	10.1	U	N		UG/KG	20.5	U	20.5	1	17.8
11SS110002-D	20110426	SO	AROCLOR-1242	PCB	10.3	U	N		UG/KG	20.9	U	20.9	1	18.8
11SS120002	20110426	SO	AROCLOR-1242	PCB	9.59	U	N		UG/KG	19.6	U	19.6	1	17
11SS130002	20110426	SO	AROCLOR-1242	PCB	9.85	U	N		UG/KG	20.1	U	20.1	1	18.2
11SS140002	20110426	SO	AROCLOR-1242	PCB	10.1	U	N		UG/KG	20.5	U	20.5	1	18.8
11SS150002	20110426	SO	AROCLOR-1242	PCB	9.93	U	N		UG/KG	20.3	U	20.3	1	19.4
11SS160002	20110426	SO	AROCLOR-1242	PCB	10.6	U	N		UG/KG	21.5	U	21.5	1	22.6
11SS170002	20110426	SO	AROCLOR-1242	PCB	9.63	U	N		UG/KG	19.7	U	19.7	1	16.3
11SS180002	20110426	SO	AROCLOR-1242	PCB	9.8	U	N		UG/KG	20	U	20	1	17.8
11SS290002	20110427	SO	AROCLOR-1242	PCB	10.3	U	N		UG/KG	21	U	21	1	22.6
11SS300002	20110427	SO	AROCLOR-1242	PCB	9.54	U	N		UG/KG	19.5	U	19.5	1	15
11SS310002	20110426	SO	AROCLOR-1242	PCB	10.1	U	N		UG/KG	20.6	U	20.6	1	19.5
11SS310002-D	20110427	SO	AROCLOR-1242	PCB	10.2	U	N		UG/KG	20.9	U	20.9	1	21.7
11SS320002	20110426	SO	AROCLOR-1242	PCB	10.1	U	N		UG/KG	20.7	U	20.7	1	20.4

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB010002	20110426	SO	AROCLOR-1248	PCB	10.2	U	N		UG/KG	20.9	U	20.9	1	21.1
11SB010002-D	20110426	SO	AROCLOR-1248	PCB	10.5	U	N		UG/KG	21.4	U	21.4	1	21
11SB010406	20110426	SO	AROCLOR-1248	PCB	9.85	U	N		UG/KG	20.1	U	20.1	1	17.7
11SB010406-D	20110426	SO	AROCLOR-1248	PCB	9.94	U	N		UG/KG	20.3	U	20.3	1	19.4
11SB020002	20110426	SO	AROCLOR-1248	PCB	10.3	U	N		UG/KG	21	U	21	1	20.6
11SB020406	20110426	SO	AROCLOR-1248	PCB	10.7	U	N		UG/KG	21.9	U	21.9	1	24.3
11SB030002	20110426	SO	AROCLOR-1248	PCB	10.2	U	N		UG/KG	20.8	U	20.8	1	18.7
11SB030406	20110426	SO	AROCLOR-1248	PCB	9.65	U	N		UG/KG	19.7	U	19.7	1	13.7
11SB040002	20110426	SO	AROCLOR-1248	PCB	10.3	U	N		UG/KG	20.9	U	20.9	1	20.9
11SB040406	20110426	SO	AROCLOR-1248	PCB	9.24	U	N		UG/KG	18.9	U	18.9	1	12.8
11SS050002	20110426	SO	AROCLOR-1248	PCB	9.67	U	N		UG/KG	19.7	U	19.7	1	16.6
11SS060002	20110426	SO	AROCLOR-1248	PCB	9.85	U	N		UG/KG	20.1	U	20.1	1	19.2
11SS070002	20110426	SO	AROCLOR-1248	PCB	10.3	U	N		UG/KG	21.1	U	21.1	1	21.9
11SS080002	20110426	SO	AROCLOR-1248	PCB	10	U	N		UG/KG	20.5	U	20.5	1	16.9
11SS090002	20110426	SO	AROCLOR-1248	PCB	10.4	U	N		UG/KG	21.3	U	21.3	1	23.2
11SS100002	20110426	SO	AROCLOR-1248	PCB	11.3	U	N		UG/KG	23.1	U	23.1	1	27.3
11SS110002	20110426	SO	AROCLOR-1248	PCB	10.1	U	N		UG/KG	20.5	U	20.5	1	17.8
11SS110002-D	20110426	SO	AROCLOR-1248	PCB	10.3	U	N		UG/KG	20.9	U	20.9	1	18.8
11SS120002	20110426	SO	AROCLOR-1248	PCB	9.59	U	N		UG/KG	19.6	U	19.6	1	17
11SS130002	20110426	SO	AROCLOR-1248	PCB	9.85	U	N		UG/KG	20.1	U	20.1	1	18.2
11SS140002	20110426	SO	AROCLOR-1248	PCB	10.1	U	N		UG/KG	20.5	U	20.5	1	18.8
11SS150002	20110426	SO	AROCLOR-1248	PCB	9.93	U	N		UG/KG	20.3	U	20.3	1	19.4
11SS160002	20110426	SO	AROCLOR-1248	PCB	10.6	U	N		UG/KG	21.5	U	21.5	1	22.6
11SS170002	20110426	SO	AROCLOR-1248	PCB	9.63	U	N		UG/KG	19.7	U	19.7	1	16.3
11SS180002	20110426	SO	AROCLOR-1248	PCB	9.8	U	N		UG/KG	20	U	20	1	17.8
11SS290002	20110427	SO	AROCLOR-1248	PCB	10.3	U	N		UG/KG	21	U	21	1	22.6
11SS300002	20110427	SO	AROCLOR-1248	PCB	9.54	U	N		UG/KG	19.5	U	19.5	1	15
11SS310002	20110426	SO	AROCLOR-1248	PCB	10.1	U	N		UG/KG	20.6	U	20.6	1	19.5
11SS310002-D	20110427	SO	AROCLOR-1248	PCB	10.2	U	N		UG/KG	20.9	U	20.9	1	21.7
11SS320002	20110426	SO	AROCLOR-1248	PCB	10.1	U	N		UG/KG	20.7	U	20.7	1	20.4
11SB010002	20110426	SO	AROCLOR-1254	PCB	10.2	U	N		UG/KG	20.9	U	20.9	1	21.1
11SB010002-D	20110426	SO	AROCLOR-1254	PCB	10.5	U	N		UG/KG	21.4	U	21.4	1	21
11SB010406	20110426	SO	AROCLOR-1254	PCB	9.85	U	N		UG/KG	20.1	U	20.1	1	17.7
11SB010406-D	20110426	SO	AROCLOR-1254	PCB	9.94	U	N		UG/KG	20.3	U	20.3	1	19.4
11SB020002	20110426	SO	AROCLOR-1254	PCB	10.3	U	N		UG/KG	21	U	21	1	20.6
11SB020406	20110426	SO	AROCLOR-1254	PCB	10.7	U	N		UG/KG	21.9	U	21.9	1	24.3
11SB030002	20110426	SO	AROCLOR-1254	PCB	10.2	U	N		UG/KG	20.8	U	20.8	1	18.7
11SB030406	20110426	SO	AROCLOR-1254	PCB	9.65	U	N		UG/KG	19.7	U	19.7	1	13.7
11SB040002	20110426	SO	AROCLOR-1254	PCB	10.3	U	N		UG/KG	20.9	U	20.9	1	20.9
11SB040406	20110426	SO	AROCLOR-1254	PCB	9.24	U	N		UG/KG	18.9	U	18.9	1	12.8
11SS050002	20110426	SO	AROCLOR-1254	PCB	9.67	U	N		UG/KG	19.7	U	19.7	1	16.6
11SS060002	20110426	SO	AROCLOR-1254	PCB	9.85	U	N		UG/KG	20.1	U	20.1	1	19.2
11SS070002	20110426	SO	AROCLOR-1254	PCB	10.3	U	N		UG/KG	21.1	U	21.1	1	21.9
11SS080002	20110426	SO	AROCLOR-1254	PCB	10	U	N		UG/KG	20.5	U	20.5	1	16.9
11SS090002	20110426	SO	AROCLOR-1254	PCB	10.4	U	N		UG/KG	21.3	U	21.3	1	23.2
11SS100002	20110426	SO	AROCLOR-1254	PCB	11.3	U	N		UG/KG	23.1	U	23.1	1	27.3
11SS110002	20110426	SO	AROCLOR-1254	PCB	10.1	U	N		UG/KG	20.5	U	20.5	1	17.8
11SS110002-D	20110426	SO	AROCLOR-1254	PCB	10.3	U	N		UG/KG	20.9	U	20.9	1	18.8
11SS120002	20110426	SO	AROCLOR-1254	PCB	9.59	U	N		UG/KG	19.6	U	19.6	1	17
11SS130002	20110426	SO	AROCLOR-1254	PCB	9.85	U	N		UG/KG	20.1	U	20.1	1	18.2
11SS140002	20110426	SO	AROCLOR-1254	PCB	10.1	U	N		UG/KG	20.5	U	20.5	1	18.8
11SS150002	20110426	SO	AROCLOR-1254	PCB	9.93	U	N		UG/KG	20.3	U	20.3	1	19.4
11SS160002	20110426	SO	AROCLOR-1254	PCB	10.6	U	N		UG/KG	21.5	U	21.5	1	22.6
11SS170002	20110426	SO	AROCLOR-1254	PCB	9.63	U	N		UG/KG	19.7	U	19.7	1	16.3
11SS180002	20110426	SO	AROCLOR-1254	PCB	9.8	U	N		UG/KG	20	U	20	1	17.8
11SS290002	20110427	SO	AROCLOR-1254	PCB	10.3	U	N		UG/KG	21	U	21	1	22.6
11SS300002	20110427	SO	AROCLOR-1254	PCB	9.54	U	N		UG/KG	19.5	U	19.5	1	15
11SS310002	20110426	SO	AROCLOR-1254	PCB	10.1	U	N		UG/KG	20.6	U	20.6	1	19.5
11SS310002-D	20110427	SO	AROCLOR-1254	PCB	10.2	U	N		UG/KG	20.9	U	20.9	1	21.7
11SS320002	20110426	SO	AROCLOR-1254	PCB	10.1	U	N		UG/KG	20.7	U	20.7	1	20.4
11SB010002	20110426	SO	AROCLOR-1260	PCB	10.2	U	N		UG/KG	20.9	U	20.9	1	21.1
11SB010002-D	20110426	SO	AROCLOR-1260	PCB	10.5	U	N		UG/KG	21.4	U	21.4	1	21
11SB010406	20110426	SO	AROCLOR-1260	PCB	9.85	U	N		UG/KG	20.1	U	20.1	1	17.7
11SB010406-D	20110426	SO	AROCLOR-1260	PCB	9.94	U	N		UG/KG	20.3	U	20.3	1	19.4
11SB020002	20110426	SO	AROCLOR-1260	PCB	10.3	U	N		UG/KG	21	U	21	1	20.6
11SB020406	20110426	SO	AROCLOR-1260	PCB	10.7	U	N		UG/KG	21.9	U	21.9	1	24.3
11SB030002	20110426	SO	AROCLOR-1260	PCB	10.2	U	N		UG/KG	20.8	U	20.8	1	18.7
11SB030406	20110426	SO	AROCLOR-1260	PCB	9.65	U	N		UG/KG	19.7	U	19.7	1	13.7
11SB040002	20110426	SO	AROCLOR-1260	PCB	10.3	U	N		UG/KG	20.9	U	20.9	1	20.9
11SB040406	20110426	SO	AROCLOR-1260	PCB	9.24	U	N		UG/KG	18.9	U	18.9	1	12.8
11SS050002	20110426	SO	AROCLOR-1260	PCB	9.67	U	N		UG/KG	19.7	U	19.7	1	16.6
11SS060002	20110426	SO	AROCLOR-1260	PCB	9.85	U	N		UG/KG	20.1	U	20.1	1	19.2
11SS070002	20110426	SO	AROCLOR-1260	PCB	10.3	U	N		UG/KG	21.1	U	21.1	1	21.9
11SS080002	20110426	SO	AROCLOR-1260	PCB	10	U	N		UG/KG	20.5	U	20.5	1	16.9
11SS090002	20110426	SO	AROCLOR-1260	PCB	10.4	U	N		UG/KG	21.3	U	21.3	1	23.2
11SS100002	20110426	SO	AROCLOR-1260	PCB	11.3	U	N		UG/KG	23.1	U	23.1	1	27.3
11SS110002	20110426	SO	AROCLOR-1260	PCB	10.1	U	N		UG/KG	20.5	U	20.5	1	17.8
11SS110002-D	20110426	SO	AROCLOR-1260	PCB	10.3	U	N		UG/KG	20.9	U	20.9	1	18.8
11SS120002	20110426	SO	AROCLOR-1260	PCB	9.59	U	N		UG/KG	19.6	U	19.6	1	17
11SS130002	20110426	SO	AROCLOR-1260	PCB	9.85	U	N		UG/KG	20.1	U	20.1	1	18.2
11SS140002	20110426	SO	AROCLOR-1260	PCB	10.1	U	N		UG/KG	20.5	U	20.5	1	18.8

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SS150002	20110426	SO	AROCLOR-1260	PCB	9.93	U	N		UG/KG	20.3	U	20.3	1	19.4
11SS160002	20110426	SO	AROCLOR-1260	PCB	10.6	U	N		UG/KG	21.5	U	21.5	1	22.6
11SS170002	20110426	SO	AROCLOR-1260	PCB	9.63	U	N		UG/KG	19.7	U	19.7	1	16.3
11SS180002	20110426	SO	AROCLOR-1260	PCB	9.8	U	N		UG/KG	20	U	20	1	17.8
11SS290002	20110427	SO	AROCLOR-1260	PCB	10.3	U	N		UG/KG	21	U	21	1	22.6
11SS300002	20110427	SO	AROCLOR-1260	PCB	9.54	U	N		UG/KG	19.5	U	19.5	1	15
11SS310002	20110426	SO	AROCLOR-1260	PCB	10.1	U	N		UG/KG	20.6	U	20.6	1	19.5
11SS310002-D	20110427	SO	AROCLOR-1260	PCB	10.2	U	N		UG/KG	20.9	U	20.9	1	21.7
11SS320002	20110426	SO	AROCLOR-1260	PCB	10.1	U	N		UG/KG	20.7	U	20.7	1	20.4
11SB010002	20110426	SO	4,4'-DDD	PEST	0.417	U	N		UG/KG	0.822	U	0.822	1	21.1
11SB010002-D	20110426	SO	4,4'-DDD	PEST	0.428	U	N		UG/KG	0.843	U	0.843	1	21
11SB010406	20110426	SO	4,4'-DDD	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	17.7
11SB010406-D	20110426	SO	4,4'-DDD	PEST	0.406	U	N		UG/KG	0.799	U	0.799	1	19.4
11SB020002	20110426	SO	4,4'-DDD	PEST	0.42	U	N		UG/KG	0.827	U	0.827	1	20.6
11SB020406	20110426	SO	4,4'-DDD	PEST	0.437	U	N		UG/KG	0.862	U	0.862	1	24.3
11SB030002	20110426	SO	4,4'-DDD	PEST	0.416	U	N		UG/KG	0.819	U	0.819	1	18.7
11SB030406	20110426	SO	4,4'-DDD	PEST	0.394	U	N		UG/KG	0.777	U	0.777	1	13.7
11SB040002	20110426	SO	4,4'-DDD	PEST	0.419	U	N		UG/KG	0.825	U	0.825	1	20.9
11SB040406	20110426	SO	4,4'-DDD	PEST	0.377	U	N		UG/KG	0.744	U	0.744	1	12.8
11SS050002	20110426	SO	4,4'-DDD	PEST	0.395	U	N		UG/KG	0.778	U	0.778	1	16.6
11SS060002	20110426	SO	4,4'-DDD	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	19.2
11SS070002	20110426	SO	4,4'-DDD	PEST	0.421	U	N		UG/KG	0.83	U	0.83	1	21.9
11SS080002	20110426	SO	4,4'-DDD	PEST	0.409	U	N		UG/KG	0.806	U	0.806	1	16.9
11SS090002	20110426	SO	4,4'-DDD	PEST	0.426	U	N		UG/KG	0.839	U	0.839	1	23.2
11SS100002	20110426	SO	4,4'-DDD	PEST	0.462	U	N		UG/KG	0.909	U	0.909	1	27.3
11SS110002	20110426	SO	4,4'-DDD	PEST	0.411	U	N		UG/KG	0.809	U	0.809	1	17.8
11SS110002-D	20110426	SO	4,4'-DDD	PEST	0.419	U	N		UG/KG	0.826	U	0.826	1	18.8
11SS120002	20110426	SO	4,4'-DDD	PEST	0.392	U	N		UG/KG	0.772	U	0.772	1	17
11SS130002	20110426	SO	4,4'-DDD	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	18.2
11SS140002	20110426	SO	4,4'-DDD	PEST	0.41	U	N		UG/KG	0.809	U	0.809	1	18.8
11SS150002	20110426	SO	4,4'-DDD	PEST	0.405	U	N		UG/KG	0.799	U	0.799	1	19.4
11SS160002	20110426	SO	4,4'-DDD	PEST	0.431	U	N		UG/KG	0.849	U	0.849	1	22.6
11SS170002	20110426	SO	4,4'-DDD	PEST	0.393	U	N		UG/KG	0.775	U	0.775	1	16.3
11SS180002	20110426	SO	4,4'-DDD	PEST	0.4	U	N		UG/KG	0.789	U	0.789	1	17.8
11SS290002	20110427	SO	4,4'-DDD	PEST	0.42	U	N		UG/KG	0.828	U	0.828	1	22.6
11SS300002	20110427	SO	4,4'-DDD	PEST	0.39	U	N		UG/KG	0.768	U	0.768	1	15
11SS310002	20110426	SO	4,4'-DDD	PEST	0.411	U	N		UG/KG	0.81	U	0.81	1	19.5
11SS310002-D	20110427	SO	4,4'-DDD	PEST	0.417	U	N		UG/KG	0.822	U	0.822	1	21.7
11SS320002	20110426	SO	4,4'-DDD	PEST	0.413	U	N		UG/KG	0.815	U	0.815	1	20.4
11SB010002	20110426	SO	4,4'-DDE	PEST	0.417	U	N		UG/KG	0.822	U	0.822	1	21.1
11SB010002-D	20110426	SO	4,4'-DDE	PEST	0.428	U	N		UG/KG	0.843	U	0.843	1	21
11SB010406	20110426	SO	4,4'-DDE	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	17.7
11SB010406-D	20110426	SO	4,4'-DDE	PEST	0.406	U	N		UG/KG	0.799	U	0.799	1	19.4
11SB020002	20110426	SO	4,4'-DDE	PEST	0.42	U	N		UG/KG	0.827	U	0.827	1	20.6
11SB020406	20110426	SO	4,4'-DDE	PEST	0.437	U	N		UG/KG	0.862	U	0.862	1	24.3
11SB030002	20110426	SO	4,4'-DDE	PEST	0.416	U	N		UG/KG	0.819	U	0.819	1	18.7
11SB030406	20110426	SO	4,4'-DDE	PEST	0.394	U	N		UG/KG	0.777	U	0.777	1	13.7
11SB040002	20110426	SO	4,4'-DDE	PEST	0.419	U	N		UG/KG	0.825	U	0.825	1	20.9
11SB040406	20110426	SO	4,4'-DDE	PEST	0.377	U	N		UG/KG	0.744	U	0.744	1	12.8
11SS050002	20110426	SO	4,4'-DDE	PEST	0.395	U	N		UG/KG	0.778	U	0.778	1	16.6
11SS060002	20110426	SO	4,4'-DDE	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	19.2
11SS070002	20110426	SO	4,4'-DDE	PEST	0.421	U	N		UG/KG	0.83	U	0.83	1	21.9
11SS080002	20110426	SO	4,4'-DDE	PEST	0.409	U	N		UG/KG	0.806	U	0.806	1	16.9
11SS090002	20110426	SO	4,4'-DDE	PEST	0.426	U	N		UG/KG	0.839	U	0.839	1	23.2
11SS100002	20110426	SO	4,4'-DDE	PEST	0.462	U	N		UG/KG	0.909	U	0.909	1	27.3
11SS110002	20110426	SO	4,4'-DDE	PEST	0.411	U	N		UG/KG	0.809	U	0.809	1	17.8
11SS110002-D	20110426	SO	4,4'-DDE	PEST	0.419	U	N		UG/KG	0.826	U	0.826	1	18.8
11SS120002	20110426	SO	4,4'-DDE	PEST	0.392	U	N		UG/KG	0.772	U	0.772	1	17
11SS130002	20110426	SO	4,4'-DDE	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	18.2
11SS150002	20110426	SO	4,4'-DDE	PEST	0.405	U	N		UG/KG	0.799	U	0.799	1	19.4
11SS160002	20110426	SO	4,4'-DDE	PEST	0.431	U	N		UG/KG	0.849	U	0.849	1	22.6
11SS170002	20110426	SO	4,4'-DDE	PEST	0.393	U	N		UG/KG	0.775	U	0.775	1	16.3
11SS180002	20110426	SO	4,4'-DDE	PEST	0.4	U	N		UG/KG	0.789	U	0.789	1	17.8
11SS290002	20110427	SO	4,4'-DDE	PEST	0.42	U	N		UG/KG	0.828	U	0.828	1	22.6
11SS300002	20110427	SO	4,4'-DDE	PEST	0.39	U	N		UG/KG	0.768	U	0.768	1	15
11SS310002	20110426	SO	4,4'-DDE	PEST	0.411	U	N		UG/KG	0.81	U	0.81	1	19.5
11SS310002-D	20110427	SO	4,4'-DDE	PEST	0.417	U	N		UG/KG	0.822	U	0.822	1	21.7
11SS320002	20110426	SO	4,4'-DDE	PEST	0.413	U	N		UG/KG	0.815	U	0.815	1	20.4
11SB010002	20110426	SO	4,4'-DDT	PEST	0.417	U	N		UG/KG	0.822	U	0.822	1	21.1
11SB010002-D	20110426	SO	4,4'-DDT	PEST	0.428	U	N		UG/KG	0.843	U	0.843	1	21
11SB010406	20110426	SO	4,4'-DDT	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	17.7
11SB010406-D	20110426	SO	4,4'-DDT	PEST	0.406	U	N		UG/KG	0.799	U	0.799	1	19.4
11SB020002	20110426	SO	4,4'-DDT	PEST	0.42	U	N		UG/KG	0.827	U	0.827	1	20.6
11SB020406	20110426	SO	4,4'-DDT	PEST	0.437	U	N		UG/KG	0.862	U	0.862	1	24.3
11SB030002	20110426	SO	4,4'-DDT	PEST	0.416	U	N		UG/KG	0.819	U	0.819	1	18.7
11SB030406	20110426	SO	4,4'-DDT	PEST	0.394	U	N		UG/KG	0.777	U	0.777	1	13.7
11SB040002	20110426	SO	4,4'-DDT	PEST	0.419	U	N		UG/KG	0.825	U	0.825	1	20.9
11SB040406	20110426	SO	4,4'-DDT	PEST	0.377	U	N		UG/KG	0.744	U	0.744	1	12.8
11SS050002	20110426	SO	4,4'-DDT	PEST	0.395	U	N		UG/KG	0.778	U	0.778	1	16.6
11SS060002	20110426	SO	4,4'-DDT	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	19.2
11SS070002	20110426	SO	4,4'-DDT	PEST	0.421	U	N		UG/KG	0.83	U	0.83	1	21.9

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SS080002	20110426	SO	4,4'-DDT	PEST	0.409	U	N		UG/KG	0.806	U	0.806	1	16.9
11SS090002	20110426	SO	4,4'-DDT	PEST	0.426	U	N		UG/KG	0.839	U	0.839	1	23.2
11SS100002	20110426	SO	4,4'-DDT	PEST	0.462	U	N		UG/KG	0.909	U	0.909	1	27.3
11SS110002	20110426	SO	4,4'-DDT	PEST	0.411	U	N		UG/KG	0.809	U	0.809	1	17.8
11SS110002-D	20110426	SO	4,4'-DDT	PEST	0.419	U	N		UG/KG	0.826	U	0.826	1	18.8
11SS120002	20110426	SO	4,4'-DDT	PEST	0.392	U	N		UG/KG	0.772	U	0.772	1	17
11SS130002	20110426	SO	4,4'-DDT	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	18.2
11SS140002	20110426	SO	4,4'-DDT	PEST	0.41	U	N		UG/KG	0.809	U	0.809	1	18.8
11SS150002	20110426	SO	4,4'-DDT	PEST	0.405	U	N		UG/KG	0.799	U	0.799	1	19.4
11SS160002	20110426	SO	4,4'-DDT	PEST	0.431	U	N		UG/KG	0.849	U	0.849	1	22.6
11SS170002	20110426	SO	4,4'-DDT	PEST	0.393	U	N		UG/KG	0.775	U	0.775	1	16.3
11SS180002	20110426	SO	4,4'-DDT	PEST	0.4	U	N		UG/KG	0.789	U	0.789	1	17.8
11SS290002	20110427	SO	4,4'-DDT	PEST	0.42	U	N		UG/KG	0.828	U	0.828	1	22.6
11SS300002	20110427	SO	4,4'-DDT	PEST	0.39	U	N		UG/KG	0.768	U	0.768	1	15
11SS310002	20110426	SO	4,4'-DDT	PEST	0.411	U	N		UG/KG	0.81	U	0.81	1	19.5
11SS310002-D	20110427	SO	4,4'-DDT	PEST	0.417	U	N		UG/KG	0.822	U	0.822	1	21.7
11SS320002	20110426	SO	4,4'-DDT	PEST	0.413	U	N		UG/KG	0.815	U	0.815	1	20.4
11SB010002	20110426	SO	ALDRIN	PEST	0.417	U	N		UG/KG	0.822	U	0.822	1	21.1
11SB010002-D	20110426	SO	ALDRIN	PEST	0.428	U	N		UG/KG	0.843	U	0.843	1	21
11SB010406	20110426	SO	ALDRIN	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	17.7
11SB010406-D	20110426	SO	ALDRIN	PEST	0.406	U	N		UG/KG	0.799	U	0.799	1	19.4
11SB020002	20110426	SO	ALDRIN	PEST	0.42	U	N		UG/KG	0.827	U	0.827	1	20.6
11SB020406	20110426	SO	ALDRIN	PEST	0.437	U	N		UG/KG	0.862	U	0.862	1	24.3
11SB030002	20110426	SO	ALDRIN	PEST	0.416	U	N		UG/KG	0.819	U	0.819	1	18.7
11SB030406	20110426	SO	ALDRIN	PEST	0.394	U	N		UG/KG	0.777	U	0.777	1	13.7
11SB040002	20110426	SO	ALDRIN	PEST	0.419	U	N		UG/KG	0.825	U	0.825	1	20.9
11SB040406	20110426	SO	ALDRIN	PEST	0.377	U	N		UG/KG	0.744	U	0.744	1	12.8
11SS050002	20110426	SO	ALDRIN	PEST	0.395	U	N		UG/KG	0.778	U	0.778	1	16.6
11SS060002	20110426	SO	ALDRIN	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	19.2
11SS070002	20110426	SO	ALDRIN	PEST	0.421	U	N		UG/KG	0.83	U	0.83	1	21.9
11SS080002	20110426	SO	ALDRIN	PEST	0.409	U	N		UG/KG	0.806	U	0.806	1	16.9
11SS090002	20110426	SO	ALDRIN	PEST	0.426	U	N		UG/KG	0.839	U	0.839	1	23.2
11SS100002	20110426	SO	ALDRIN	PEST	0.462	U	N		UG/KG	0.909	U	0.909	1	27.3
11SS110002	20110426	SO	ALDRIN	PEST	0.411	U	N		UG/KG	0.809	U	0.809	1	17.8
11SS110002-D	20110426	SO	ALDRIN	PEST	0.419	U	N		UG/KG	0.826	U	0.826	1	18.8
11SS120002	20110426	SO	ALDRIN	PEST	0.392	U	N		UG/KG	0.772	U	0.772	1	17
11SS130002	20110426	SO	ALDRIN	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	18.2
11SS140002	20110426	SO	ALDRIN	PEST	0.41	U	N		UG/KG	0.809	U	0.809	1	18.8
11SS150002	20110426	SO	ALDRIN	PEST	0.405	U	N		UG/KG	0.799	U	0.799	1	19.4
11SS160002	20110426	SO	ALDRIN	PEST	0.431	U	N		UG/KG	0.849	U	0.849	1	22.6
11SS170002	20110426	SO	ALDRIN	PEST	0.393	U	N		UG/KG	0.775	U	0.775	1	16.3
11SS180002	20110426	SO	ALDRIN	PEST	0.4	U	N		UG/KG	0.789	U	0.789	1	17.8
11SS290002	20110427	SO	ALDRIN	PEST	0.42	U	N		UG/KG	0.828	U	0.828	1	22.6
11SS300002	20110427	SO	ALDRIN	PEST	0.39	U	N		UG/KG	0.768	U	0.768	1	15
11SS310002	20110426	SO	ALDRIN	PEST	0.411	U	N		UG/KG	0.81	U	0.81	1	19.5
11SS310002-D	20110427	SO	ALDRIN	PEST	0.417	U	N		UG/KG	0.822	U	0.822	1	21.7
11SS320002	20110426	SO	ALDRIN	PEST	0.413	U	N		UG/KG	0.815	U	0.815	1	20.4
11SB010002	20110426	SO	ALPHA-BHC	PEST	0.417	U	N		UG/KG	0.822	U	0.822	1	21.1
11SB010002-D	20110426	SO	ALPHA-BHC	PEST	0.428	U	N		UG/KG	0.843	U	0.843	1	21
11SB010406	20110426	SO	ALPHA-BHC	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	17.7
11SB010406-D	20110426	SO	ALPHA-BHC	PEST	0.406	U	N		UG/KG	0.799	U	0.799	1	19.4
11SB020002	20110426	SO	ALPHA-BHC	PEST	0.42	U	N		UG/KG	0.827	U	0.827	1	20.6
11SB020406	20110426	SO	ALPHA-BHC	PEST	0.437	U	N		UG/KG	0.862	U	0.862	1	24.3
11SB030002	20110426	SO	ALPHA-BHC	PEST	0.416	U	N		UG/KG	0.819	U	0.819	1	18.7
11SB030406	20110426	SO	ALPHA-BHC	PEST	0.394	U	N		UG/KG	0.777	U	0.777	1	13.7
11SB040002	20110426	SO	ALPHA-BHC	PEST	0.419	U	N		UG/KG	0.825	U	0.825	1	20.9
11SB040406	20110426	SO	ALPHA-BHC	PEST	0.377	U	N		UG/KG	0.744	U	0.744	1	12.8
11SS050002	20110426	SO	ALPHA-BHC	PEST	0.395	U	N		UG/KG	0.778	U	0.778	1	16.6
11SS060002	20110426	SO	ALPHA-BHC	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	19.2
11SS070002	20110426	SO	ALPHA-BHC	PEST	0.421	U	N		UG/KG	0.83	U	0.83	1	21.9
11SS090002	20110426	SO	ALPHA-BHC	PEST	0.426	U	N		UG/KG	0.839	U	0.839	1	23.2
11SS110002	20110426	SO	ALPHA-BHC	PEST	0.411	U	N		UG/KG	0.809	U	0.809	1	17.8
11SS110002-D	20110426	SO	ALPHA-BHC	PEST	0.419	U	N		UG/KG	0.826	U	0.826	1	18.8
11SS120002	20110426	SO	ALPHA-BHC	PEST	0.392	U	N		UG/KG	0.772	U	0.772	1	17
11SS130002	20110426	SO	ALPHA-BHC	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	18.2
11SS140002	20110426	SO	ALPHA-BHC	PEST	0.41	U	N		UG/KG	0.809	U	0.809	1	18.8
11SS150002	20110426	SO	ALPHA-BHC	PEST	0.405	U	N		UG/KG	0.799	U	0.799	1	19.4
11SS160002	20110426	SO	ALPHA-BHC	PEST	0.431	U	N		UG/KG	0.849	U	0.849	1	22.6
11SS170002	20110426	SO	ALPHA-BHC	PEST	0.393	U	N		UG/KG	0.775	U	0.775	1	16.3
11SS180002	20110426	SO	ALPHA-BHC	PEST	0.4	U	N		UG/KG	0.789	U	0.789	1	17.8
11SS290002	20110427	SO	ALPHA-BHC	PEST	0.42	U	N		UG/KG	0.828	U	0.828	1	22.6
11SS300002	20110427	SO	ALPHA-BHC	PEST	0.39	U	N		UG/KG	0.768	U	0.768	1	15
11SS310002	20110426	SO	ALPHA-BHC	PEST	0.411	U	N		UG/KG	0.81	U	0.81	1	19.5
11SS310002-D	20110427	SO	ALPHA-BHC	PEST	0.417	U	N		UG/KG	0.822	U	0.822	1	21.7
11SS320002	20110426	SO	ALPHA-BHC	PEST	0.413	U	N		UG/KG	0.815	U	0.815	1	20.4
11SB010002	20110426	SO	ALPHA-CHLORDANE	PEST	0.417	U	N		UG/KG	0.822	U	0.822	1	21.1
11SB010002-D	20110426	SO	ALPHA-CHLORDANE	PEST	0.428	U	N		UG/KG	0.843	U	0.843	1	21
11SB010406	20110426	SO	ALPHA-CHLORDANE	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	17.7
11SB010406-D	20110426	SO	ALPHA-CHLORDANE	PEST	0.406	U	N		UG/KG	0.799	U	0.799	1	19.4
11SB020002	20110426	SO	ALPHA-CHLORDANE	PEST	0.42	U	N		UG/KG	0.827	U	0.827	1	20.6
11SB020406	20110426	SO	ALPHA-CHLORDANE	PEST	0.437	U	N		UG/KG	0.862	U	0.862	1	24.3

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB030002	20110426	SO	ALPHA-CHLORDANE	PEST	0.416	U	N		UG/KG	0.819	U	0.819	1	18.7
11SB030406	20110426	SO	ALPHA-CHLORDANE	PEST	0.394	U	N		UG/KG	0.777	U	0.777	1	13.7
11SB040002	20110426	SO	ALPHA-CHLORDANE	PEST	0.419	U	N		UG/KG	0.825	U	0.825	1	20.9
11SB040406	20110426	SO	ALPHA-CHLORDANE	PEST	0.377	U	N		UG/KG	0.744	U	0.744	1	12.8
11SS050002	20110426	SO	ALPHA-CHLORDANE	PEST	0.395	U	N		UG/KG	0.778	U	0.778	1	16.6
11SS060002	20110426	SO	ALPHA-CHLORDANE	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	19.2
11SS070002	20110426	SO	ALPHA-CHLORDANE	PEST	0.421	U	N		UG/KG	0.83	U	0.83	1	21.9
11SS080002	20110426	SO	ALPHA-CHLORDANE	PEST	0.409	U	N		UG/KG	0.806	U	0.806	1	16.9
11SS090002	20110426	SO	ALPHA-CHLORDANE	PEST	0.426	U	N		UG/KG	0.839	U	0.839	1	23.2
11SS100002	20110426	SO	ALPHA-CHLORDANE	PEST	0.462	U	N		UG/KG	0.909	U	0.909	1	27.3
11SS110002	20110426	SO	ALPHA-CHLORDANE	PEST	0.411	U	N		UG/KG	0.809	U	0.809	1	17.8
11SS110002-D	20110426	SO	ALPHA-CHLORDANE	PEST	0.419	U	N		UG/KG	0.826	U	0.826	1	18.8
11SS120002	20110426	SO	ALPHA-CHLORDANE	PEST	0.392	U	N		UG/KG	0.772	U	0.772	1	17
11SS130002	20110426	SO	ALPHA-CHLORDANE	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	18.2
11SS140002	20110426	SO	ALPHA-CHLORDANE	PEST	0.41	U	N		UG/KG	0.809	U	0.809	1	18.8
11SS150002	20110426	SO	ALPHA-CHLORDANE	PEST	0.405	U	N		UG/KG	0.799	U	0.799	1	19.4
11SS160002	20110426	SO	ALPHA-CHLORDANE	PEST	0.431	U	N		UG/KG	0.849	U	0.849	1	22.6
11SS170002	20110426	SO	ALPHA-CHLORDANE	PEST	0.393	U	N		UG/KG	0.775	U	0.775	1	16.3
11SS180002	20110426	SO	ALPHA-CHLORDANE	PEST	0.4	U	N		UG/KG	0.789	U	0.789	1	17.8
11SS290002	20110427	SO	ALPHA-CHLORDANE	PEST	0.42	U	N		UG/KG	0.828	U	0.828	1	22.6
11SS300002	20110427	SO	ALPHA-CHLORDANE	PEST	0.39	U	N		UG/KG	0.768	U	0.768	1	15
11SS310002	20110426	SO	ALPHA-CHLORDANE	PEST	0.411	U	N		UG/KG	0.81	U	0.81	1	19.5
11SS310002-D	20110427	SO	ALPHA-CHLORDANE	PEST	0.417	U	N		UG/KG	0.822	U	0.822	1	21.7
11SS320002	20110426	SO	ALPHA-CHLORDANE	PEST	0.413	U	N		UG/KG	0.815	U	0.815	1	20.4
11SB010002	20110426	SO	BETA-BHC	PEST	0.417	U	N		UG/KG	0.822	UX	0.822	1	21.1
11SB010002-D	20110426	SO	BETA-BHC	PEST	0.428	U	N		UG/KG	0.843	U	0.843	1	21
11SB010406	20110426	SO	BETA-BHC	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	17.7
11SB010406-D	20110426	SO	BETA-BHC	PEST	0.406	U	N		UG/KG	0.799	UX	0.799	1	19.4
11SB020406	20110426	SO	BETA-BHC	PEST	0.437	U	N		UG/KG	0.862	U	0.862	1	24.3
11SB040002	20110426	SO	BETA-BHC	PEST	0.419	U	N		UG/KG	0.825	UX	0.825	1	20.9
11SB040406	20110426	SO	BETA-BHC	PEST	0.377	U	N		UG/KG	0.744	U	0.744	1	12.8
11SS050002	20110426	SO	BETA-BHC	PEST	0.395	U	N		UG/KG	0.778	UX	0.778	1	16.6
11SS060002	20110426	SO	BETA-BHC	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	19.2
11SS070002	20110426	SO	BETA-BHC	PEST	0.421	U	N		UG/KG	0.83	U	0.83	1	21.9
11SS080002	20110426	SO	BETA-BHC	PEST	0.409	U	N		UG/KG	0.806	U	0.806	1	16.9
11SS090002	20110426	SO	BETA-BHC	PEST	0.426	U	N		UG/KG	0.839	U	0.839	1	23.2
11SS100002	20110426	SO	BETA-BHC	PEST	0.462	U	N		UG/KG	0.909	U	0.909	1	27.3
11SS110002	20110426	SO	BETA-BHC	PEST	0.411	U	N		UG/KG	0.809	U	0.809	1	17.8
11SS110002-D	20110426	SO	BETA-BHC	PEST	0.419	U	N		UG/KG	0.826	U	0.826	1	18.8
11SS120002	20110426	SO	BETA-BHC	PEST	0.392	U	N		UG/KG	0.772	U	0.772	1	17
11SS130002	20110426	SO	BETA-BHC	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	18.2
11SS140002	20110426	SO	BETA-BHC	PEST	0.41	U	N		UG/KG	0.809	U	0.809	1	18.8
11SS150002	20110426	SO	BETA-BHC	PEST	0.405	U	N		UG/KG	0.799	U	0.799	1	19.4
11SS160002	20110426	SO	BETA-BHC	PEST	0.431	U	N		UG/KG	0.849	U	0.849	1	22.6
11SS170002	20110426	SO	BETA-BHC	PEST	0.393	U	N		UG/KG	0.775	U	0.775	1	16.3
11SS180002	20110426	SO	BETA-BHC	PEST	0.4	U	N		UG/KG	0.789	U	0.789	1	17.8
11SS290002	20110427	SO	BETA-BHC	PEST	0.42	U	N		UG/KG	0.828	U	0.828	1	22.6
11SS300002	20110427	SO	BETA-BHC	PEST	0.39	U	N		UG/KG	0.768	U	0.768	1	15
11SS310002	20110426	SO	BETA-BHC	PEST	0.411	U	N		UG/KG	0.81	U	0.81	1	19.5
11SS310002-D	20110427	SO	BETA-BHC	PEST	0.417	U	N		UG/KG	0.822	U	0.822	1	21.7
11SS320002	20110426	SO	BETA-BHC	PEST	0.413	U	N		UG/KG	0.815	U	0.815	1	20.4
11SB010002	20110426	SO	DIELDRIN	PEST	0.417	U	N		UG/KG	0.822	U	0.822	1	21.1
11SB010002-D	20110426	SO	DIELDRIN	PEST	0.428	U	N		UG/KG	0.843	U	0.843	1	21
11SB010406	20110426	SO	DIELDRIN	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	17.7
11SB010406-D	20110426	SO	DIELDRIN	PEST	0.406	U	N		UG/KG	0.799	U	0.799	1	19.4
11SB020002	20110426	SO	DIELDRIN	PEST	0.42	U	N		UG/KG	0.827	U	0.827	1	20.6
11SB020406	20110426	SO	DIELDRIN	PEST	0.437	U	N		UG/KG	0.862	U	0.862	1	24.3
11SB030002	20110426	SO	DIELDRIN	PEST	0.416	U	N		UG/KG	0.819	U	0.819	1	18.7
11SB030406	20110426	SO	DIELDRIN	PEST	0.394	U	N		UG/KG	0.777	U	0.777	1	13.7
11SB040002	20110426	SO	DIELDRIN	PEST	0.419	U	N		UG/KG	0.825	U	0.825	1	20.9
11SB040406	20110426	SO	DIELDRIN	PEST	0.377	U	N		UG/KG	0.744	U	0.744	1	12.8
11SS050002	20110426	SO	DIELDRIN	PEST	0.395	U	N		UG/KG	0.778	U	0.778	1	16.6
11SS060002	20110426	SO	DIELDRIN	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	19.2
11SS070002	20110426	SO	DIELDRIN	PEST	0.421	U	N		UG/KG	0.83	U	0.83	1	21.9
11SS080002	20110426	SO	DIELDRIN	PEST	0.409	U	N		UG/KG	0.806	U	0.806	1	16.9
11SS090002	20110426	SO	DIELDRIN	PEST	0.426	U	N		UG/KG	0.839	U	0.839	1	23.2
11SS100002	20110426	SO	DIELDRIN	PEST	0.462	U	N		UG/KG	0.909	U	0.909	1	27.3
11SS110002	20110426	SO	DIELDRIN	PEST	0.411	U	N		UG/KG	0.809	U	0.809	1	17.8
11SS120002	20110426	SO	DIELDRIN	PEST	0.392	U	N		UG/KG	0.772	U	0.772	1	17
11SS130002	20110426	SO	DIELDRIN	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	18.2
11SS140002	20110426	SO	DIELDRIN	PEST	0.41	U	N		UG/KG	0.809	U	0.809	1	18.8
11SB010002	20110426	SO	ENDOSULFAN I	PEST	0.417	U	N		UG/KG	0.822	U	0.822	1	21.1
11SB010002-D	20110426	SO	ENDOSULFAN I	PEST	0.428	U	N		UG/KG	0.843	U	0.843	1	21
11SB010406	20110426	SO	ENDOSULFAN I	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	17.7
11SB010406-D	20110426	SO	ENDOSULFAN I	PEST	0.406	U	N		UG/KG	0.799	U	0.799	1	19.4
11SB020002	20110426	SO	ENDOSULFAN I	PEST	0.42	U	N		UG/KG	0.827	U	0.827	1	20.6
11SB020406	20110426	SO	ENDOSULFAN I	PEST	0.437	U	N		UG/KG	0.862	U	0.862	1	24.3
11SB030002	20110426	SO	ENDOSULFAN I	PEST	0.416	U	N		UG/KG	0.819	U	0.819	1	18.7
11SB030406	20110426	SO	ENDOSULFAN I	PEST	0.394	U	N		UG/KG	0.777	U	0.777	1	13.7
11SB040002	20110426	SO	ENDOSULFAN I	PEST	0.419	U	N		UG/KG	0.825	U	0.825	1	20.9
11SB040406	20110426	SO	ENDOSULFAN I	PEST	0.377	U	N		UG/KG	0.744	U	0.744	1	12.8

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SS050002	20110426	SO	ENDOSULFAN I	PEST	0.395	U	N		UG/KG	0.778	U	0.778	1	16.6
11SS060002	20110426	SO	ENDOSULFAN I	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	19.2
11SS070002	20110426	SO	ENDOSULFAN I	PEST	0.421	U	N		UG/KG	0.83	U	0.83	1	21.9
11SS080002	20110426	SO	ENDOSULFAN I	PEST	0.409	U	N		UG/KG	0.806	U	0.806	1	16.9
11SS090002	20110426	SO	ENDOSULFAN I	PEST	0.426	U	N		UG/KG	0.839	U	0.839	1	23.2
11SS100002	20110426	SO	ENDOSULFAN I	PEST	0.462	U	N		UG/KG	0.909	U	0.909	1	27.3
11SS110002	20110426	SO	ENDOSULFAN I	PEST	0.411	U	N		UG/KG	0.809	U	0.809	1	17.8
11SS120002	20110426	SO	ENDOSULFAN I	PEST	0.392	U	N		UG/KG	0.772	U	0.772	1	17
11SS130002	20110426	SO	ENDOSULFAN I	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	18.2
11SS140002	20110426	SO	ENDOSULFAN I	PEST	0.41	U	N		UG/KG	0.809	U	0.809	1	18.8
11SB010002	20110426	SO	ENDOSULFAN II	PEST	0.417	U	N		UG/KG	0.822	U	0.822	1	21.1
11SB010002-D	20110426	SO	ENDOSULFAN II	PEST	0.428	U	N		UG/KG	0.843	U	0.843	1	21
11SB010406	20110426	SO	ENDOSULFAN II	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	17.7
11SB010406-D	20110426	SO	ENDOSULFAN II	PEST	0.406	U	N		UG/KG	0.799	U	0.799	1	19.4
11SB020002	20110426	SO	ENDOSULFAN II	PEST	0.42	U	N		UG/KG	0.827	U	0.827	1	20.6
11SB020406	20110426	SO	ENDOSULFAN II	PEST	0.437	U	N		UG/KG	0.862	U	0.862	1	24.3
11SB030002	20110426	SO	ENDOSULFAN II	PEST	0.416	U	N		UG/KG	0.819	U	0.819	1	18.7
11SB030406	20110426	SO	ENDOSULFAN II	PEST	0.394	U	N		UG/KG	0.777	U	0.777	1	13.7
11SB040002	20110426	SO	ENDOSULFAN II	PEST	0.419	U	N		UG/KG	0.825	U	0.825	1	20.9
11SB040406	20110426	SO	ENDOSULFAN II	PEST	0.377	U	N		UG/KG	0.744	U	0.744	1	12.8
11SS050002	20110426	SO	ENDOSULFAN II	PEST	0.395	U	N		UG/KG	0.778	U	0.778	1	16.6
11SS060002	20110426	SO	ENDOSULFAN II	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	19.2
11SS070002	20110426	SO	ENDOSULFAN II	PEST	0.421	U	N		UG/KG	0.83	U	0.83	1	21.9
11SS080002	20110426	SO	ENDOSULFAN II	PEST	0.409	U	N		UG/KG	0.806	U	0.806	1	16.9
11SS090002	20110426	SO	ENDOSULFAN II	PEST	0.426	U	N		UG/KG	0.839	U	0.839	1	23.2
11SS100002	20110426	SO	ENDOSULFAN II	PEST	0.462	U	N		UG/KG	0.909	U	0.909	1	27.3
11SS110002	20110426	SO	ENDOSULFAN II	PEST	0.411	U	N		UG/KG	0.809	U	0.809	1	17.8
11SS120002	20110426	SO	ENDOSULFAN II	PEST	0.392	U	N		UG/KG	0.772	U	0.772	1	17
11SS130002	20110426	SO	ENDOSULFAN II	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	18.2
11SS140002	20110426	SO	ENDOSULFAN II	PEST	0.41	U	N		UG/KG	0.809	U	0.809	1	18.8
11SB010002	20110426	SO	ENDOSULFAN SULFATE	PEST	0.417	U	N		UG/KG	0.822	U	0.822	1	21.1
11SB010002-D	20110426	SO	ENDOSULFAN SULFATE	PEST	0.428	U	N		UG/KG	0.843	U	0.843	1	21
11SB010406	20110426	SO	ENDOSULFAN SULFATE	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	17.7
11SB010406-D	20110426	SO	ENDOSULFAN SULFATE	PEST	0.406	U	N		UG/KG	0.799	U	0.799	1	19.4
11SB020002	20110426	SO	ENDOSULFAN SULFATE	PEST	0.42	U	N		UG/KG	0.827	U	0.827	1	20.6
11SB020406	20110426	SO	ENDOSULFAN SULFATE	PEST	0.437	U	N		UG/KG	0.862	U	0.862	1	24.3
11SB030002	20110426	SO	ENDOSULFAN SULFATE	PEST	0.416	U	N		UG/KG	0.819	U	0.819	1	18.7
11SB030406	20110426	SO	ENDOSULFAN SULFATE	PEST	0.394	U	N		UG/KG	0.777	U	0.777	1	13.7
11SB040002	20110426	SO	ENDOSULFAN SULFATE	PEST	0.419	U	N		UG/KG	0.825	U	0.825	1	20.9
11SB040406	20110426	SO	ENDOSULFAN SULFATE	PEST	0.377	U	N		UG/KG	0.744	U	0.744	1	12.8
11SS050002	20110426	SO	ENDOSULFAN SULFATE	PEST	0.395	U	N		UG/KG	0.778	U	0.778	1	16.6
11SS060002	20110426	SO	ENDOSULFAN SULFATE	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	19.2
11SS070002	20110426	SO	ENDOSULFAN SULFATE	PEST	0.421	U	N		UG/KG	0.83	U	0.83	1	21.9
11SS080002	20110426	SO	ENDOSULFAN SULFATE	PEST	0.409	U	N		UG/KG	0.806	U	0.806	1	16.9
11SS090002	20110426	SO	ENDOSULFAN SULFATE	PEST	0.426	U	N		UG/KG	0.839	U	0.839	1	23.2
11SS100002	20110426	SO	ENDOSULFAN SULFATE	PEST	0.462	U	N		UG/KG	0.909	U	0.909	1	27.3
11SS110002	20110426	SO	ENDOSULFAN SULFATE	PEST	0.411	U	N		UG/KG	0.809	U	0.809	1	17.8
11SS110002-D	20110426	SO	ENDOSULFAN SULFATE	PEST	0.419	U	N		UG/KG	0.826	U	0.826	1	18.8
11SS120002	20110426	SO	ENDOSULFAN SULFATE	PEST	0.392	U	N		UG/KG	0.772	U	0.772	1	17
11SS130002	20110426	SO	ENDOSULFAN SULFATE	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	18.2
11SS140002	20110426	SO	ENDOSULFAN SULFATE	PEST	0.41	U	N		UG/KG	0.809	U	0.809	1	18.8
11SS150002	20110426	SO	ENDOSULFAN SULFATE	PEST	0.405	U	N		UG/KG	0.799	U	0.799	1	19.4
11SS160002	20110426	SO	ENDOSULFAN SULFATE	PEST	0.431	U	N		UG/KG	0.849	U	0.849	1	22.6
11SS170002	20110426	SO	ENDOSULFAN SULFATE	PEST	0.393	U	N		UG/KG	0.775	U	0.775	1	16.3
11SS180002	20110426	SO	ENDOSULFAN SULFATE	PEST	0.4	U	N		UG/KG	0.789	U	0.789	1	17.8
11SS290002	20110427	SO	ENDOSULFAN SULFATE	PEST	0.42	U	N		UG/KG	0.828	U	0.828	1	22.6
11SS300002	20110427	SO	ENDOSULFAN SULFATE	PEST	0.39	U	N		UG/KG	0.768	U	0.768	1	15
11SS310002	20110426	SO	ENDOSULFAN SULFATE	PEST	0.411	U	N		UG/KG	0.81	U	0.81	1	19.5
11SS310002-D	20110427	SO	ENDOSULFAN SULFATE	PEST	0.417	U	N		UG/KG	0.822	U	0.822	1	21.7
11SS320002	20110426	SO	ENDOSULFAN SULFATE	PEST	0.413	U	N		UG/KG	0.815	U	0.815	1	20.4
11SB010002	20110426	SO	ENDRIN	PEST	0.417	U	N		UG/KG	0.822	U	0.822	1	21.1
11SB010002-D	20110426	SO	ENDRIN	PEST	0.428	U	N		UG/KG	0.843	U	0.843	1	21
11SB010406	20110426	SO	ENDRIN	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	17.7
11SB010406-D	20110426	SO	ENDRIN	PEST	0.406	U	N		UG/KG	0.799	U	0.799	1	19.4
11SB020002	20110426	SO	ENDRIN	PEST	0.42	U	N		UG/KG	0.827	U	0.827	1	20.6
11SB020406	20110426	SO	ENDRIN	PEST	0.437	U	N		UG/KG	0.862	U	0.862	1	24.3
11SB030002	20110426	SO	ENDRIN	PEST	0.416	U	N		UG/KG	0.819	U	0.819	1	18.7
11SB030406	20110426	SO	ENDRIN	PEST	0.394	U	N		UG/KG	0.777	U	0.777	1	13.7
11SB040002	20110426	SO	ENDRIN	PEST	0.419	U	N		UG/KG	0.825	U	0.825	1	20.9
11SB040406	20110426	SO	ENDRIN	PEST	0.377	U	N		UG/KG	0.744	U	0.744	1	12.8
11SS050002	20110426	SO	ENDRIN	PEST	0.395	U	N		UG/KG	0.778	U	0.778	1	16.6
11SS060002	20110426	SO	ENDRIN	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	19.2
11SS070002	20110426	SO	ENDRIN	PEST	0.421	U	N		UG/KG	0.83	U	0.83	1	21.9
11SS080002	20110426	SO	ENDRIN	PEST	0.409	U	N		UG/KG	0.806	U	0.806	1	16.9
11SS090002	20110426	SO	ENDRIN	PEST	0.426	U	N		UG/KG	0.839	U	0.839	1	23.2
11SS100002	20110426	SO	ENDRIN	PEST	0.462	U	N		UG/KG	0.909	U	0.909	1	27.3
11SS110002	20110426	SO	ENDRIN	PEST	0.411	U	N		UG/KG	0.809	U	0.809	1	17.8
11SS120002	20110426	SO	ENDRIN	PEST	0.392	U	N		UG/KG	0.772	U	0.772	1	17
11SS130002	20110426	SO	ENDRIN	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	18.2
11SS140002	20110426	SO	ENDRIN	PEST	0.41	U	N		UG/KG	0.809	U	0.809	1	18.8
11SB010002	20110426	SO	ENDRIN ALDEHYDE	PEST	0.417	U	N		UG/KG	0.822	U	0.822	1	21.1

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB010002-D	20110426	SO	ENDRIN ALDEHYDE	PEST	0.428	U	N		UG/KG	0.843	U	0.843	1	21
11SB010406	20110426	SO	ENDRIN ALDEHYDE	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	17.7
11SB010406-D	20110426	SO	ENDRIN ALDEHYDE	PEST	0.406	U	N		UG/KG	0.799	U	0.799	1	19.4
11SB020002	20110426	SO	ENDRIN ALDEHYDE	PEST	0.42	U	N		UG/KG	0.827	U	0.827	1	20.6
11SB020406	20110426	SO	ENDRIN ALDEHYDE	PEST	0.437	U	N		UG/KG	0.862	U	0.862	1	24.3
11SB030002	20110426	SO	ENDRIN ALDEHYDE	PEST	0.416	U	N		UG/KG	0.819	U	0.819	1	18.7
11SB030406	20110426	SO	ENDRIN ALDEHYDE	PEST	0.394	U	N		UG/KG	0.777	U	0.777	1	13.7
11SB040002	20110426	SO	ENDRIN ALDEHYDE	PEST	0.419	U	N		UG/KG	0.825	U	0.825	1	20.9
11SB040406	20110426	SO	ENDRIN ALDEHYDE	PEST	0.377	U	N		UG/KG	0.744	U	0.744	1	12.8
11SS050002	20110426	SO	ENDRIN ALDEHYDE	PEST	0.395	U	N		UG/KG	0.778	U	0.778	1	16.6
11SS060002	20110426	SO	ENDRIN ALDEHYDE	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	19.2
11SS070002	20110426	SO	ENDRIN ALDEHYDE	PEST	0.421	U	N		UG/KG	0.83	U	0.83	1	21.9
11SS080002	20110426	SO	ENDRIN ALDEHYDE	PEST	0.409	U	N		UG/KG	0.806	U	0.806	1	16.9
11SS090002	20110426	SO	ENDRIN ALDEHYDE	PEST	0.426	U	N		UG/KG	0.839	U	0.839	1	23.2
11SS100002	20110426	SO	ENDRIN ALDEHYDE	PEST	0.462	U	N		UG/KG	0.909	U	0.909	1	27.3
11SS110002	20110426	SO	ENDRIN ALDEHYDE	PEST	0.411	U	N		UG/KG	0.809	U	0.809	1	17.8
11SS120002	20110426	SO	ENDRIN ALDEHYDE	PEST	0.392	U	N		UG/KG	0.772	U	0.772	1	17
11SS130002	20110426	SO	ENDRIN ALDEHYDE	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	18.2
11SS140002	20110426	SO	ENDRIN ALDEHYDE	PEST	0.41	U	N		UG/KG	0.809	U	0.809	1	18.8
11SB010002	20110426	SO	ENDRIN KETONE	PEST	0.417	U	N		UG/KG	0.822	U	0.822	1	21.1
11SB010002-D	20110426	SO	ENDRIN KETONE	PEST	0.428	U	N		UG/KG	0.843	U	0.843	1	21
11SB010406	20110426	SO	ENDRIN KETONE	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	17.7
11SB010406-D	20110426	SO	ENDRIN KETONE	PEST	0.406	U	N		UG/KG	0.799	U	0.799	1	19.4
11SB020002	20110426	SO	ENDRIN KETONE	PEST	0.42	U	N		UG/KG	0.827	U	0.827	1	20.6
11SB020406	20110426	SO	ENDRIN KETONE	PEST	0.437	U	N		UG/KG	0.862	U	0.862	1	24.3
11SB030002	20110426	SO	ENDRIN KETONE	PEST	0.416	U	N		UG/KG	0.819	U	0.819	1	18.7
11SB030406	20110426	SO	ENDRIN KETONE	PEST	0.394	U	N		UG/KG	0.777	U	0.777	1	13.7
11SB040002	20110426	SO	ENDRIN KETONE	PEST	0.419	U	N		UG/KG	0.825	U	0.825	1	20.9
11SB040406	20110426	SO	ENDRIN KETONE	PEST	0.377	U	N		UG/KG	0.744	U	0.744	1	12.8
11SS050002	20110426	SO	ENDRIN KETONE	PEST	0.395	U	N		UG/KG	0.778	U	0.778	1	16.6
11SS060002	20110426	SO	ENDRIN KETONE	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	19.2
11SS070002	20110426	SO	ENDRIN KETONE	PEST	0.421	U	N		UG/KG	0.83	U	0.83	1	21.9
11SS080002	20110426	SO	ENDRIN KETONE	PEST	0.409	U	N		UG/KG	0.806	U	0.806	1	16.9
11SS090002	20110426	SO	ENDRIN KETONE	PEST	0.426	U	N		UG/KG	0.839	U	0.839	1	23.2
11SS100002	20110426	SO	ENDRIN KETONE	PEST	0.462	U	N		UG/KG	0.909	U	0.909	1	27.3
11SS110002	20110426	SO	ENDRIN KETONE	PEST	0.411	U	N		UG/KG	0.809	U	0.809	1	17.8
11SS110002-D	20110426	SO	ENDRIN KETONE	PEST	0.419	U	N		UG/KG	0.826	U	0.826	1	18.8
11SS120002	20110426	SO	ENDRIN KETONE	PEST	0.392	U	N		UG/KG	0.772	U	0.772	1	17
11SS130002	20110426	SO	ENDRIN KETONE	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	18.2
11SS140002	20110426	SO	ENDRIN KETONE	PEST	0.41	U	N		UG/KG	0.809	U	0.809	1	18.8
11SS150002	20110426	SO	ENDRIN KETONE	PEST	0.405	U	N		UG/KG	0.799	U	0.799	1	19.4
11SS160002	20110426	SO	ENDRIN KETONE	PEST	0.431	U	N		UG/KG	0.849	U	0.849	1	22.6
11SS170002	20110426	SO	ENDRIN KETONE	PEST	0.393	U	N		UG/KG	0.775	U	0.775	1	16.3
11SS180002	20110426	SO	ENDRIN KETONE	PEST	0.4	U	N		UG/KG	0.789	U	0.789	1	17.8
11SS290002	20110427	SO	ENDRIN KETONE	PEST	0.42	U	N		UG/KG	0.828	U	0.828	1	22.6
11SS300002	20110427	SO	ENDRIN KETONE	PEST	0.39	U	N		UG/KG	0.768	U	0.768	1	15
11SS310002	20110426	SO	ENDRIN KETONE	PEST	0.411	U	N		UG/KG	0.81	U	0.81	1	19.5
11SS310002-D	20110427	SO	ENDRIN KETONE	PEST	0.417	U	N		UG/KG	0.822	U	0.822	1	21.7
11SS320002	20110426	SO	ENDRIN KETONE	PEST	0.413	U	N		UG/KG	0.815	U	0.815	1	20.4
11SB010002	20110426	SO	GAMMA-BHC (LINDANE)	PEST	0.417	U	N		UG/KG	0.822	U	0.822	1	21.1
11SB010002-D	20110426	SO	GAMMA-BHC (LINDANE)	PEST	0.428	U	N		UG/KG	0.843	U	0.843	1	21
11SB010406	20110426	SO	GAMMA-BHC (LINDANE)	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	17.7
11SB010406-D	20110426	SO	GAMMA-BHC (LINDANE)	PEST	0.406	U	N		UG/KG	0.799	U	0.799	1	19.4
11SB020002	20110426	SO	GAMMA-BHC (LINDANE)	PEST	0.42	U	N		UG/KG	0.827	U	0.827	1	20.6
11SB020406	20110426	SO	GAMMA-BHC (LINDANE)	PEST	0.437	U	N		UG/KG	0.862	U	0.862	1	24.3
11SB030002	20110426	SO	GAMMA-BHC (LINDANE)	PEST	0.416	U	N		UG/KG	0.819	U	0.819	1	18.7
11SB030406	20110426	SO	GAMMA-BHC (LINDANE)	PEST	0.394	U	N		UG/KG	0.777	U	0.777	1	13.7
11SB040002	20110426	SO	GAMMA-BHC (LINDANE)	PEST	0.419	U	N		UG/KG	0.825	U	0.825	1	20.9
11SB040406	20110426	SO	GAMMA-BHC (LINDANE)	PEST	0.377	U	N		UG/KG	0.744	U	0.744	1	12.8
11SS050002	20110426	SO	GAMMA-BHC (LINDANE)	PEST	0.395	U	N		UG/KG	0.778	U	0.778	1	16.6
11SS060002	20110426	SO	GAMMA-BHC (LINDANE)	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	19.2
11SS070002	20110426	SO	GAMMA-BHC (LINDANE)	PEST	0.421	U	N		UG/KG	0.83	U	0.83	1	21.9
11SS080002	20110426	SO	GAMMA-BHC (LINDANE)	PEST	0.409	U	N		UG/KG	0.806	U	0.806	1	16.9
11SS090002	20110426	SO	GAMMA-BHC (LINDANE)	PEST	0.426	U	N		UG/KG	0.839	U	0.839	1	23.2
11SS100002	20110426	SO	GAMMA-BHC (LINDANE)	PEST	0.462	U	N		UG/KG	0.909	U	0.909	1	27.3
11SS110002	20110426	SO	GAMMA-BHC (LINDANE)	PEST	0.411	U	N		UG/KG	0.809	U	0.809	1	17.8
11SS110002-D	20110426	SO	GAMMA-BHC (LINDANE)	PEST	0.419	U	N		UG/KG	0.826	U	0.826	1	18.8
11SS120002	20110426	SO	GAMMA-BHC (LINDANE)	PEST	0.392	U	N		UG/KG	0.772	U	0.772	1	17
11SS140002	20110426	SO	GAMMA-BHC (LINDANE)	PEST	0.41	U	N		UG/KG	0.809	U	0.809	1	18.8
11SS150002	20110426	SO	GAMMA-BHC (LINDANE)	PEST	0.405	U	N		UG/KG	0.799	U	0.799	1	19.4
11SS160002	20110426	SO	GAMMA-BHC (LINDANE)	PEST	0.431	U	N		UG/KG	0.849	U	0.849	1	22.6
11SS170002	20110426	SO	GAMMA-BHC (LINDANE)	PEST	0.393	U	N		UG/KG	0.775	U	0.775	1	16.3
11SS180002	20110426	SO	GAMMA-BHC (LINDANE)	PEST	0.4	U	N		UG/KG	0.789	U	0.789	1	17.8
11SS290002	20110427	SO	GAMMA-BHC (LINDANE)	PEST	0.42	U	N		UG/KG	0.828	U	0.828	1	22.6
11SS300002	20110427	SO	GAMMA-BHC (LINDANE)	PEST	0.39	U	N		UG/KG	0.768	U	0.768	1	15
11SS310002	20110426	SO	GAMMA-BHC (LINDANE)	PEST	0.411	U	N		UG/KG	0.81	U	0.81	1	19.5
11SS310002-D	20110427	SO	GAMMA-BHC (LINDANE)	PEST	0.417	U	N		UG/KG	0.822	U	0.822	1	21.7
11SS320002	20110426	SO	GAMMA-BHC (LINDANE)	PEST	0.413	U	N		UG/KG	0.815	U	0.815	1	20.4
11SB010002	20110426	SO	GAMMA-CHLORDANE	PEST	0.417	U	N		UG/KG	0.822	U	0.822	1	21.1
11SB020002	20110426	SO	GAMMA-CHLORDANE	PEST	0.42	U	N		UG/KG	0.827	U	0.827	1	20.6
11SB030002	20110426	SO	GAMMA-CHLORDANE	PEST	0.416	U	N		UG/KG	0.819	U	0.819	1	18.7

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SS080002	20110426	SO	GAMMA-CHLORDANE	PEST	0.409	U	N		UG/KG	0.806	U	0.806	1	16.9
11SS100002	20110426	SO	GAMMA-CHLORDANE	PEST	0.462	U	N		UG/KG	0.909	U	0.909	1	27.3
11SS110002-D	20110426	SO	GAMMA-CHLORDANE	PEST	0.419	U	N		UG/KG	0.826	U	0.826	1	18.8
11SS150002	20110426	SO	GAMMA-CHLORDANE	PEST	0.405	U	N		UG/KG	0.799	U	0.799	1	19.4
11SS160002	20110426	SO	GAMMA-CHLORDANE	PEST	0.431	U	N		UG/KG	0.849	U	0.849	1	22.6
11SS170002	20110426	SO	GAMMA-CHLORDANE	PEST	0.393	U	N		UG/KG	0.775	U	0.775	1	16.3
11SS180002	20110426	SO	GAMMA-CHLORDANE	PEST	0.4	U	N		UG/KG	0.789	U	0.789	1	17.8
11SS290002	20110427	SO	GAMMA-CHLORDANE	PEST	0.42	U	N		UG/KG	0.828	U	0.828	1	22.6
11SS300002	20110427	SO	GAMMA-CHLORDANE	PEST	0.39	U	N		UG/KG	0.768	U	0.768	1	15
11SS310002	20110426	SO	GAMMA-CHLORDANE	PEST	0.411	U	N		UG/KG	0.81	U	0.81	1	19.5
11SS310002-D	20110427	SO	GAMMA-CHLORDANE	PEST	0.417	U	N		UG/KG	0.822	U	0.822	1	21.7
11SS320002	20110426	SO	GAMMA-CHLORDANE	PEST	0.413	U	N		UG/KG	0.815	U	0.815	1	20.4
11SB010002	20110426	SO	HEPTACHLOR	PEST	0.417	U	N		UG/KG	0.822	U	0.822	1	21.1
11SB010002-D	20110426	SO	HEPTACHLOR	PEST	0.428	U	N		UG/KG	0.843	U	0.843	1	21
11SB010406	20110426	SO	HEPTACHLOR	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	17.7
11SB010406-D	20110426	SO	HEPTACHLOR	PEST	0.406	U	N		UG/KG	0.799	U	0.799	1	19.4
11SB020002	20110426	SO	HEPTACHLOR	PEST	0.42	U	N		UG/KG	0.827	U	0.827	1	20.6
11SB020406	20110426	SO	HEPTACHLOR	PEST	0.437	U	N		UG/KG	0.862	U	0.862	1	24.3
11SB030002	20110426	SO	HEPTACHLOR	PEST	0.416	U	N		UG/KG	0.819	U	0.819	1	18.7
11SB030406	20110426	SO	HEPTACHLOR	PEST	0.394	U	N		UG/KG	0.777	U	0.777	1	13.7
11SB040002	20110426	SO	HEPTACHLOR	PEST	0.419	U	N		UG/KG	0.825	U	0.825	1	20.9
11SB040406	20110426	SO	HEPTACHLOR	PEST	0.377	U	N		UG/KG	0.744	U	0.744	1	12.8
11SS050002	20110426	SO	HEPTACHLOR	PEST	0.395	U	N		UG/KG	0.778	U	0.778	1	16.6
11SS060002	20110426	SO	HEPTACHLOR	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	19.2
11SS070002	20110426	SO	HEPTACHLOR	PEST	0.421	U	N		UG/KG	0.83	U	0.83	1	21.9
11SS080002	20110426	SO	HEPTACHLOR	PEST	0.409	U	N		UG/KG	0.806	U	0.806	1	16.9
11SS090002	20110426	SO	HEPTACHLOR	PEST	0.426	U	N		UG/KG	0.839	U	0.839	1	23.2
11SS100002	20110426	SO	HEPTACHLOR	PEST	0.462	U	N		UG/KG	0.909	U	0.909	1	27.3
11SS110002	20110426	SO	HEPTACHLOR	PEST	0.411	U	N		UG/KG	0.809	U	0.809	1	17.8
11SS110002-D	20110426	SO	HEPTACHLOR	PEST	0.419	U	N		UG/KG	0.826	U	0.826	1	18.8
11SS120002	20110426	SO	HEPTACHLOR	PEST	0.392	U	N		UG/KG	0.772	U	0.772	1	17
11SS130002	20110426	SO	HEPTACHLOR	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	18.2
11SS140002	20110426	SO	HEPTACHLOR	PEST	0.41	U	N		UG/KG	0.809	U	0.809	1	18.8
11SS150002	20110426	SO	HEPTACHLOR	PEST	0.405	U	N		UG/KG	0.799	U	0.799	1	19.4
11SS160002	20110426	SO	HEPTACHLOR	PEST	0.431	U	N		UG/KG	0.849	U	0.849	1	22.6
11SS170002	20110426	SO	HEPTACHLOR	PEST	0.393	U	N		UG/KG	0.775	U	0.775	1	16.3
11SS180002	20110426	SO	HEPTACHLOR	PEST	0.4	U	N		UG/KG	0.789	U	0.789	1	17.8
11SS290002	20110427	SO	HEPTACHLOR	PEST	0.42	U	N		UG/KG	0.828	U	0.828	1	22.6
11SS300002	20110427	SO	HEPTACHLOR	PEST	0.39	U	N		UG/KG	0.768	U	0.768	1	15
11SS310002	20110426	SO	HEPTACHLOR	PEST	0.411	U	N		UG/KG	0.81	U	0.81	1	19.5
11SS310002-D	20110427	SO	HEPTACHLOR	PEST	0.417	U	N		UG/KG	0.822	U	0.822	1	21.7
11SS320002	20110426	SO	HEPTACHLOR	PEST	0.413	U	N		UG/KG	0.815	U	0.815	1	20.4
11SB010002	20110426	SO	HEPTACHLOR EPOXIDE	PEST	0.417	U	N		UG/KG	0.822	U	0.822	1	21.1
11SB010002-D	20110426	SO	HEPTACHLOR EPOXIDE	PEST	0.428	U	N		UG/KG	0.843	U	0.843	1	21
11SB010406	20110426	SO	HEPTACHLOR EPOXIDE	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	17.7
11SB010406-D	20110426	SO	HEPTACHLOR EPOXIDE	PEST	0.406	U	N		UG/KG	0.799	U	0.799	1	19.4
11SB020002	20110426	SO	HEPTACHLOR EPOXIDE	PEST	0.42	U	N		UG/KG	0.827	U	0.827	1	20.6
11SB020406	20110426	SO	HEPTACHLOR EPOXIDE	PEST	0.437	U	N		UG/KG	0.862	U	0.862	1	24.3
11SB030002	20110426	SO	HEPTACHLOR EPOXIDE	PEST	0.416	U	N		UG/KG	0.819	U	0.819	1	18.7
11SB030406	20110426	SO	HEPTACHLOR EPOXIDE	PEST	0.394	U	N		UG/KG	0.777	U	0.777	1	13.7
11SB040002	20110426	SO	HEPTACHLOR EPOXIDE	PEST	0.419	U	N		UG/KG	0.825	U	0.825	1	20.9
11SB040406	20110426	SO	HEPTACHLOR EPOXIDE	PEST	0.377	U	N		UG/KG	0.744	U	0.744	1	12.8
11SS050002	20110426	SO	HEPTACHLOR EPOXIDE	PEST	0.395	U	N		UG/KG	0.778	U	0.778	1	16.6
11SS060002	20110426	SO	HEPTACHLOR EPOXIDE	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	19.2
11SS070002	20110426	SO	HEPTACHLOR EPOXIDE	PEST	0.421	U	N		UG/KG	0.83	U	0.83	1	21.9
11SS080002	20110426	SO	HEPTACHLOR EPOXIDE	PEST	0.409	U	N		UG/KG	0.806	U	0.806	1	16.9
11SS090002	20110426	SO	HEPTACHLOR EPOXIDE	PEST	0.426	U	N		UG/KG	0.839	U	0.839	1	23.2
11SS100002	20110426	SO	HEPTACHLOR EPOXIDE	PEST	0.462	U	N		UG/KG	0.909	U	0.909	1	27.3
11SS110002	20110426	SO	HEPTACHLOR EPOXIDE	PEST	0.411	U	N		UG/KG	0.809	U	0.809	1	17.8
11SS110002-D	20110426	SO	HEPTACHLOR EPOXIDE	PEST	0.419	U	N		UG/KG	0.826	U	0.826	1	18.8
11SS120002	20110426	SO	HEPTACHLOR EPOXIDE	PEST	0.392	U	N		UG/KG	0.772	U	0.772	1	17
11SS130002	20110426	SO	HEPTACHLOR EPOXIDE	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	18.2
11SS140002	20110426	SO	HEPTACHLOR EPOXIDE	PEST	0.41	U	N		UG/KG	0.809	U	0.809	1	18.8
11SS150002	20110426	SO	HEPTACHLOR EPOXIDE	PEST	0.405	U	N		UG/KG	0.799	U	0.799	1	19.4
11SS160002	20110426	SO	HEPTACHLOR EPOXIDE	PEST	0.431	U	N		UG/KG	0.849	U	0.849	1	22.6
11SS170002	20110426	SO	HEPTACHLOR EPOXIDE	PEST	0.393	U	N		UG/KG	0.775	U	0.775	1	16.3
11SS180002	20110426	SO	HEPTACHLOR EPOXIDE	PEST	0.4	U	N		UG/KG	0.789	U	0.789	1	17.8
11SS290002	20110427	SO	HEPTACHLOR EPOXIDE	PEST	0.42	U	N		UG/KG	0.828	U	0.828	1	22.6
11SS300002	20110427	SO	HEPTACHLOR EPOXIDE	PEST	0.39	U	N		UG/KG	0.768	U	0.768	1	15
11SS310002	20110426	SO	HEPTACHLOR EPOXIDE	PEST	0.411	U	N		UG/KG	0.81	U	0.81	1	19.5
11SS310002-D	20110427	SO	HEPTACHLOR EPOXIDE	PEST	0.417	U	N		UG/KG	0.822	U	0.822	1	21.7
11SS320002	20110426	SO	HEPTACHLOR EPOXIDE	PEST	0.413	U	N		UG/KG	0.815	U	0.815	1	20.4
11SB010002	20110426	SO	METHOXYCHLOR	PEST	0.417	U	N		UG/KG	0.822	U	0.822	1	21.1
11SB010002-D	20110426	SO	METHOXYCHLOR	PEST	0.428	U	N		UG/KG	0.843	U	0.843	1	21
11SB010406	20110426	SO	METHOXYCHLOR	PEST	0.402	U	N		UG/KG	0.792	U	0.792	1	17.7
11SB010406-D	20110426	SO	METHOXYCHLOR	PEST	0.406	U	N		UG/KG	0.799	U	0.799	1	19.4
11SB020002	20110426	SO	METHOXYCHLOR	PEST	0.42	U	N		UG/KG	0.827	U	0.827	1	20.6
11SB020406	20110426	SO	METHOXYCHLOR	PEST	0.437	U	N		UG/KG	0.862	U	0.862	1	24.3
11SB030002	20110426	SO	METHOXYCHLOR	PEST	0.416	U	N		UG/KG	0.819	U	0.819	1	18.7
11SB030406	20110426	SO	METHOXYCHLOR	PEST	0.394	U	N		UG/KG	0.777	U	0.777	1	13.7
11SB040002	20110426	SO	METHOXYCHLOR	PEST	0.419	U	N		UG/KG	0.825	U	0.825	1	20.9

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB040406	20110426	SO	METHOXYCHLOR	PEST	0.377	U	N		UG/KG	0.744	U	0.744	1	12.8
11SD010612	20110428	SD	N-NITROSODIPHENYLAMINE	OS	1140	UJ	N	C	UG/KG	2250	QUX	2250	5	27.6
11SD020006	20110428	SD	N-NITROSODIPHENYLAMINE	OS	208	UJ	N	C	UG/KG	412	QUX	412	1	21.4
11SD020612	20110428	SD	N-NITROSODIPHENYLAMINE	OS	208	UJ	N	C	UG/KG	411	QUX	411	1	22.2
11SD030612	20110428	SD	N-NITROSODIPHENYLAMINE	OS	185	UJ	N	C	UG/KG	366	QUX	366	1	14.3
11SD010006	20110428	SD	PENTACHLOROPHENOL	OS	4730	UJ	N	C	UG/KG	9210	UX	9210	5	31.3
11SD010612	20110428	SD	PENTACHLOROPHENOL	OS	4540	UJ	N	C	UG/KG	8860	UX	8860	5	27.6
11SD020006	20110428	SD	PENTACHLOROPHENOL	OS	832	UJ	N	C	UG/KG	1620	UX	1620	1	21.4
11SD020612	20110428	SD	PENTACHLOROPHENOL	OS	830	UJ	N	C	UG/KG	1620	UX	1620	1	22.2
11SD030612	20110428	SD	PENTACHLOROPHENOL	OS	739	UJ	N	C	UG/KG	1440	UX	1440	1	14.3
11SD010006	20110428	SD	PHENANTHRENE	PAH	153	J	Y	E	UG/KG	153	QD	47.3	5	31.3
11SD010612	20110428	SD	PHENANTHRENE	PAH	96	J	Y	E	UG/KG	96	QD	45.4	5	27.6
11SD020006	20110428	SD	PHENANTHRENE	PAH	24.5	J	Y	EG	UG/KG	24.5	Q	8.32	1	21.4
11SD020006-D	20110428	SD	PHENANTHRENE	PAH	7.5	J	Y	GP	UG/KG	7.5	J	8.14	1	18.6
11SD020612	20110428	SD	PHENANTHRENE	PAH	16.4	J	Y	E	UG/KG	16.4	Q	8.3	1	22.2
11SD030006	20110428	SD	PHENANTHRENE	PAH	18.9	J	Y	E	UG/KG	18.9	Q	8.61	1	26.5
11SD030612	20110428	SD	PHENANTHRENE	PAH	4.6	J	Y	EP	UG/KG	4.6	QJ	7.39	1	14.3
11SD040006	20110428	SD	PHENANTHRENE	PAH	3.25	J	Y	P	UG/KG	3.25	J	8.91	1	28.5
11SD010006	20110428	SD	POTASSIUM	M	435	J	Y	DP	MG/KG	435	JDN	717	2	31.3
11SD010612	20110428	SD	POTASSIUM	M	442	J	Y	D	MG/KG	442	N	347	1	27.6
11SD020006	20110428	SD	POTASSIUM	M	338	J	Y	P	MG/KG	338	JD	649	2	21.4
11SD020006-D	20110428	SD	POTASSIUM	M	377	J	Y	P	MG/KG	377	JD	630	2	18.6
11SD020612	20110428	SD	POTASSIUM	M	423	J	Y	P	MG/KG	423	JD	607	2	22.2
11SD030006	20110428	SD	POTASSIUM	M	335	J	Y	P	MG/KG	335	JD	657	2	26.5
11SD030612	20110428	SD	POTASSIUM	M	418	J	Y	P	MG/KG	418	JD	580	2	14.3
11SD040006	20110428	SD	POTASSIUM	M	370	J	Y	P	MG/KG	370	JD	679	2	28.5
11SD040612	20110428	SD	POTASSIUM	M	381	J	Y	P	MG/KG	381	JD	683	2	26.8
11SD020006	20110428	SD	PYRENE	PAH	46.2	J	Y	G	UG/KG	46.2	Q	8.32	1	21.4
11SD020006-D	20110428	SD	PYRENE	PAH	14.5	J	Y	G	UG/KG	14.5		8.14	1	18.6
11SD040006	20110428	SD	PYRENE	PAH	7.39	J	Y	P	UG/KG	7.39	J	8.91	1	28.5
11SD010006	20110428	SD	SELENIUM	M	0.722	J	Y	P	MG/KG	0.722	JD	1.43	2	31.3
11SD020006	20110428	SD	SELENIUM	M	0.447	J	Y	P	MG/KG	0.447	JD	1.3	2	21.4
11SD030006	20110428	SD	SELENIUM	M	0.568	J	Y	P	MG/KG	0.568	JD	1.31	2	26.5
11SD030612	20110428	SD	SELENIUM	M	0.451	J	Y	P	MG/KG	0.451	JD	1.16	2	14.3
11SD040006	20110428	SD	SELENIUM	M	0.694	J	Y	P	MG/KG	0.694	JD	1.36	2	28.5
11SD010006	20110428	SD	SODIUM	M	215	J	Y	CDP	MG/KG	215	JDXN	717	2	31.3
11SD010612	20110428	SD	SODIUM	M	93.4	J	Y	CDP	MG/KG	93.4	JXN	347	1	27.6
11SD010006	20110428	SD	THALLIUM	M	0.656	J	Y	P	MG/KG	0.656	JD	1.15	2	31.3
11SD020006	20110428	SD	THALLIUM	M	0.742	J	Y	P	MG/KG	0.742	JD	1.04	2	21.4
11SD030006	20110428	SD	THALLIUM	M	0.516	J	Y	P	MG/KG	0.516	JD	1.05	2	26.5
11SD040006	20110428	SD	THALLIUM	M	0.487	J	Y	P	MG/KG	0.487	JD	1.09	2	28.5
11SD020006	20110428	SD	TOTAL HPCDD	DIOX	487	J	Y	G	NG/KG	487		4.56	1	26
11SD020006-D	20110428	SD	TOTAL HPCDD	DIOX	255	J	Y	G	NG/KG	255		4.89	1	27.3
11SD020006	20110428	SD	TOTAL HPCDF	DIOX	147	J	Y	G	NG/KG	147		4.56	1	26
11SD020006-D	20110428	SD	TOTAL HPCDF	DIOX	74.7	J	Y	G	NG/KG	74.7		4.89	1	27.3
11SD020006	20110428	SD	TOTAL HXCDD	DIOX	71.6	J	Y	G	NG/KG	71.6		4.56	1	26
11SD020006-D	20110428	SD	TOTAL HXCDD	DIOX	35.8	J	Y	G	NG/KG	35.8		4.89	1	27.3
11SD020006	20110428	SD	TOTAL HXCDF	DIOX	31.8	J	Y	G	NG/KG	31.8		4.56	1	26
11SD020006-D	20110428	SD	TOTAL HXCDF	DIOX	19.5	J	Y	G	NG/KG	19.5		4.89	1	27.3
11SD020006	20110428	SD	TOTAL PECDD	DIOX	9.64	J	Y	G	NG/KG	9.64		4.56	1	26
11SD020006-D	20110428	SD	TOTAL PECDD	DIOX	5.13	J	Y	G	NG/KG	5.13		4.89	1	27.3
11SD060006	20111117	SD	TOTAL PECDD	DIOX	2.12	J	Y	P	NG/KG	2.120000	J	4.67	1	27
11SD020006	20110428	SD	TOTAL PECDF	DIOX	9.89	J	Y	G	NG/KG	9.89		4.56	1	26
11SD020006-D	20110428	SD	TOTAL PECDF	DIOX	3.31	J	Y	GP	NG/KG	3.31	J	4.89	1	27.3
11SD020006	20110428	SD	TOTAL TCDF	DIOX	2.1	U	N	A	NG/KG	2.1	B	0.911	1	26
11SD020006-D	20110428	SD	TOTAL TCDF	DIOX	0.754	U	N	A	NG/KG	0.754	J	0.977	1	27.3
11SD020612	20110428	SD	TOTAL TCDF	DIOX	1.94	U	N	A	NG/KG	1.94		0.976	1	27.1
11SD050006	20111117	SD	TOTAL TCDF	DIOX	0.346	J	Y	P	NG/KG	.346000	J	0.976	1	29
11SD010006	20110428	SD	VANADIUM	M	19.7	J	Y	F	MG/KG	19.7	D	1.79	2	31.3
11SD010612	20110428	SD	VANADIUM	M	20.9	J	Y	F	MG/KG	20.9		0.867	1	27.6
11SD020006	20110428	SD	VANADIUM	M	25.8	J	Y	G	MG/KG	25.8	D	1.62	2	21.4
11SD020006-D	20110428	SD	VANADIUM	M	45.6	J	Y	G	MG/KG	45.6	D	1.58	2	18.6
11SD020006	20110428	SD	ZINC	M	220	J	Y	G	MG/KG	220	D	2.6	2	21.4
11SD020006-D	20110428	SD	ZINC	M	95.5	J	Y	G	MG/KG	95.5	D	2.52	2	18.6
11SB010002	20110426	SO	1,1,1-TRICHLOROETHANE	OV	2.51	UJ	N	C	UG/KG	5.03	UX	5.03	1	21.1
11SB010002-D	20110426	SO	1,1,1-TRICHLOROETHANE	OV	2.45	UJ	N	C	UG/KG	4.9	UX	4.9	1	21
11SB010406	20110426	SO	1,1,1-TRICHLOROETHANE	OV	2.38	UJ	N	C	UG/KG	4.75	UX	4.75	1	17.7
11SB010406-D	20110426	SO	1,1,1-TRICHLOROETHANE	OV	2.4	UJ	N	C	UG/KG	4.79	UX	4.79	1	19.4
11SB020406	20110426	SO	1,1,1-TRICHLOROETHANE	OV	2.55	UJ	N	C	UG/KG	5.1	UX	5.1	1	24.3
11SB040002	20110426	SO	1,1,1-TRICHLOROETHANE	OV	2.98	UJ	N	C	UG/KG	5.97	UX	5.97	1	20.9
11SB040406	20110426	SO	1,1,1-TRICHLOROETHANE	OV	2.51	UJ	N	C	UG/KG	5.03	UX	5.03	1	12.8
11SB250507	20110426	SO	1,1,1-TRICHLOROETHANE	OV	2.9	UJ	N	C	UG/KG	5.79	UX	5.79	1	18.9
11SB270507	20110426	SO	1,1,1-TRICHLOROETHANE	OV	2.24	UJ	N	C	UG/KG	4.48	UX	4.48	1	14.1
11SB280507	20110426	SO	1,1,1-TRICHLOROETHANE	OV	3.31	UJ	N	C	UG/KG	6.62	UX	6.62	1	28.9
11SB51-0204	20121030	SO	1,1,1-TRICHLOROETHANE	OV	2.59	U	N		UG/KG	5.19	U	5.19	1	15.3
11SB51-0204-D	20121030	SO	1,1,1-TRICHLOROETHANE	OV	2.39	U	N		UG/KG	4.77	U	4.77	1	12.3
11SB51-0506	20121030	SO	1,1,1-TRICHLOROETHANE	OV	2.39	U	N		UG/KG	4.79	U	4.79	1	13
11SB52-0204	20121030	SO	1,1,1-TRICHLOROETHANE	OV	2.48	U	N		UG/KG	4.95	U	4.95	1	15.3
11SB52-0506	20121030	SO	1,1,1-TRICHLOROETHANE	OV	2.4	U	N		UG/KG	4.81	U	4.81	1	14.9
11SB53-0204	20121030	SO	1,1,1-TRICHLOROETHANE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	17.6
11SB53-0506	20121030	SO	1,1,1-TRICHLOROETHANE	OV	2.59	U	N		UG/KG	5.18	U	5.18	1	14.3

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB54-0204	20121030	SO	1,1,1-TRICHLOROETHANE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	15.2
11SB54-0405	20121030	SO	1,1,1-TRICHLOROETHANE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	16.3
11SB55-0406	20121030	SO	1,1,1-TRICHLOROETHANE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	15.8
11SB55-0607	20121030	SO	1,1,1-TRICHLOROETHANE	OV	2.44	U	N		UG/KG	4.89	U	4.89	1	14.9
11SB56-0406	20121030	SO	1,1,1-TRICHLOROETHANE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	11.4
11SB56-0708	20121030	SO	1,1,1-TRICHLOROETHANE	OV	2.7	U	N		UG/KG	5.39	U	5.39	1	19.1
11SB57-0406	20121030	SO	1,1,1-TRICHLOROETHANE	OV	3.08	U	N		UG/KG	6.17	U	6.17	1	19.8
11SB57-0607	20121030	SO	1,1,1-TRICHLOROETHANE	OV	2.65	U	N		UG/KG	5.3	U	5.3	1	17
11SB58-0305	20121030	SO	1,1,1-TRICHLOROETHANE	OV	2.49	U	N		UG/KG	4.98	U	4.98	1	16.3
11SB58-0506	20121030	SO	1,1,1-TRICHLOROETHANE	OV	2.41	U	N		UG/KG	4.82	U	4.82	1	15.7
11SB59-0204	20121030	SO	1,1,1-TRICHLOROETHANE	OV	3.02	U	N		UG/KG	6.03	U	6.03	1	19.4
11SB60-0204	20121129	SO	1,1,1-TRICHLOROETHANE	OV	2.36	U	N		UG/KG	4.73	U	4.73	1	15.38
11SB60-0204-D	20121129	SO	1,1,1-TRICHLOROETHANE	OV	2.47	U	N		UG/KG	4.93	U	4.93	1	13.53
11SB60-0405	20121129	SO	1,1,1-TRICHLOROETHANE	OV	2.23	U	N		UG/KG	4.46	U	4.46	1	13.12
11SB61-0810	20121129	SO	1,1,1-TRICHLOROETHANE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	17.22
11SB61-1011	20121129	SO	1,1,1-TRICHLOROETHANE	OV	2.54	U	N		UG/KG	5.09	U	5.09	1	20.37
11SB62-0911	20121129	SO	1,1,1-TRICHLOROETHANE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	14.28
11SB62-1112	20121129	SO	1,1,1-TRICHLOROETHANE	OV	2.53	U	N		UG/KG	5.06	U	5.06	1	19.21
11SB63-0911	20121129	SO	1,1,1-TRICHLOROETHANE	OV	130	U	N		UG/KG	260	U	260	50	18.5
11SB63-1112	20121129	SO	1,1,1-TRICHLOROETHANE	OV	161	U	N		UG/KG	322	U	322	50	23.2
11SB64-0911	20121129	SO	1,1,1-TRICHLOROETHANE	OV	2.43	U	N		UG/KG	4.86	U	4.86	1	16.4
11SB64-1112	20121129	SO	1,1,1-TRICHLOROETHANE	OV	2.47	U	N		UG/KG	4.94	U	4.94	1	14.2
11SB65-0911	20121129	SO	1,1,1-TRICHLOROETHANE	OV	2.4	U	N		UG/KG	4.8	U	4.8	1	13.22
11SB65-1112	20121129	SO	1,1,1-TRICHLOROETHANE	OV	2.44	U	N		UG/KG	4.87	U	4.87	1	14.32
11SB66-1315	20130123	SO	1,1,1-TRICHLOROETHANE	OV	2.46	U	N		UG/KG	4.93	U	4.93	1	14.43
11SB66-1516	20130123	SO	1,1,1-TRICHLOROETHANE	OV	2.92	U	N		UG/KG	5.84	U	5.84	1	16.87
11SB66-1516-D	20130123	SO	1,1,1-TRICHLOROETHANE	OV	2.83	U	N		UG/KG	5.67	U	5.67	1	18.5
11SB67-1416	20130123	SO	1,1,1-TRICHLOROETHANE	OV	130	U	N		UG/KG	260	U	260	50	14.63
11SB67-1617	20130123	SO	1,1,1-TRICHLOROETHANE	OV	121	U	N		UG/KG	242	U	242	50	15.86
11SB68-1315	20130123	SO	1,1,1-TRICHLOROETHANE	OV	103	U	N		UG/KG	206	U	206	50	14.52
11SB68-1516	20130123	SO	1,1,1-TRICHLOROETHANE	OV	112	U	N		UG/KG	223	U	223	50	14.97
11SB69-1416	20130123	SO	1,1,1-TRICHLOROETHANE	OV	2.19	U	N		UG/KG	4.38	U	4.38	1	16.29
11SB69-1617	20130123	SO	1,1,1-TRICHLOROETHANE	OV	2.18	U	N		UG/KG	4.37	U	4.37	1	18.65
11SB70-1315	20130123	SO	1,1,1-TRICHLOROETHANE	OV	1.98	U	N		UG/KG	3.96	U	3.96	1	16.04
11SB70-1516	20130123	SO	1,1,1-TRICHLOROETHANE	OV	2.63	U	N		UG/KG	5.26	U	5.26	1	18.12
11SB51-0204	20121030	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.59	U	N		UG/KG	5.19	U	5.19	1	15.3
11SB51-0204-D	20121030	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.39	U	N		UG/KG	4.77	U	4.77	1	12.3
11SB51-0506	20121030	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.39	U	N		UG/KG	4.79	U	4.79	1	13
11SB52-0204	20121030	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.48	U	N		UG/KG	4.95	U	4.95	1	15.3
11SB52-0506	20121030	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.4	U	N		UG/KG	4.81	U	4.81	1	14.9
11SB53-0204	20121030	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	17.6
11SB53-0506	20121030	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.59	U	N		UG/KG	5.18	U	5.18	1	14.3
11SB54-0204	20121030	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	15.2
11SB54-0405	20121030	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	16.3
11SB55-0406	20121030	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	15.8
11SB55-0607	20121030	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.44	U	N		UG/KG	4.89	U	4.89	1	14.9
11SB56-0406	20121030	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	11.4
11SB56-0708	20121030	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.7	U	N		UG/KG	5.39	U	5.39	1	19.1
11SB57-0406	20121030	SO	1,1,2,2-TETRACHLOROETHANE	OV	3.08	U	N		UG/KG	6.17	U	6.17	1	19.8
11SB57-0607	20121030	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.65	U	N		UG/KG	5.3	U	5.3	1	17
11SB58-0305	20121030	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.49	U	N		UG/KG	4.98	U	4.98	1	16.3
11SB58-0506	20121030	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.41	U	N		UG/KG	4.82	U	4.82	1	15.7
11SB59-0204	20121030	SO	1,1,2,2-TETRACHLOROETHANE	OV	3.02	U	N		UG/KG	6.03	U	6.03	1	19.4
11SB60-0204	20121129	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.36	U	N		UG/KG	4.73	U	4.73	1	15.38
11SB60-0204-D	20121129	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.47	U	N		UG/KG	4.93	U	4.93	1	13.53
11SB60-0405	20121129	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.23	U	N		UG/KG	4.46	U	4.46	1	13.12
11SB61-0810	20121129	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	17.22
11SB61-1011	20121129	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.54	U	N		UG/KG	5.09	U	5.09	1	20.37
11SB62-0911	20121129	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	14.28
11SB62-1112	20121129	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.53	U	N		UG/KG	5.06	U	5.06	1	19.21
11SB63-0911	20121129	SO	1,1,2,2-TETRACHLOROETHANE	OV	130	U	N		UG/KG	260	U	260	50	18.5
11SB63-1112	20121129	SO	1,1,2,2-TETRACHLOROETHANE	OV	161	U	N		UG/KG	322	U	322	50	23.2
11SB64-0911	20121129	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.43	U	N		UG/KG	4.86	U	4.86	1	16.4
11SB64-1112	20121129	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.47	U	N		UG/KG	4.94	U	4.94	1	14.2
11SB65-0911	20121129	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.4	U	N		UG/KG	4.8	U	4.8	1	13.22
11SB65-1112	20121129	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.44	U	N		UG/KG	4.87	U	4.87	1	14.32
11SB66-1315	20130123	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.46	U	N		UG/KG	4.93	U	4.93	1	14.43
11SB66-1516	20130123	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.92	U	N		UG/KG	5.84	U	5.84	1	16.87
11SB66-1516-D	20130123	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.83	U	N		UG/KG	5.67	U	5.67	1	18.5
11SB67-1416	20130123	SO	1,1,2,2-TETRACHLOROETHANE	OV	130	U	N		UG/KG	260	U	260	50	14.63
11SB67-1617	20130123	SO	1,1,2,2-TETRACHLOROETHANE	OV	121	U	N		UG/KG	242	U	242	50	15.86
11SB68-1315	20130123	SO	1,1,2,2-TETRACHLOROETHANE	OV	103	U	N		UG/KG	206	U	206	50	14.52
11SB68-1516	20130123	SO	1,1,2,2-TETRACHLOROETHANE	OV	112	U	N		UG/KG	223	U	223	50	14.97
11SB69-1416	20130123	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.19	U	N		UG/KG	4.38	U	4.38	1	16.29
11SB69-1617	20130123	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.18	U	N		UG/KG	4.37	U	4.37	1	18.65
11SB70-1315	20130123	SO	1,1,2,2-TETRACHLOROETHANE	OV	1.98	U	N		UG/KG	3.96	U	3.96	1	16.04
11SB70-1516	20130123	SO	1,1,2,2-TETRACHLOROETHANE	OV	2.63	U	N		UG/KG	5.26	U	5.26	1	18.12
11SB51-0204	20121030	SO	1,1,2-TRICHLOROETHANE	OV	2.59	U	N		UG/KG	5.19	U	5.19	1	15.3
11SB51-0204-D	20121030	SO	1,1,2-TRICHLOROETHANE	OV	2.39	U	N		UG/KG	4.77	U	4.77	1	12.3
11SB51-0506	20121030	SO	1,1,2-TRICHLOROETHANE	OV	2.39	U	N		UG/KG	4.79	U	4.79	1	13
11SB52-0204	20121030	SO	1,1,2-TRICHLOROETHANE	OV	2.48	U	N		UG/KG	4.95	U	4.95	1	15.3

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB52-0506	20121030	SO	1,1,2-TRICHLOROETHANE	OV	2.4	U	N		UG/KG	4.81	U	4.81	1	14.9
11SB53-0204	20121030	SO	1,1,2-TRICHLOROETHANE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	17.6
11SB53-0506	20121030	SO	1,1,2-TRICHLOROETHANE	OV	2.59	U	N		UG/KG	5.18	U	5.18	1	14.3
11SB54-0204	20121030	SO	1,1,2-TRICHLOROETHANE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	15.2
11SB54-0405	20121030	SO	1,1,2-TRICHLOROETHANE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	16.3
11SB55-0406	20121030	SO	1,1,2-TRICHLOROETHANE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	15.8
11SB55-0607	20121030	SO	1,1,2-TRICHLOROETHANE	OV	2.44	U	N		UG/KG	4.89	U	4.89	1	14.9
11SB56-0406	20121030	SO	1,1,2-TRICHLOROETHANE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	11.4
11SB56-0708	20121030	SO	1,1,2-TRICHLOROETHANE	OV	2.7	U	N		UG/KG	5.39	U	5.39	1	19.1
11SB57-0406	20121030	SO	1,1,2-TRICHLOROETHANE	OV	3.08	U	N		UG/KG	6.17	U	6.17	1	19.8
11SB57-0607	20121030	SO	1,1,2-TRICHLOROETHANE	OV	2.65	U	N		UG/KG	5.3	U	5.3	1	17
11SB58-0305	20121030	SO	1,1,2-TRICHLOROETHANE	OV	2.49	U	N		UG/KG	4.98	U	4.98	1	16.3
11SB58-0506	20121030	SO	1,1,2-TRICHLOROETHANE	OV	2.41	U	N		UG/KG	4.82	U	4.82	1	15.7
11SB59-0204	20121030	SO	1,1,2-TRICHLOROETHANE	OV	3.02	U	N		UG/KG	6.03	U	6.03	1	19.4
11SB60-0204	20121129	SO	1,1,2-TRICHLOROETHANE	OV	2.36	U	N		UG/KG	4.73	U	4.73	1	15.38
11SB60-0204-D	20121129	SO	1,1,2-TRICHLOROETHANE	OV	2.47	U	N		UG/KG	4.93	U	4.93	1	13.53
11SB60-0405	20121129	SO	1,1,2-TRICHLOROETHANE	OV	2.23	U	N		UG/KG	4.46	U	4.46	1	13.12
11SB61-0810	20121129	SO	1,1,2-TRICHLOROETHANE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	17.22
11SB61-1011	20121129	SO	1,1,2-TRICHLOROETHANE	OV	2.54	U	N		UG/KG	5.09	U	5.09	1	20.37
11SB62-0911	20121129	SO	1,1,2-TRICHLOROETHANE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	14.28
11SB62-1112	20121129	SO	1,1,2-TRICHLOROETHANE	OV	2.53	U	N		UG/KG	5.06	U	5.06	1	19.21
11SB63-0911	20121129	SO	1,1,2-TRICHLOROETHANE	OV	130	U	N		UG/KG	260	U	260	50	18.5
11SB63-1112	20121129	SO	1,1,2-TRICHLOROETHANE	OV	161	U	N		UG/KG	322	U	322	50	23.2
11SB64-0911	20121129	SO	1,1,2-TRICHLOROETHANE	OV	2.43	U	N		UG/KG	4.86	U	4.86	1	16.4
11SB64-1112	20121129	SO	1,1,2-TRICHLOROETHANE	OV	2.47	U	N		UG/KG	4.94	U	4.94	1	14.2
11SB65-0911	20121129	SO	1,1,2-TRICHLOROETHANE	OV	2.4	U	N		UG/KG	4.8	U	4.8	1	13.22
11SB65-1112	20121129	SO	1,1,2-TRICHLOROETHANE	OV	2.44	U	N		UG/KG	4.87	U	4.87	1	14.32
11SB66-1315	20130123	SO	1,1,2-TRICHLOROETHANE	OV	2.46	U	N		UG/KG	4.93	U	4.93	1	14.43
11SB66-1516	20130123	SO	1,1,2-TRICHLOROETHANE	OV	2.92	U	N		UG/KG	5.84	U	5.84	1	16.87
11SB66-1516-D	20130123	SO	1,1,2-TRICHLOROETHANE	OV	2.83	U	N		UG/KG	5.67	U	5.67	1	18.5
11SB67-1416	20130123	SO	1,1,2-TRICHLOROETHANE	OV	130	U	N		UG/KG	260	U	260	50	14.63
11SB67-1617	20130123	SO	1,1,2-TRICHLOROETHANE	OV	121	U	N		UG/KG	242	U	242	50	15.86
11SB68-1315	20130123	SO	1,1,2-TRICHLOROETHANE	OV	103	U	N		UG/KG	206	U	206	50	14.52
11SB68-1516	20130123	SO	1,1,2-TRICHLOROETHANE	OV	112	U	N		UG/KG	223	U	223	50	14.97
11SB69-1416	20130123	SO	1,1,2-TRICHLOROETHANE	OV	2.19	U	N		UG/KG	4.38	U	4.38	1	16.29
11SB69-1617	20130123	SO	1,1,2-TRICHLOROETHANE	OV	2.18	U	N		UG/KG	4.37	U	4.37	1	18.65
11SB70-1315	20130123	SO	1,1,2-TRICHLOROETHANE	OV	1.98	U	N		UG/KG	3.96	U	3.96	1	16.04
11SB70-1516	20130123	SO	1,1,2-TRICHLOROETHANE	OV	2.63	U	N		UG/KG	5.26	U	5.26	1	18.12
11SB51-0204	20121030	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	5.19	U	N		UG/KG	10.4	U	10.4	1	15.3
11SB51-0204-D	20121030	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.77	U	N		UG/KG	9.55	U	9.55	1	12.3
11SB51-0506	20121030	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.79	U	N		UG/KG	9.58	U	9.58	1	13
11SB52-0204	20121030	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.95	U	N		UG/KG	9.9	U	9.9	1	15.3
11SB52-0506	20121030	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.81	U	N		UG/KG	9.62	U	9.62	1	14.9
11SB53-0204	20121030	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	5.1	U	N		UG/KG	10.2	U	10.2	1	17.6
11SB53-0506	20121030	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	5.18	U	N		UG/KG	10.4	U	10.4	1	14.3
11SB54-0204	20121030	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.48	U	N		UG/KG	8.96	U	8.96	1	15.2
11SB54-0405	20121030	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.61	U	N		UG/KG	9.22	U	9.22	1	16.3
11SB55-0406	20121030	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.61	U	N		UG/KG	9.21	U	9.21	1	15.8
11SB55-0607	20121030	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.89	U	N		UG/KG	9.77	U	9.77	1	14.9
11SB56-0406	20121030	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.74	U	N		UG/KG	9.48	U	9.48	1	11.4
11SB56-0708	20121030	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	5.39	U	N		UG/KG	10.8	U	10.8	1	19.1
11SB57-0406	20121030	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	6.17	U	N		UG/KG	12.3	U	12.3	1	19.8
11SB57-0607	20121030	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	5.3	U	N		UG/KG	10.6	U	10.6	1	17
11SB58-0305	20121030	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.98	U	N		UG/KG	9.96	U	9.96	1	16.3
11SB58-0506	20121030	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.82	U	N		UG/KG	9.65	U	9.65	1	15.7
11SB59-0204	20121030	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	6.03	U	N		UG/KG	12.1	U	12.1	1	19.4
11SB60-0204	20121129	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.73	U	N		UG/KG	9.45	U	9.45	1	15.38
11SB60-0204-D	20121129	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.93	U	N		UG/KG	9.87	U	9.87	1	13.53
11SB60-0405	20121129	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.46	U	N		UG/KG	8.92	U	8.92	1	13.12
11SB61-0810	20121129	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.79	U	N		UG/KG	9.59	U	9.59	1	17.22
11SB61-1011	20121129	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	5.09	U	N		UG/KG	10.2	U	10.2	1	20.37
11SB62-0911	20121129	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.74	U	N		UG/KG	9.48	U	9.48	1	14.28
11SB62-1112	20121129	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	5.06	U	N		UG/KG	10.1	U	10.1	1	19.21
11SB63-0911	20121129	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	260	U	N		UG/KG	521	U	521	50	18.5
11SB63-1112	20121129	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	322	U	N		UG/KG	643	U	643	50	23.2
11SB64-0911	20121129	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.86	U	N		UG/KG	9.73	U	9.73	1	16.4
11SB64-1112	20121129	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.94	U	N		UG/KG	9.88	U	9.88	1	14.2
11SB65-0911	20121129	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.8	U	N		UG/KG	9.6	U	9.6	1	13.22
11SB65-1112	20121129	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.87	U	N		UG/KG	9.74	U	9.74	1	14.32
11SB66-1315	20130123	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.93	U	N		UG/KG	9.85	U	9.85	1	14.43
11SB66-1516	20130123	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	5.84	U	N		UG/KG	11.7	U	11.7	1	16.87
11SB66-1516-D	20130123	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	5.67	U	N		UG/KG	11.3	U	11.3	1	18.5
11SB67-1416	20130123	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	260	U	N		UG/KG	520	U	520	50	14.63
11SB67-1617	20130123	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	242	U	N		UG/KG	483	U	483	50	15.86
11SB68-1315	20130123	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	206	U	N		UG/KG	412	U	412	50	14.52
11SB68-1516	20130123	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	223	U	N		UG/KG	447	U	447	50	14.97
11SB69-1416	20130123	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.38	U	N		UG/KG	8.76	U	8.76	1	16.29
11SB69-1617	20130123	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	4.37	U	N		UG/KG	8.73	U	8.73	1	18.65
11SB70-1315	20130123	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	3.96	U	N		UG/KG	7.92	U	7.92	1	16.04
11SB70-1516	20130123	SO	1,1,2-TRICHLOROTRIFLUOROETHANE	OV	5.26	U	N		UG/KG	10.5	U	10.5	1	18.12
11SB260507	20110427	SO	1,1-BIPHENYL	OS	186	UJ	N	C	UG/KG	368	YU	368	1	14.9

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB51-0204	20121030	SO	1,1-DICHLOROETHANE	OV	2.59	U	N		UG/KG	5.19	U	5.19	1	15.3
11SB51-0204-D	20121030	SO	1,1-DICHLOROETHANE	OV	2.39	U	N		UG/KG	4.77	U	4.77	1	12.3
11SB51-0506	20121030	SO	1,1-DICHLOROETHANE	OV	2.39	U	N		UG/KG	4.79	U	4.79	1	13
11SB52-0204	20121030	SO	1,1-DICHLOROETHANE	OV	2.48	U	N		UG/KG	4.95	U	4.95	1	15.3
11SB52-0506	20121030	SO	1,1-DICHLOROETHANE	OV	2.4	U	N		UG/KG	4.81	U	4.81	1	14.9
11SB53-0204	20121030	SO	1,1-DICHLOROETHANE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	17.6
11SB53-0506	20121030	SO	1,1-DICHLOROETHANE	OV	2.59	U	N		UG/KG	5.18	U	5.18	1	14.3
11SB54-0204	20121030	SO	1,1-DICHLOROETHANE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	15.2
11SB54-0405	20121030	SO	1,1-DICHLOROETHANE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	16.3
11SB55-0406	20121030	SO	1,1-DICHLOROETHANE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	15.8
11SB55-0607	20121030	SO	1,1-DICHLOROETHANE	OV	2.44	U	N		UG/KG	4.89	U	4.89	1	14.9
11SB56-0406	20121030	SO	1,1-DICHLOROETHANE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	11.4
11SB56-0708	20121030	SO	1,1-DICHLOROETHANE	OV	2.7	U	N		UG/KG	5.39	U	5.39	1	19.1
11SB57-0406	20121030	SO	1,1-DICHLOROETHANE	OV	3.08	U	N		UG/KG	6.17	U	6.17	1	19.8
11SB57-0607	20121030	SO	1,1-DICHLOROETHANE	OV	2.65	U	N		UG/KG	5.3	U	5.3	1	17
11SB58-0305	20121030	SO	1,1-DICHLOROETHANE	OV	2.49	U	N		UG/KG	4.98	U	4.98	1	16.3
11SB58-0506	20121030	SO	1,1-DICHLOROETHANE	OV	2.41	U	N		UG/KG	4.82	U	4.82	1	15.7
11SB59-0204	20121030	SO	1,1-DICHLOROETHANE	OV	3.02	U	N		UG/KG	6.03	U	6.03	1	19.4
11SB60-0204	20121129	SO	1,1-DICHLOROETHANE	OV	2.36	U	N		UG/KG	4.73	U	4.73	1	15.38
11SB60-0204-D	20121129	SO	1,1-DICHLOROETHANE	OV	2.47	U	N		UG/KG	4.93	U	4.93	1	13.53
11SB60-0405	20121129	SO	1,1-DICHLOROETHANE	OV	2.23	U	N		UG/KG	4.46	U	4.46	1	13.12
11SB61-0810	20121129	SO	1,1-DICHLOROETHANE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	17.22
11SB61-1011	20121129	SO	1,1-DICHLOROETHANE	OV	2.54	U	N		UG/KG	5.09	U	5.09	1	20.37
11SB62-0911	20121129	SO	1,1-DICHLOROETHANE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	14.28
11SB62-1112	20121129	SO	1,1-DICHLOROETHANE	OV	2.53	U	N		UG/KG	5.06	U	5.06	1	19.21
11SB63-0911	20121129	SO	1,1-DICHLOROETHANE	OV	130	U	N		UG/KG	260	U	260	50	18.5
11SB63-1112	20121129	SO	1,1-DICHLOROETHANE	OV	161	U	N		UG/KG	322	U	322	50	23.2
11SB64-0911	20121129	SO	1,1-DICHLOROETHANE	OV	2.43	U	N		UG/KG	4.86	U	4.86	1	16.4
11SB64-1112	20121129	SO	1,1-DICHLOROETHANE	OV	2.47	U	N		UG/KG	4.94	U	4.94	1	14.2
11SB65-0911	20121129	SO	1,1-DICHLOROETHANE	OV	2.4	U	N		UG/KG	4.8	U	4.8	1	13.22
11SB65-1112	20121129	SO	1,1-DICHLOROETHANE	OV	2.44	UJ	N	D	UG/KG	4.87	UN	4.87	1	14.32
11SB66-1315	20130123	SO	1,1-DICHLOROETHANE	OV	2.46	U	N		UG/KG	4.93	U	4.93	1	14.43
11SB66-1516	20130123	SO	1,1-DICHLOROETHANE	OV	2.92	U	N		UG/KG	5.84	U	5.84	1	16.87
11SB66-1516-D	20130123	SO	1,1-DICHLOROETHANE	OV	2.83	U	N		UG/KG	5.67	U	5.67	1	18.5
11SB67-1416	20130123	SO	1,1-DICHLOROETHANE	OV	130	U	N		UG/KG	260	U	260	50	14.63
11SB67-1617	20130123	SO	1,1-DICHLOROETHANE	OV	121	U	N		UG/KG	242	U	242	50	15.86
11SB68-1315	20130123	SO	1,1-DICHLOROETHANE	OV	103	U	N		UG/KG	206	U	206	50	14.52
11SB68-1516	20130123	SO	1,1-DICHLOROETHANE	OV	112	U	N		UG/KG	223	U	223	50	14.97
11SB69-1416	20130123	SO	1,1-DICHLOROETHANE	OV	2.19	U	N		UG/KG	4.38	U	4.38	1	16.29
11SB69-1617	20130123	SO	1,1-DICHLOROETHANE	OV	2.18	U	N		UG/KG	4.37	U	4.37	1	18.65
11SB70-1315	20130123	SO	1,1-DICHLOROETHANE	OV	1.98	U	N		UG/KG	3.96	U	3.96	1	16.04
11SB70-1516	20130123	SO	1,1-DICHLOROETHANE	OV	2.63	U	N		UG/KG	5.26	U	5.26	1	18.12
11SB020406	20110426	SO	1,1-DICHLOROETHENE	OV	1.9	J	Y	P	UG/KG	1.9	J	5.1	1	24.3
11SB51-0204	20121030	SO	1,1-DICHLOROETHENE	OV	2.59	U	N		UG/KG	5.19	U	5.19	1	15.3
11SB51-0204-D	20121030	SO	1,1-DICHLOROETHENE	OV	2.39	U	N		UG/KG	4.77	U	4.77	1	12.3
11SB51-0506	20121030	SO	1,1-DICHLOROETHENE	OV	2.39	U	N		UG/KG	4.79	U	4.79	1	13
11SB52-0204	20121030	SO	1,1-DICHLOROETHENE	OV	1.67	J	Y	P	UG/KG	1.67	J	4.95	1	15.3
11SB52-0506	20121030	SO	1,1-DICHLOROETHENE	OV	2.4	U	N		UG/KG	4.81	U	4.81	1	14.9
11SB53-0204	20121030	SO	1,1-DICHLOROETHENE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	17.6
11SB53-0506	20121030	SO	1,1-DICHLOROETHENE	OV	2.59	U	N		UG/KG	5.18	U	5.18	1	14.3
11SB54-0204	20121030	SO	1,1-DICHLOROETHENE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	15.2
11SB54-0405	20121030	SO	1,1-DICHLOROETHENE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	16.3
11SB55-0406	20121030	SO	1,1-DICHLOROETHENE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	15.8
11SB55-0607	20121030	SO	1,1-DICHLOROETHENE	OV	2.44	U	N		UG/KG	4.89	U	4.89	1	14.9
11SB56-0406	20121030	SO	1,1-DICHLOROETHENE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	11.4
11SB56-0708	20121030	SO	1,1-DICHLOROETHENE	OV	2.7	U	N		UG/KG	5.39	U	5.39	1	19.1
11SB57-0406	20121030	SO	1,1-DICHLOROETHENE	OV	3.08	U	N		UG/KG	6.17	U	6.17	1	19.8
11SB57-0607	20121030	SO	1,1-DICHLOROETHENE	OV	2.65	U	N		UG/KG	5.3	U	5.3	1	17
11SB58-0305	20121030	SO	1,1-DICHLOROETHENE	OV	2.49	U	N		UG/KG	4.98	U	4.98	1	16.3
11SB58-0506	20121030	SO	1,1-DICHLOROETHENE	OV	2.41	U	N		UG/KG	4.82	U	4.82	1	15.7
11SB59-0204	20121030	SO	1,1-DICHLOROETHENE	OV	3.02	U	N		UG/KG	6.03	U	6.03	1	19.4
11SB60-0204	20121129	SO	1,1-DICHLOROETHENE	OV	2.36	U	N		UG/KG	4.73	U	4.73	1	15.38
11SB60-0204-D	20121129	SO	1,1-DICHLOROETHENE	OV	2.47	U	N		UG/KG	4.93	U	4.93	1	13.53
11SB60-0405	20121129	SO	1,1-DICHLOROETHENE	OV	2.23	U	N		UG/KG	4.46	U	4.46	1	13.12
11SB61-0810	20121129	SO	1,1-DICHLOROETHENE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	17.22
11SB61-1011	20121129	SO	1,1-DICHLOROETHENE	OV	2.54	U	N		UG/KG	5.09	U	5.09	1	20.37
11SB62-0911	20121129	SO	1,1-DICHLOROETHENE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	14.28
11SB62-1112	20121129	SO	1,1-DICHLOROETHENE	OV	2.53	U	N		UG/KG	5.06	U	5.06	1	19.21
11SB63-0911	20121129	SO	1,1-DICHLOROETHENE	OV	130	U	N		UG/KG	260	U	260	50	18.5
11SB63-1112	20121129	SO	1,1-DICHLOROETHENE	OV	161	U	N		UG/KG	322	U	322	50	23.2
11SB64-0911	20121129	SO	1,1-DICHLOROETHENE	OV	2.43	U	N		UG/KG	4.86	U	4.86	1	16.4
11SB64-1112	20121129	SO	1,1-DICHLOROETHENE	OV	2.47	U	N		UG/KG	4.94	U	4.94	1	14.2
11SB65-0911	20121129	SO	1,1-DICHLOROETHENE	OV	2.4	U	N		UG/KG	4.8	U	4.8	1	13.22
11SB65-1112	20121129	SO	1,1-DICHLOROETHENE	OV	2.44	U	N		UG/KG	4.87	U	4.87	1	14.32
11SB66-1315	20130123	SO	1,1-DICHLOROETHENE	OV	2.46	U	N		UG/KG	4.93	U	4.93	1	14.43
11SB66-1516	20130123	SO	1,1-DICHLOROETHENE	OV	2.92	U	N		UG/KG	5.84	U	5.84	1	16.87
11SB66-1516-D	20130123	SO	1,1-DICHLOROETHENE	OV	2.83	U	N		UG/KG	5.67	U	5.67	1	18.5
11SB67-1416	20130123	SO	1,1-DICHLOROETHENE	OV	130	U	N		UG/KG	260	U	260	50	14.63
11SB67-1617	20130123	SO	1,1-DICHLOROETHENE	OV	121	U	N		UG/KG	242	U	242	50	15.86
11SB68-1315	20130123	SO	1,1-DICHLOROETHENE	OV	103	U	N		UG/KG	206	U	206	50	14.52
11SB68-1516	20130123	SO	1,1-DICHLOROETHENE	OV	112	U	N		UG/KG	223	U	223	50	14.97

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB69-1416	20130123	SO	1,1-DICHLOROETHENE	OV	2.19	U	N		UG/KG	4.38	U	4.38	1	16.29
11SB69-1617	20130123	SO	1,1-DICHLOROETHENE	OV	2.18	U	N		UG/KG	4.37	U	4.37	1	18.65
11SB70-1315	20130123	SO	1,1-DICHLOROETHENE	OV	1.98	U	N		UG/KG	3.96	U	3.96	1	16.04
11SB70-1516	20130123	SO	1,1-DICHLOROETHENE	OV	2.63	U	N		UG/KG	5.26	U	5.26	1	18.12
11SS110002	20110426	SO	1,2,3,4,6,7,8,9-OCDD	DIOX	6220	J	Y	GL	NG/KG	6220	E	9.57	1	16
11SS110002-D	20110426	SO	1,2,3,4,6,7,8,9-OCDD	DIOX	1660	J	Y	G	NG/KG	1660		9.31	1	20
11SS140002	20110426	SO	1,2,3,4,6,7,8,9-OCDD	DIOX	6710	J	Y	L	NG/KG	6710	E	9.33	1	20
11SS200002	20110426	SO	1,2,3,4,6,7,8,9-OCDD	DIOX	6410	J	Y	L	NG/KG	6410	E	9.25	1	14
11SB020002	20110426	SO	1,2,3,4,6,7,8,9-OCDF	DIOX	2.96	J	Y	P	NG/KG	2.96	J	9.81	1	20
11SS090002	20110426	SO	1,2,3,4,6,7,8,9-OCDF	DIOX	1.18	J	Y	P	NG/KG	1.18	J	9.54	1	19
11SS110002	20110426	SO	1,2,3,4,6,7,8,9-OCDF	DIOX	583	J	Y	G	NG/KG	583		9.57	1	16
11SS110002-D	20110426	SO	1,2,3,4,6,7,8,9-OCDF	DIOX	9.74	J	Y	G	NG/KG	9.74		9.31	1	20
11SS140002	20110426	SO	1,2,3,4,6,7,8,9-OCDF	DIOX	8.23	J	Y	P	NG/KG	8.23	J	9.33	1	20
11SS190002	20110426	SO	1,2,3,4,6,7,8,9-OCDF	DIOX	1.14	J	Y	P	NG/KG	1.14	J	9.52	1	18
11SS200002	20110426	SO	1,2,3,4,6,7,8,9-OCDF	DIOX	8.05	J	Y	P	NG/KG	8.05	J	9.25	1	14
11SS210002	20110426	SO	1,2,3,4,6,7,8,9-OCDF	DIOX	1.36	J	Y	P	NG/KG	1.36	J	9.62	1	19
11SS110002	20110426	SO	1,2,3,4,6,7,8-HPCDD	DIOX	772	J	Y	G	NG/KG	772		4.79	1	16
11SS110002-D	20110426	SO	1,2,3,4,6,7,8-HPCDD	DIOX	42.6	J	Y	G	NG/KG	42.6		4.65	1	20
11SB020002	20110426	SO	1,2,3,4,6,7,8-HPCDF	DIOX	0.622	J	Y	PW	NG/KG	0.622	JK	4.9	1	20
11SS090002	20110426	SO	1,2,3,4,6,7,8-HPCDF	DIOX	0.244	J	Y	P	NG/KG	0.244	J	4.77	1	19
11SS110002	20110426	SO	1,2,3,4,6,7,8-HPCDF	DIOX	102	J	Y	G	NG/KG	102		4.79	1	16
11SS110002-D	20110426	SO	1,2,3,4,6,7,8-HPCDF	DIOX	1.68	J	Y	GP	NG/KG	1.68	J	4.65	1	20
11SS140002	20110426	SO	1,2,3,4,6,7,8-HPCDF	DIOX	3.45	J	Y	P	NG/KG	3.45	J	4.66	1	20
11SS190002	20110426	SO	1,2,3,4,6,7,8-HPCDF	DIOX	0.625	J	Y	P	NG/KG	0.625	J	4.76	1	18
11SS200002	20110426	SO	1,2,3,4,6,7,8-HPCDF	DIOX	3.95	J	Y	P	NG/KG	3.95	J	4.63	1	14
11SS210002	20110426	SO	1,2,3,4,6,7,8-HPCDF	DIOX	0.839	J	Y	P	NG/KG	0.839	J	4.81	1	19
11SS200002	20110426	SO	1,2,3,4,7,8,9-HPCDF	DIOX	0.329	J	Y	P	NG/KG	0.329	J	4.63	1	14
11SS220002	20110426	SO	1,2,3,4,7,8,9-HPCDF	DIOX	0.455	J	Y	P	NG/KG	0.455	J	4.78	1	13
11SB020002	20110426	SO	1,2,3,4,7,8-HXCDD	DIOX	0.655	J	Y	P	NG/KG	0.655	J	4.9	1	20
11SS140002	20110426	SO	1,2,3,4,7,8-HXCDD	DIOX	0.716	J	Y	P	NG/KG	0.716	J	4.66	1	20
11SS200002	20110426	SO	1,2,3,4,7,8-HXCDD	DIOX	0.816	J	Y	P	NG/KG	0.816	J	4.63	1	14
11SS220002	20110426	SO	1,2,3,4,7,8-HXCDD	DIOX	0.57	J	Y	P	NG/KG	0.57	J	4.78	1	13
11SS110002	20110426	SO	1,2,3,4,7,8-HXCDF	DIOX	3.91	J	Y	P	NG/KG	3.91	J	4.79	1	16
11SS140002	20110426	SO	1,2,3,4,7,8-HXCDF	DIOX	0.547	J	Y	P	NG/KG	0.547	J	4.66	1	20
11SS200002	20110426	SO	1,2,3,4,7,8-HXCDF	DIOX	0.318	J	Y	P	NG/KG	0.318	J	4.63	1	14
11SS210002	20110426	SO	1,2,3,4,7,8-HXCDF	DIOX	0.321	J	Y	P	NG/KG	0.321	J	4.81	1	19
11SS220002	20110426	SO	1,2,3,4,7,8-HXCDF	DIOX	2.53	J	Y	P	NG/KG	2.53	J	4.78	1	13
11SB020002	20110426	SO	1,2,3,6,7,8-HXCDD	DIOX	0.767	J	Y	P	NG/KG	0.767	J	4.9	1	20
11SS110002	20110426	SO	1,2,3,6,7,8-HXCDD	DIOX	24.7	J	Y	G	NG/KG	24.7		4.79	1	16
11SS110002-D	20110426	SO	1,2,3,6,7,8-HXCDD	DIOX	0.694	J	Y	GP	NG/KG	0.694	J	4.65	1	20
11SS140002	20110426	SO	1,2,3,6,7,8-HXCDD	DIOX	0.976	J	Y	P	NG/KG	0.976	J	4.66	1	20
11SS190002	20110426	SO	1,2,3,6,7,8-HXCDD	DIOX	0.663	J	Y	P	NG/KG	0.663	J	4.76	1	18
11SS200002	20110426	SO	1,2,3,6,7,8-HXCDD	DIOX	1.28	J	Y	P	NG/KG	1.28	J	4.63	1	14
11SS210002	20110426	SO	1,2,3,6,7,8-HXCDD	DIOX	0.642	J	Y	PW	NG/KG	0.642	JK	4.81	1	19
11SS210002-D	20110426	SO	1,2,3,6,7,8-HXCDD	DIOX	0.592	J	Y	P	NG/KG	0.592	J	4.53	1	21
11SS220002	20110426	SO	1,2,3,6,7,8-HXCDD	DIOX	1.18	J	Y	P	NG/KG	1.18	J	4.78	1	13
11SS110002	20110426	SO	1,2,3,6,7,8-HXCDF	DIOX	4.61	J	Y	P	NG/KG	4.61	J	4.79	1	16
11SS140002	20110426	SO	1,2,3,6,7,8-HXCDF	DIOX	0.737	J	Y	P	NG/KG	0.737	J	4.66	1	20
11SS200002	20110426	SO	1,2,3,6,7,8-HXCDF	DIOX	0.313	J	Y	P	NG/KG	0.313	J	4.63	1	14
11SS220002	20110426	SO	1,2,3,6,7,8-HXCDF	DIOX	0.553	J	Y	P	NG/KG	0.553	J	4.78	1	13
11SB020002	20110426	SO	1,2,3,7,8,9-HXCDD	DIOX	1.31	J	Y	P	NG/KG	1.31	J	4.9	1	20
11SS110002	20110426	SO	1,2,3,7,8,9-HXCDD	DIOX	13.7	J	Y	G	NG/KG	13.7		4.79	1	16
11SS110002-D	20110426	SO	1,2,3,7,8,9-HXCDD	DIOX	0.536	J	Y	GP	NG/KG	0.536	J	4.65	1	20
11SS140002	20110426	SO	1,2,3,7,8,9-HXCDD	DIOX	1.21	J	Y	P	NG/KG	1.21	J	4.66	1	20
11SS190002	20110426	SO	1,2,3,7,8,9-HXCDD	DIOX	0.596	J	Y	P	NG/KG	0.596	J	4.76	1	18
11SS200002	20110426	SO	1,2,3,7,8,9-HXCDD	DIOX	1.69	J	Y	P	NG/KG	1.69	J	4.63	1	14
11SS210002	20110426	SO	1,2,3,7,8,9-HXCDD	DIOX	0.671	J	Y	P	NG/KG	0.671	J	4.81	1	19
11SS210002-D	20110426	SO	1,2,3,7,8,9-HXCDD	DIOX	0.985	J	Y	P	NG/KG	0.985	J	4.53	1	21
11SS220002	20110426	SO	1,2,3,7,8,9-HXCDD	DIOX	1.16	J	Y	P	NG/KG	1.16	J	4.78	1	13
11SS110002	20110426	SO	1,2,3,7,8,9-HXCDF	DIOX	1.56	J	Y	P	NG/KG	1.56	J	4.79	1	16
11SS110002	20110426	SO	1,2,3,7,8-PECDD	DIOX	2.45	J	Y	P	NG/KG	2.45	J	4.79	1	16
11SS220002	20110426	SO	1,2,3,7,8-PECDD	DIOX	0.51	J	Y	PW	NG/KG	0.51	JK	4.78	1	13
11SS110002	20110426	SO	1,2,3,7,8-PECDF	DIOX	2.14	J	Y	P	NG/KG	2.14	J	4.79	1	16
11SS140002	20110426	SO	1,2,3,7,8-PECDF	DIOX	0.849	J	Y	P	NG/KG	0.849	J	4.66	1	20
11SS220002	20110426	SO	1,2,3,7,8-PECDF	DIOX	2.5	J	Y	P	NG/KG	2.5	J	4.78	1	13
11SB340406	20111116	SO	1,2,3-TRICHLOROBENZENE	OV	122	UJ	N	C	UG/KG	243.000000	UX	243	50	17.6
11SB340708	20111116	SO	1,2,3-TRICHLOROBENZENE	OV	2.38	UJ	N	C	UG/KG	4.760000	UX	4.76	1	17.6
11SB350305	20111116	SO	1,2,3-TRICHLOROBENZENE	OV	2.88	UJ	N	C	UG/KG	5.750000	UX	5.75	1	17.6
11SB350506	20111116	SO	1,2,3-TRICHLOROBENZENE	OV	2.72	UJ	N	C	UG/KG	5.440000	UX	5.44	1	17.6
11SB360204	20111117	SO	1,2,3-TRICHLOROBENZENE	OV	117	UJ	N	C	UG/KG	233.000000	UX	233	50	15.5
11SB360405-D	20111117	SO	1,2,3-TRICHLOROBENZENE	OV	109	UJ	N	C	UG/KG	219.000000	UX	219	50	13.3
11SB370103	20111116	SO	1,2,3-TRICHLOROBENZENE	OV	2.62	UJ	N	C	UG/KG	5.240000	UX	5.24	1	15.5
11SB370304	20111116	SO	1,2,3-TRICHLOROBENZENE	OV	2.32	UJ	N	C	UG/KG	4.630000	UX	4.63	1	13.4
11SB380607	20111115	SO	1,2,3-TRICHLOROBENZENE	OV	3.42	UJ	N	C	UG/KG	6.840000	UX	6.84	1	38.4
11SB390708	20111115	SO	1,2,3-TRICHLOROBENZENE	OV	3.64	UJ	N	C	UG/KG	7.270000	UX	7.27	1	39.4
11SB400305	20111115	SO	1,2,3-TRICHLOROBENZENE	OV	157	UJ	N	C	UG/KG	314.000000	UX	314	50	33.3
11SB400506	20111115	SO	1,2,3-TRICHLOROBENZENE	OV	465	UJ	N	C	UG/KG	929.000000	UX	929	100	51.6
11SB420102	20111116	SO	1,2,3-TRICHLOROBENZENE	OV	2.29	UJ	N	C	UG/KG	4.580000	UX	4.58	1	17.6
11SB420203	20111116	SO	1,2,3-TRICHLOROBENZENE	OV	2.33	UJ	N	C	UG/KG	4.650000	UX	4.65	1	14.4
11SB440406	20111116	SO	1,2,3-TRICHLOROBENZENE	OV	2.32	UJ	N	C	UG/KG	4.640000	UX	4.64	1	15.7
11SB460506	20111117	SO	1,2,3-TRICHLOROBENZENE	OV	108	UJ	N	C	UG/KG	215.000000	UX	215	50	8.5

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB470304	20111116	SO	1,2,3-TRICHLOROBENZENE	OV	2.45	UJ	N	C	UG/KG	4.910000	UX	4.91	1	17.8
11SB500305	20111116	SO	1,2,3-TRICHLOROBENZENE	OV	2.5	UJ	N	C	UG/KG	4.990000	UX	4.99	1	12.7
11SB51-0204	20121030	SO	1,2,3-TRICHLOROBENZENE	OV	2.59	U	N		UG/KG	5.19	U	5.19	1	15.3
11SB51-0204-D	20121030	SO	1,2,3-TRICHLOROBENZENE	OV	2.39	U	N		UG/KG	4.77	U	4.77	1	12.3
11SB51-0506	20121030	SO	1,2,3-TRICHLOROBENZENE	OV	2.39	U	N		UG/KG	4.79	U	4.79	1	13
11SB52-0204	20121030	SO	1,2,3-TRICHLOROBENZENE	OV	2.48	U	N		UG/KG	4.95	NU	4.95	1	15.3
11SB52-0506	20121030	SO	1,2,3-TRICHLOROBENZENE	OV	2.4	U	N		UG/KG	4.81	U	4.81	1	14.9
11SB53-0204	20121030	SO	1,2,3-TRICHLOROBENZENE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	17.6
11SB53-0506	20121030	SO	1,2,3-TRICHLOROBENZENE	OV	2.59	U	N		UG/KG	5.18	U	5.18	1	14.3
11SB54-0204	20121030	SO	1,2,3-TRICHLOROBENZENE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	15.2
11SB54-0405	20121030	SO	1,2,3-TRICHLOROBENZENE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	16.3
11SB55-0406	20121030	SO	1,2,3-TRICHLOROBENZENE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	15.8
11SB55-0607	20121030	SO	1,2,3-TRICHLOROBENZENE	OV	2.44	U	N		UG/KG	4.89	U	4.89	1	14.9
11SB56-0406	20121030	SO	1,2,3-TRICHLOROBENZENE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	11.4
11SB56-0708	20121030	SO	1,2,3-TRICHLOROBENZENE	OV	2.7	U	N		UG/KG	5.39	U	5.39	1	19.1
11SB57-0406	20121030	SO	1,2,3-TRICHLOROBENZENE	OV	3.08	U	N		UG/KG	6.17	U	6.17	1	19.8
11SB57-0607	20121030	SO	1,2,3-TRICHLOROBENZENE	OV	2.65	U	N		UG/KG	5.3	U	5.3	1	17
11SB58-0305	20121030	SO	1,2,3-TRICHLOROBENZENE	OV	2.49	U	N		UG/KG	4.98	U	4.98	1	16.3
11SB58-0506	20121030	SO	1,2,3-TRICHLOROBENZENE	OV	2.41	U	N		UG/KG	4.82	U	4.82	1	15.7
11SB59-0204	20121030	SO	1,2,3-TRICHLOROBENZENE	OV	3.02	U	N		UG/KG	6.03	U	6.03	1	19.4
11SB60-0204	20121129	SO	1,2,3-TRICHLOROBENZENE	OV	2.36	U	N		UG/KG	4.73	U	4.73	1	15.38
11SB60-0204-D	20121129	SO	1,2,3-TRICHLOROBENZENE	OV	2.47	U	N		UG/KG	4.93	U	4.93	1	13.53
11SB60-0405	20121129	SO	1,2,3-TRICHLOROBENZENE	OV	2.23	U	N		UG/KG	4.46	U	4.46	1	13.12
11SB61-0810	20121129	SO	1,2,3-TRICHLOROBENZENE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	17.22
11SB61-1011	20121129	SO	1,2,3-TRICHLOROBENZENE	OV	2.54	U	N		UG/KG	5.09	U	5.09	1	20.37
11SB62-0911	20121129	SO	1,2,3-TRICHLOROBENZENE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	14.28
11SB62-1112	20121129	SO	1,2,3-TRICHLOROBENZENE	OV	2.53	U	N		UG/KG	5.06	U	5.06	1	19.21
11SB63-0911	20121129	SO	1,2,3-TRICHLOROBENZENE	OV	130	U	N		UG/KG	260	U	260	50	18.5
11SB63-1112	20121129	SO	1,2,3-TRICHLOROBENZENE	OV	161	U	N		UG/KG	322	U	322	50	23.2
11SB64-0911	20121129	SO	1,2,3-TRICHLOROBENZENE	OV	2.43	U	N		UG/KG	4.86	U	4.86	1	16.4
11SB64-1112	20121129	SO	1,2,3-TRICHLOROBENZENE	OV	2.47	U	N		UG/KG	4.94	U	4.94	1	14.2
11SB65-0911	20121129	SO	1,2,3-TRICHLOROBENZENE	OV	2.4	U	N		UG/KG	4.8	U	4.8	1	13.22
11SB65-1112	20121129	SO	1,2,3-TRICHLOROBENZENE	OV	2.44	UJ	N	D	UG/KG	4.87	UN	4.87	1	14.32
11SB66-1315	20130123	SO	1,2,3-TRICHLOROBENZENE	OV	2.46	U	N		UG/KG	4.93	UN	4.93	1	14.43
11SB66-1516	20130123	SO	1,2,3-TRICHLOROBENZENE	OV	2.92	U	N		UG/KG	5.84	U	5.84	1	16.87
11SB66-1516-D	20130123	SO	1,2,3-TRICHLOROBENZENE	OV	2.83	U	N		UG/KG	5.67	U	5.67	1	18.5
11SB67-1416	20130123	SO	1,2,3-TRICHLOROBENZENE	OV	130	U	N		UG/KG	260	U	260	50	14.63
11SB67-1617	20130123	SO	1,2,3-TRICHLOROBENZENE	OV	121	U	N		UG/KG	242	U	242	50	15.86
11SB68-1315	20130123	SO	1,2,3-TRICHLOROBENZENE	OV	103	U	N		UG/KG	206	U	206	50	14.52
11SB68-1516	20130123	SO	1,2,3-TRICHLOROBENZENE	OV	112	U	N		UG/KG	223	U	223	50	14.97
11SB69-1416	20130123	SO	1,2,3-TRICHLOROBENZENE	OV	2.19	U	N		UG/KG	4.38	U	4.38	1	16.29
11SB69-1617	20130123	SO	1,2,3-TRICHLOROBENZENE	OV	2.18	U	N		UG/KG	4.37	U	4.37	1	18.65
11SB70-1315	20130123	SO	1,2,3-TRICHLOROBENZENE	OV	1.98	U	N		UG/KG	3.96	U	3.96	1	16.04
11SB70-1516	20130123	SO	1,2,3-TRICHLOROBENZENE	OV	2.63	U	N		UG/KG	5.26	U	5.26	1	18.12
11SB010002	20110426	SO	1,2,4-TRICHLOROBENZENE	OV	2.51	UJ	N	C	UG/KG	5.03	UX	5.03	1	21.1
11SB010002-D	20110426	SO	1,2,4-TRICHLOROBENZENE	OV	2.45	UJ	N	C	UG/KG	4.9	UX	4.9	1	21
11SB010406	20110426	SO	1,2,4-TRICHLOROBENZENE	OV	2.38	UJ	N	C	UG/KG	4.75	UX	4.75	1	17.7
11SB010406-D	20110426	SO	1,2,4-TRICHLOROBENZENE	OV	2.4	UJ	N	C	UG/KG	4.79	UX	4.79	1	19.4
11SB020406	20110426	SO	1,2,4-TRICHLOROBENZENE	OV	2.55	UJ	N	C	UG/KG	5.1	UX	5.1	1	24.3
11SB040002	20110426	SO	1,2,4-TRICHLOROBENZENE	OV	2.98	UJ	N	C	UG/KG	5.97	UX	5.97	1	20.9
11SB040406	20110426	SO	1,2,4-TRICHLOROBENZENE	OV	2.51	UJ	N	C	UG/KG	5.03	UX	5.03	1	12.8
11SB250507	20110426	SO	1,2,4-TRICHLOROBENZENE	OV	2.9	UJ	N	C	UG/KG	5.79	UX	5.79	1	18.9
11SB270507	20110426	SO	1,2,4-TRICHLOROBENZENE	OV	2.24	UJ	N	C	UG/KG	4.48	UX	4.48	1	14.1
11SB280507	20110426	SO	1,2,4-TRICHLOROBENZENE	OV	3.31	UJ	N	C	UG/KG	6.62	UNX	6.62	1	28.9
11SB340406	20111116	SO	1,2,4-TRICHLOROBENZENE	OV	122	UJ	N	C	UG/KG	243.000000	UX	243	50	17.6
11SB340708	20111116	SO	1,2,4-TRICHLOROBENZENE	OV	2.38	UJ	N	C	UG/KG	4.760000	UX	4.76	1	17.6
11SB360204	20111117	SO	1,2,4-TRICHLOROBENZENE	OV	117	UJ	N	C	UG/KG	233.000000	UX	233	50	15.5
11SB360405	20111117	SO	1,2,4-TRICHLOROBENZENE	OV	113	UJ	N	C	UG/KG	226.000000	UX	226	50	15.5
11SB360405-D	20111117	SO	1,2,4-TRICHLOROBENZENE	OV	109	UJ	N	C	UG/KG	219.000000	UX	219	50	13.3
11SB370103	20111116	SO	1,2,4-TRICHLOROBENZENE	OV	2.62	UJ	N	C	UG/KG	5.240000	UX	5.24	1	15.5
11SB370304	20111116	SO	1,2,4-TRICHLOROBENZENE	OV	2.32	UJ	N	C	UG/KG	4.630000	UX	4.63	1	13.4
11SB380607	20111115	SO	1,2,4-TRICHLOROBENZENE	OV	3.42	UJ	N	C	UG/KG	6.840000	UX	6.84	1	38.4
11SB390708	20111115	SO	1,2,4-TRICHLOROBENZENE	OV	3.64	UJ	N	C	UG/KG	7.270000	UX	7.27	1	39.4
11SB400305	20111115	SO	1,2,4-TRICHLOROBENZENE	OV	157	UJ	N	C	UG/KG	314.000000	UX	314	50	33.3
11SB400506	20111115	SO	1,2,4-TRICHLOROBENZENE	OV	465	UJ	N	C	UG/KG	929.000000	UX	929	100	51.6
11SB410204	20111117	SO	1,2,4-TRICHLOROBENZENE	OV	114	UJ	N	C	UG/KG	228.000000	UX	228	50	15.5
11SB410405	20111117	SO	1,2,4-TRICHLOROBENZENE	OV	133	UJ	N	C	UG/KG	266.000000	UX	266	50	15.5
11SB420102	20111116	SO	1,2,4-TRICHLOROBENZENE	OV	2.29	UJ	N	C	UG/KG	4.580000	UX	4.58	1	17.6
11SB420203	20111116	SO	1,2,4-TRICHLOROBENZENE	OV	2.33	UJ	N	C	UG/KG	4.650000	UX	4.65	1	14.4
11SB440406	20111116	SO	1,2,4-TRICHLOROBENZENE	OV	2.32	UJ	N	C	UG/KG	4.640000	UX	4.64	1	15.7
11SB460305	20111117	SO	1,2,4-TRICHLOROBENZENE	OV	2.28	UJ	N	C	UG/KG	4.550000	UX	4.55	1	15.5
11SB460506	20111117	SO	1,2,4-TRICHLOROBENZENE	OV	108	UJ	N	C	UG/KG	215.000000	UX	215	50	8.5
11SB470304	20111116	SO	1,2,4-TRICHLOROBENZENE	OV	2.45	UJ	N	C	UG/KG	4.910000	UX	4.91	1	17.8
11SB500305	20111116	SO	1,2,4-TRICHLOROBENZENE	OV	2.5	UJ	N	C	UG/KG	4.990000	UX	4.99	1	12.7
11SB51-0204	20121030	SO	1,2,4-TRICHLOROBENZENE	OV	2.59	U	N		UG/KG	5.19	U	5.19	1	15.3
11SB51-0204-D	20121030	SO	1,2,4-TRICHLOROBENZENE	OV	2.39	U	N		UG/KG	4.77	U	4.77	1	12.3
11SB51-0506	20121030	SO	1,2,4-TRICHLOROBENZENE	OV	2.39	U	N		UG/KG	4.79	U	4.79	1	13
11SB52-0204	20121030	SO	1,2,4-TRICHLOROBENZENE	OV	2.48	UJ	N	D	UG/KG	4.95	NU	4.95	1	15.3
11SB52-0506	20121030	SO	1,2,4-TRICHLOROBENZENE	OV	2.4	U	N		UG/KG	4.81	U	4.81	1	14.9
11SB53-0204	20121030	SO	1,2,4-TRICHLOROBENZENE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	17.6
11SB53-0506	20121030	SO	1,2,4-TRICHLOROBENZENE	OV	2.59	U	N		UG/KG	5.18	U	5.18	1	14.3

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB54-0204	20121030	SO	1,2,4-TRICHLOROBENZENE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	15.2
11SB54-0405	20121030	SO	1,2,4-TRICHLOROBENZENE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	16.3
11SB55-0406	20121030	SO	1,2,4-TRICHLOROBENZENE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	15.8
11SB55-0607	20121030	SO	1,2,4-TRICHLOROBENZENE	OV	2.44	U	N		UG/KG	4.89	U	4.89	1	14.9
11SB56-0406	20121030	SO	1,2,4-TRICHLOROBENZENE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	11.4
11SB56-0708	20121030	SO	1,2,4-TRICHLOROBENZENE	OV	2.7	U	N		UG/KG	5.39	U	5.39	1	19.1
11SB57-0406	20121030	SO	1,2,4-TRICHLOROBENZENE	OV	3.08	U	N		UG/KG	6.17	U	6.17	1	19.8
11SB57-0607	20121030	SO	1,2,4-TRICHLOROBENZENE	OV	2.65	U	N		UG/KG	5.3	U	5.3	1	17
11SB58-0305	20121030	SO	1,2,4-TRICHLOROBENZENE	OV	2.49	U	N		UG/KG	4.98	U	4.98	1	16.3
11SB58-0506	20121030	SO	1,2,4-TRICHLOROBENZENE	OV	2.41	U	N		UG/KG	4.82	U	4.82	1	15.7
11SB59-0204	20121030	SO	1,2,4-TRICHLOROBENZENE	OV	3.02	U	N		UG/KG	6.03	U	6.03	1	19.4
11SB60-0204	20121129	SO	1,2,4-TRICHLOROBENZENE	OV	2.36	U	N		UG/KG	4.73	U	4.73	1	15.38
11SB60-0204-D	20121129	SO	1,2,4-TRICHLOROBENZENE	OV	2.47	U	N		UG/KG	4.93	U	4.93	1	13.53
11SB60-0405	20121129	SO	1,2,4-TRICHLOROBENZENE	OV	2.23	U	N		UG/KG	4.46	U	4.46	1	13.12
11SB61-0810	20121129	SO	1,2,4-TRICHLOROBENZENE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	17.22
11SB61-1011	20121129	SO	1,2,4-TRICHLOROBENZENE	OV	2.54	U	N		UG/KG	5.09	U	5.09	1	20.37
11SB62-0911	20121129	SO	1,2,4-TRICHLOROBENZENE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	14.28
11SB62-1112	20121129	SO	1,2,4-TRICHLOROBENZENE	OV	2.53	U	N		UG/KG	5.06	U	5.06	1	19.21
11SB63-0911	20121129	SO	1,2,4-TRICHLOROBENZENE	OV	130	U	N		UG/KG	260	U	260	50	18.5
11SB63-1112	20121129	SO	1,2,4-TRICHLOROBENZENE	OV	161	U	N		UG/KG	322	U	322	50	23.2
11SB64-0911	20121129	SO	1,2,4-TRICHLOROBENZENE	OV	2.43	U	N		UG/KG	4.86	U	4.86	1	16.4
11SB64-1112	20121129	SO	1,2,4-TRICHLOROBENZENE	OV	2.47	U	N		UG/KG	4.94	U	4.94	1	14.2
11SB65-0911	20121129	SO	1,2,4-TRICHLOROBENZENE	OV	2.4	U	N		UG/KG	4.8	U	4.8	1	13.22
11SB65-1112	20121129	SO	1,2,4-TRICHLOROBENZENE	OV	2.44	UJ	N	D	UG/KG	4.87	UN	4.87	1	14.32
11SB66-1315	20130123	SO	1,2,4-TRICHLOROBENZENE	OV	2.46	U	N		UG/KG	4.93	UN	4.93	1	14.43
11SB66-1516	20130123	SO	1,2,4-TRICHLOROBENZENE	OV	2.92	U	N		UG/KG	5.84	U	5.84	1	16.87
11SB66-1516-D	20130123	SO	1,2,4-TRICHLOROBENZENE	OV	2.83	U	N		UG/KG	5.67	U	5.67	1	18.5
11SB67-1416	20130123	SO	1,2,4-TRICHLOROBENZENE	OV	130	U	N		UG/KG	260	U	260	50	14.63
11SB67-1617	20130123	SO	1,2,4-TRICHLOROBENZENE	OV	121	U	N		UG/KG	242	U	242	50	15.86
11SB68-1315	20130123	SO	1,2,4-TRICHLOROBENZENE	OV	103	U	N		UG/KG	206	U	206	50	14.52
11SB68-1516	20130123	SO	1,2,4-TRICHLOROBENZENE	OV	112	U	N		UG/KG	223	U	223	50	14.97
11SB69-1416	20130123	SO	1,2,4-TRICHLOROBENZENE	OV	2.19	U	N		UG/KG	4.38	U	4.38	1	16.29
11SB69-1617	20130123	SO	1,2,4-TRICHLOROBENZENE	OV	2.18	U	N		UG/KG	4.37	U	4.37	1	18.65
11SB70-1315	20130123	SO	1,2,4-TRICHLOROBENZENE	OV	1.98	U	N		UG/KG	3.96	U	3.96	1	16.04
11SB70-1516	20130123	SO	1,2,4-TRICHLOROBENZENE	OV	2.63	U	N		UG/KG	5.26	U	5.26	1	18.12
11SB010002	20110426	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	5.03	UJ	N	C	UG/KG	10.1	UX	10.1	1	21.1
11SB010002-D	20110426	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.9	UJ	N	C	UG/KG	9.8	UX	9.8	1	21
11SB010406	20110426	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.75	UJ	N	C	UG/KG	9.5	UX	9.5	1	17.7
11SB010406-D	20110426	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.79	UJ	N	C	UG/KG	9.59	UX	9.59	1	19.4
11SB020406	20110426	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	5.1	UJ	N	C	UG/KG	10.2	UX	10.2	1	24.3
11SB040002	20110426	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	5.97	UJ	N	C	UG/KG	11.9	UX	11.9	1	20.9
11SB040406	20110426	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	5.03	UJ	N	C	UG/KG	10.1	UX	10.1	1	12.8
11SB250507	20110426	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	5.79	UJ	N	C	UG/KG	11.6	UX	11.6	1	18.9
11SB270507	20110426	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.48	UJ	N	C	UG/KG	8.97	UX	8.97	1	14.1
11SB280507	20110426	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	6.62	UJ	N	C	UG/KG	13.2	UNX	13.2	1	28.9
11SB350305	20111116	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	5.75	UJ	N	C	UG/KG	11.500000	UX	11.5	1	17.6
11SB350506	20111116	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	5.44	UJ	N	C	UG/KG	10.900000	UX	10.9	1	17.6
11SB51-0204	20121030	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	5.19	U	N		UG/KG	10.4	U	10.4	1	15.3
11SB51-0204-D	20121030	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.77	U	N		UG/KG	9.55	U	9.55	1	12.3
11SB51-0506	20121030	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.79	U	N		UG/KG	9.58	U	9.58	1	13
11SB52-0204	20121030	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.95	U	N		UG/KG	9.9	U	9.9	1	15.3
11SB52-0506	20121030	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.81	U	N		UG/KG	9.62	U	9.62	1	14.9
11SB53-0204	20121030	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	5.1	U	N		UG/KG	10.2	U	10.2	1	17.6
11SB53-0506	20121030	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	5.18	U	N		UG/KG	10.4	U	10.4	1	14.3
11SB54-0204	20121030	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.48	U	N		UG/KG	8.96	U	8.96	1	15.2
11SB54-0405	20121030	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.61	U	N		UG/KG	9.22	U	9.22	1	16.3
11SB55-0406	20121030	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.61	U	N		UG/KG	9.21	U	9.21	1	15.8
11SB55-0607	20121030	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.89	U	N		UG/KG	9.77	U	9.77	1	14.9
11SB56-0406	20121030	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.74	U	N		UG/KG	9.48	U	9.48	1	11.4
11SB56-0708	20121030	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	5.39	U	N		UG/KG	10.8	U	10.8	1	19.1
11SB57-0406	20121030	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	6.17	U	N		UG/KG	12.3	U	12.3	1	19.8
11SB57-0607	20121030	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	5.3	U	N		UG/KG	10.6	U	10.6	1	17
11SB58-0305	20121030	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.98	U	N		UG/KG	9.96	U	9.96	1	16.3
11SB58-0506	20121030	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.82	U	N		UG/KG	9.65	U	9.65	1	15.7
11SB59-0204	20121030	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	6.03	U	N		UG/KG	12.1	U	12.1	1	19.4
11SB60-0204	20121129	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.73	U	N		UG/KG	9.45	U	9.45	1	15.38
11SB60-0204-D	20121129	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.93	U	N		UG/KG	9.87	U	9.87	1	13.53
11SB60-0405	20121129	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.46	U	N		UG/KG	8.92	U	8.92	1	13.12
11SB61-0810	20121129	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.79	U	N		UG/KG	9.59	U	9.59	1	17.22
11SB61-1011	20121129	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	5.09	U	N		UG/KG	10.2	U	10.2	1	20.37
11SB62-0911	20121129	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.74	U	N		UG/KG	9.48	U	9.48	1	14.28
11SB62-1112	20121129	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	5.06	U	N		UG/KG	10.1	U	10.1	1	19.21
11SB63-0911	20121129	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	260	U	N		UG/KG	521	U	521	50	18.5
11SB63-1112	20121129	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	322	U	N		UG/KG	643	U	643	50	23.2
11SB64-0911	20121129	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.86	U	N		UG/KG	9.73	U	9.73	1	16.4
11SB64-1112	20121129	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.94	U	N		UG/KG	9.88	U	9.88	1	14.2
11SB65-0911	20121129	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.8	U	N		UG/KG	9.6	U	9.6	1	13.22
11SB65-1112	20121129	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.87	U	N		UG/KG	9.74	U	9.74	1	14.32
11SB66-1315	20130123	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.93	U	N		UG/KG	9.85	U	9.85	1	14.43
11SB66-1516	20130123	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	5.84	U	N		UG/KG	11.7	U	11.7	1	16.87
11SB66-1516-D	20130123	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	5.67	U	N		UG/KG	11.3	U	11.3	1	18.5

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB67-1416	20130123	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	260	U	N		UG/KG	520	U	520	50	14.63
11SB67-1617	20130123	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	242	U	N		UG/KG	483	U	483	50	15.86
11SB68-1315	20130123	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	206	U	N		UG/KG	412	U	412	50	14.52
11SB68-1516	20130123	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	223	U	N		UG/KG	447	U	447	50	14.97
11SB69-1416	20130123	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.38	U	N		UG/KG	8.76	U	8.76	1	16.29
11SB69-1617	20130123	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	4.37	U	N		UG/KG	8.73	U	8.73	1	18.65
11SB70-1315	20130123	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	3.96	U	N		UG/KG	7.92	U	7.92	1	16.04
11SB70-1516	20130123	SO	1,2-DIBROMO-3-CHLOROPROPANE	OV	5.26	U	N		UG/KG	10.5	U	10.5	1	18.12
11SB51-0204	20121030	SO	1,2-DIBROMOETHANE	OV	2.59	U	N		UG/KG	5.19	U	5.19	1	15.3
11SB51-0204-D	20121030	SO	1,2-DIBROMOETHANE	OV	2.39	U	N		UG/KG	4.77	U	4.77	1	12.3
11SB51-0506	20121030	SO	1,2-DIBROMOETHANE	OV	2.39	U	N		UG/KG	4.79	U	4.79	1	13
11SB52-0204	20121030	SO	1,2-DIBROMOETHANE	OV	2.48	U	N		UG/KG	4.95	U	4.95	1	15.3
11SB52-0506	20121030	SO	1,2-DIBROMOETHANE	OV	2.4	U	N		UG/KG	4.81	U	4.81	1	14.9
11SB53-0204	20121030	SO	1,2-DIBROMOETHANE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	17.6
11SB53-0506	20121030	SO	1,2-DIBROMOETHANE	OV	2.59	U	N		UG/KG	5.18	U	5.18	1	14.3
11SB54-0204	20121030	SO	1,2-DIBROMOETHANE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	15.2
11SB54-0405	20121030	SO	1,2-DIBROMOETHANE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	16.3
11SB55-0406	20121030	SO	1,2-DIBROMOETHANE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	15.8
11SB55-0607	20121030	SO	1,2-DIBROMOETHANE	OV	2.44	U	N		UG/KG	4.89	U	4.89	1	14.9
11SB56-0406	20121030	SO	1,2-DIBROMOETHANE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	11.4
11SB56-0708	20121030	SO	1,2-DIBROMOETHANE	OV	2.7	U	N		UG/KG	5.39	U	5.39	1	19.1
11SB57-0406	20121030	SO	1,2-DIBROMOETHANE	OV	3.08	U	N		UG/KG	6.17	U	6.17	1	19.8
11SB57-0607	20121030	SO	1,2-DIBROMOETHANE	OV	2.65	U	N		UG/KG	5.3	U	5.3	1	17
11SB58-0305	20121030	SO	1,2-DIBROMOETHANE	OV	2.49	U	N		UG/KG	4.98	U	4.98	1	16.3
11SB58-0506	20121030	SO	1,2-DIBROMOETHANE	OV	2.41	U	N		UG/KG	4.82	U	4.82	1	15.7
11SB59-0204	20121030	SO	1,2-DIBROMOETHANE	OV	3.02	U	N		UG/KG	6.03	U	6.03	1	19.4
11SB60-0204	20121129	SO	1,2-DIBROMOETHANE	OV	2.36	U	N		UG/KG	4.73	U	4.73	1	15.38
11SB60-0204-D	20121129	SO	1,2-DIBROMOETHANE	OV	2.47	U	N		UG/KG	4.93	U	4.93	1	13.53
11SB60-0405	20121129	SO	1,2-DIBROMOETHANE	OV	2.23	U	N		UG/KG	4.46	U	4.46	1	13.12
11SB61-0810	20121129	SO	1,2-DIBROMOETHANE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	17.22
11SB61-1011	20121129	SO	1,2-DIBROMOETHANE	OV	2.54	U	N		UG/KG	5.09	U	5.09	1	20.37
11SB62-0911	20121129	SO	1,2-DIBROMOETHANE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	14.28
11SB62-1112	20121129	SO	1,2-DIBROMOETHANE	OV	2.53	U	N		UG/KG	5.06	U	5.06	1	19.21
11SB63-0911	20121129	SO	1,2-DIBROMOETHANE	OV	130	U	N		UG/KG	260	U	260	50	18.5
11SB63-1112	20121129	SO	1,2-DIBROMOETHANE	OV	161	U	N		UG/KG	322	U	322	50	23.2
11SB64-0911	20121129	SO	1,2-DIBROMOETHANE	OV	2.43	U	N		UG/KG	4.86	U	4.86	1	16.4
11SB64-1112	20121129	SO	1,2-DIBROMOETHANE	OV	2.47	U	N		UG/KG	4.94	U	4.94	1	14.2
11SB65-0911	20121129	SO	1,2-DIBROMOETHANE	OV	2.4	U	N		UG/KG	4.8	U	4.8	1	13.22
11SB65-1112	20121129	SO	1,2-DIBROMOETHANE	OV	2.44	UJ	N	D	UG/KG	4.87	UN	4.87	1	14.32
11SB66-1315	20130123	SO	1,2-DIBROMOETHANE	OV	2.46	U	N		UG/KG	4.93	U	4.93	1	14.43
11SB66-1516	20130123	SO	1,2-DIBROMOETHANE	OV	2.92	U	N		UG/KG	5.84	U	5.84	1	16.87
11SB66-1516-D	20130123	SO	1,2-DIBROMOETHANE	OV	2.83	U	N		UG/KG	5.67	U	5.67	1	18.5
11SB67-1416	20130123	SO	1,2-DIBROMOETHANE	OV	130	U	N		UG/KG	260	U	260	50	14.63
11SB67-1617	20130123	SO	1,2-DIBROMOETHANE	OV	121	U	N		UG/KG	242	U	242	50	15.86
11SB68-1315	20130123	SO	1,2-DIBROMOETHANE	OV	103	U	N		UG/KG	206	U	206	50	14.52
11SB68-1516	20130123	SO	1,2-DIBROMOETHANE	OV	112	U	N		UG/KG	223	U	223	50	14.97
11SB69-1416	20130123	SO	1,2-DIBROMOETHANE	OV	2.19	U	N		UG/KG	4.38	U	4.38	1	16.29
11SB69-1617	20130123	SO	1,2-DIBROMOETHANE	OV	2.18	U	N		UG/KG	4.37	U	4.37	1	18.65
11SB70-1315	20130123	SO	1,2-DIBROMOETHANE	OV	1.98	U	N		UG/KG	3.96	U	3.96	1	16.04
11SB70-1516	20130123	SO	1,2-DIBROMOETHANE	OV	2.63	U	N		UG/KG	5.26	U	5.26	1	18.12
11SB030002	20110426	SO	1,2-DICHLOROBENZENE	OV	1.42	J	Y	P	UG/KG	1.42	J	5.62	1	18.7
11SB030406	20110426	SO	1,2-DICHLOROBENZENE	OV	1.4	J	Y	P	UG/KG	1.4	J	4.77	1	13.7
11SB360405	20111117	SO	1,2-DICHLOROBENZENE	OV	779	J	Y	G	UG/KG	779.000000	D	226	50	15.5
11SB360405-D	20111117	SO	1,2-DICHLOROBENZENE	OV	425	J	Y	G	UG/KG	425.000000	D	219	50	13.3
11SB390708	20111115	SO	1,2-DICHLOROBENZENE	OV	3.46	J	Y	P	UG/KG	3.460000	J	7.27	1	39.4
11SB440607	20111116	SO	1,2-DICHLOROBENZENE	OV	3.41	J	Y	P	UG/KG	3.410000	J	4.9	1	11
11SB460305	20111117	SO	1,2-DICHLOROBENZENE	OV	2.46	J	Y	P	UG/KG	2.460000	J	4.55	1	15.5
11SB52-0204	20121030	SO	1,2-DICHLOROBENZENE	OV	13.7	J	Y	D	UG/KG	13.7	N	4.95	1	15.3
11SB54-0204	20121030	SO	1,2-DICHLOROBENZENE	OV	4.37	J	Y	P	UG/KG	4.37	J	4.48	1	15.2
11SB54-0405	20121030	SO	1,2-DICHLOROBENZENE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	16.3
11SB55-0406	20121030	SO	1,2-DICHLOROBENZENE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	15.8
11SB55-0607	20121030	SO	1,2-DICHLOROBENZENE	OV	2.44	U	N		UG/KG	4.89	U	4.89	1	14.9
11SB56-0406	20121030	SO	1,2-DICHLOROBENZENE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	11.4
11SB56-0708	20121030	SO	1,2-DICHLOROBENZENE	OV	2.7	U	N		UG/KG	5.39	U	5.39	1	19.1
11SB57-0406	20121030	SO	1,2-DICHLOROBENZENE	OV	3.08	U	N		UG/KG	6.17	U	6.17	1	19.8
11SB57-0607	20121030	SO	1,2-DICHLOROBENZENE	OV	2.65	U	N		UG/KG	5.3	U	5.3	1	17
11SB58-0305	20121030	SO	1,2-DICHLOROBENZENE	OV	2.49	U	N		UG/KG	4.98	U	4.98	1	16.3
11SB58-0506	20121030	SO	1,2-DICHLOROBENZENE	OV	2.41	U	N		UG/KG	4.82	U	4.82	1	15.7
11SB59-0204	20121030	SO	1,2-DICHLOROBENZENE	OV	3.02	U	N		UG/KG	6.03	U	6.03	1	19.4
11SB60-0204	20121129	SO	1,2-DICHLOROBENZENE	OV	2.36	U	N		UG/KG	4.73	UQ	4.73	1	15.38
11SB60-0204-D	20121129	SO	1,2-DICHLOROBENZENE	OV	2.47	U	N		UG/KG	4.93	UQ	4.93	1	13.53
11SB60-0405	20121129	SO	1,2-DICHLOROBENZENE	OV	2.23	U	N		UG/KG	4.46	UQ	4.46	1	13.12
11SB61-0810	20121129	SO	1,2-DICHLOROBENZENE	OV	1.51	J	Y	P	UG/KG	1.51	JQ	4.79	1	17.22
11SB62-0911	20121129	SO	1,2-DICHLOROBENZENE	OV	2.37	U	N		UG/KG	4.74	UQ	4.74	1	14.28
11SB64-0911	20121129	SO	1,2-DICHLOROBENZENE	OV	176	J	Y	P	UG/KG	176	JD	244	50	16.4
11SB65-0911	20121129	SO	1,2-DICHLOROBENZENE	OV	2.4	U	N		UG/KG	4.8	UQ	4.8	1	13.22
11SB65-1112	20121129	SO	1,2-DICHLOROBENZENE	OV	3.85	J	Y	DP	UG/KG	3.85	JN	4.87	1	14.32
11SB67-1416	20130123	SO	1,2-DICHLOROBENZENE	OV	173	J	Y	P	UG/KG	173	JD	260	50	14.63
11SB67-1617	20130123	SO	1,2-DICHLOROBENZENE	OV	70.1	J	Y	P	UG/KG	70.1	JD	242	50	15.86
11SB70-1315	20130123	SO	1,2-DICHLOROBENZENE	OV	1.98	U	N		UG/KG	3.96	U	3.96	1	16.04
11SB70-1516	20130123	SO	1,2-DICHLOROBENZENE	OV	2.63	U	N		UG/KG	5.26	U	5.26	1	18.12

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB010002	20110426	SO	1,2-DICHLOROETHANE	OV	2.51	UJ	N	C	UG/KG	5.03	UX	5.03	1	21.1
11SB010002-D	20110426	SO	1,2-DICHLOROETHANE	OV	2.45	UJ	N	C	UG/KG	4.9	UX	4.9	1	21
11SB010406	20110426	SO	1,2-DICHLOROETHANE	OV	2.38	UJ	N	C	UG/KG	4.75	UX	4.75	1	17.7
11SB010406-D	20110426	SO	1,2-DICHLOROETHANE	OV	2.4	UJ	N	C	UG/KG	4.79	UX	4.79	1	19.4
11SB020406	20110426	SO	1,2-DICHLOROETHANE	OV	2.55	UJ	N	C	UG/KG	5.1	UX	5.1	1	24.3
11SB040002	20110426	SO	1,2-DICHLOROETHANE	OV	2.98	UJ	N	C	UG/KG	5.97	UX	5.97	1	20.9
11SB040406	20110426	SO	1,2-DICHLOROETHANE	OV	2.51	UJ	N	C	UG/KG	5.03	UX	5.03	1	12.8
11SB250507	20110426	SO	1,2-DICHLOROETHANE	OV	2.9	UJ	N	C	UG/KG	5.79	UX	5.79	1	18.9
11SB270507	20110426	SO	1,2-DICHLOROETHANE	OV	2.24	UJ	N	C	UG/KG	4.48	UX	4.48	1	14.1
11SB280507	20110426	SO	1,2-DICHLOROETHANE	OV	3.31	UJ	N	C	UG/KG	6.62	UX	6.62	1	28.9
11SB51-0204	20121030	SO	1,2-DICHLOROETHANE	OV	2.59	U	N		UG/KG	5.19	U	5.19	1	15.3
11SB51-0204-D	20121030	SO	1,2-DICHLOROETHANE	OV	2.39	U	N		UG/KG	4.77	U	4.77	1	12.3
11SB51-0506	20121030	SO	1,2-DICHLOROETHANE	OV	2.39	U	N		UG/KG	4.79	U	4.79	1	13
11SB52-0204	20121030	SO	1,2-DICHLOROETHANE	OV	2.48	U	N		UG/KG	4.95	U	4.95	1	15.3
11SB52-0506	20121030	SO	1,2-DICHLOROETHANE	OV	2.4	U	N		UG/KG	4.81	U	4.81	1	14.9
11SB53-0204	20121030	SO	1,2-DICHLOROETHANE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	17.6
11SB53-0506	20121030	SO	1,2-DICHLOROETHANE	OV	2.59	U	N		UG/KG	5.18	U	5.18	1	14.3
11SB54-0204	20121030	SO	1,2-DICHLOROETHANE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	15.2
11SB54-0405	20121030	SO	1,2-DICHLOROETHANE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	16.3
11SB55-0406	20121030	SO	1,2-DICHLOROETHANE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	15.8
11SB55-0607	20121030	SO	1,2-DICHLOROETHANE	OV	2.44	U	N		UG/KG	4.89	U	4.89	1	14.9
11SB56-0406	20121030	SO	1,2-DICHLOROETHANE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	11.4
11SB56-0708	20121030	SO	1,2-DICHLOROETHANE	OV	2.7	U	N		UG/KG	5.39	U	5.39	1	19.1
11SB57-0406	20121030	SO	1,2-DICHLOROETHANE	OV	3.08	U	N		UG/KG	6.17	U	6.17	1	19.8
11SB57-0607	20121030	SO	1,2-DICHLOROETHANE	OV	2.65	U	N		UG/KG	5.3	U	5.3	1	17
11SB58-0305	20121030	SO	1,2-DICHLOROETHANE	OV	2.49	U	N		UG/KG	4.98	U	4.98	1	16.3
11SB58-0506	20121030	SO	1,2-DICHLOROETHANE	OV	2.41	U	N		UG/KG	4.82	U	4.82	1	15.7
11SB59-0204	20121030	SO	1,2-DICHLOROETHANE	OV	3.02	U	N		UG/KG	6.03	U	6.03	1	19.4
11SB60-0204	20121129	SO	1,2-DICHLOROETHANE	OV	2.36	U	N		UG/KG	4.73	U	4.73	1	15.38
11SB60-0204-D	20121129	SO	1,2-DICHLOROETHANE	OV	2.47	U	N		UG/KG	4.93	U	4.93	1	13.53
11SB60-0405	20121129	SO	1,2-DICHLOROETHANE	OV	2.23	U	N		UG/KG	4.46	U	4.46	1	13.12
11SB61-0810	20121129	SO	1,2-DICHLOROETHANE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	17.22
11SB61-1011	20121129	SO	1,2-DICHLOROETHANE	OV	2.54	U	N		UG/KG	5.09	U	5.09	1	20.37
11SB62-0911	20121129	SO	1,2-DICHLOROETHANE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	14.28
11SB62-1112	20121129	SO	1,2-DICHLOROETHANE	OV	2.53	U	N		UG/KG	5.06	U	5.06	1	19.21
11SB63-0911	20121129	SO	1,2-DICHLOROETHANE	OV	130	U	N		UG/KG	260	U	260	50	18.5
11SB63-1112	20121129	SO	1,2-DICHLOROETHANE	OV	161	U	N		UG/KG	322	U	322	50	23.2
11SB64-0911	20121129	SO	1,2-DICHLOROETHANE	OV	2.43	U	N		UG/KG	4.86	U	4.86	1	16.4
11SB64-1112	20121129	SO	1,2-DICHLOROETHANE	OV	2.47	U	N		UG/KG	4.94	U	4.94	1	14.2
11SB65-0911	20121129	SO	1,2-DICHLOROETHANE	OV	2.4	U	N		UG/KG	4.8	U	4.8	1	13.22
11SB65-1112	20121129	SO	1,2-DICHLOROETHANE	OV	2.44	UJ	N	D	UG/KG	4.87	UN	4.87	1	14.32
11SB66-1315	20130123	SO	1,2-DICHLOROETHANE	OV	2.46	U	N		UG/KG	4.93	U	4.93	1	14.43
11SB66-1516	20130123	SO	1,2-DICHLOROETHANE	OV	2.92	U	N		UG/KG	5.84	U	5.84	1	16.87
11SB66-1516-D	20130123	SO	1,2-DICHLOROETHANE	OV	2.83	U	N		UG/KG	5.67	U	5.67	1	18.5
11SB67-1416	20130123	SO	1,2-DICHLOROETHANE	OV	130	U	N		UG/KG	260	U	260	50	14.63
11SB67-1617	20130123	SO	1,2-DICHLOROETHANE	OV	121	U	N		UG/KG	242	U	242	50	15.86
11SB68-1315	20130123	SO	1,2-DICHLOROETHANE	OV	103	U	N		UG/KG	206	U	206	50	14.52
11SB68-1516	20130123	SO	1,2-DICHLOROETHANE	OV	112	U	N		UG/KG	223	U	223	50	14.97
11SB69-1416	20130123	SO	1,2-DICHLOROETHANE	OV	2.19	U	N		UG/KG	4.38	U	4.38	1	16.29
11SB69-1617	20130123	SO	1,2-DICHLOROETHANE	OV	2.18	U	N		UG/KG	4.37	U	4.37	1	18.65
11SB70-1315	20130123	SO	1,2-DICHLOROETHANE	OV	1.98	U	N		UG/KG	3.96	U	3.96	1	16.04
11SB70-1516	20130123	SO	1,2-DICHLOROETHANE	OV	2.63	U	N		UG/KG	5.26	U	5.26	1	18.12
11SB010002	20110426	SO	1,2-DICHLOROPROPANE	OV	2.51	UJ	N	C	UG/KG	5.03	YU	5.03	1	21.1
11SB010002-D	20110426	SO	1,2-DICHLOROPROPANE	OV	2.45	UJ	N	C	UG/KG	4.9	YU	4.9	1	21
11SB010406	20110426	SO	1,2-DICHLOROPROPANE	OV	2.38	UJ	N	C	UG/KG	4.75	YU	4.75	1	17.7
11SB010406-D	20110426	SO	1,2-DICHLOROPROPANE	OV	2.4	UJ	N	C	UG/KG	4.79	YU	4.79	1	19.4
11SB020406	20110426	SO	1,2-DICHLOROPROPANE	OV	2.55	UJ	N	C	UG/KG	5.1	YU	5.1	1	24.3
11SB040002	20110426	SO	1,2-DICHLOROPROPANE	OV	2.98	UJ	N	C	UG/KG	5.97	YU	5.97	1	20.9
11SB040406	20110426	SO	1,2-DICHLOROPROPANE	OV	2.51	UJ	N	C	UG/KG	5.03	YU	5.03	1	12.8
11SB250507	20110426	SO	1,2-DICHLOROPROPANE	OV	2.9	UJ	N	C	UG/KG	5.79	YU	5.79	1	18.9
11SB270507	20110426	SO	1,2-DICHLOROPROPANE	OV	2.24	UJ	N	C	UG/KG	4.48	YU	4.48	1	14.1
11SB280507	20110426	SO	1,2-DICHLOROPROPANE	OV	3.31	UJ	N	C	UG/KG	6.62	YUN	6.62	1	28.9
11SB51-0204	20121030	SO	1,2-DICHLOROPROPANE	OV	2.59	U	N		UG/KG	5.19	U	5.19	1	15.3
11SB51-0204-D	20121030	SO	1,2-DICHLOROPROPANE	OV	2.39	U	N		UG/KG	4.77	U	4.77	1	12.3
11SB51-0506	20121030	SO	1,2-DICHLOROPROPANE	OV	2.39	U	N		UG/KG	4.79	U	4.79	1	13
11SB52-0204	20121030	SO	1,2-DICHLOROPROPANE	OV	2.48	U	N		UG/KG	4.95	U	4.95	1	15.3
11SB52-0506	20121030	SO	1,2-DICHLOROPROPANE	OV	2.4	U	N		UG/KG	4.81	U	4.81	1	14.9
11SB53-0204	20121030	SO	1,2-DICHLOROPROPANE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	17.6
11SB53-0506	20121030	SO	1,2-DICHLOROPROPANE	OV	2.59	U	N		UG/KG	5.18	U	5.18	1	14.3
11SB54-0204	20121030	SO	1,2-DICHLOROPROPANE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	15.2
11SB54-0405	20121030	SO	1,2-DICHLOROPROPANE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	16.3
11SB55-0406	20121030	SO	1,2-DICHLOROPROPANE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	15.8
11SB55-0607	20121030	SO	1,2-DICHLOROPROPANE	OV	2.44	U	N		UG/KG	4.89	U	4.89	1	14.9
11SB56-0406	20121030	SO	1,2-DICHLOROPROPANE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	11.4
11SB56-0708	20121030	SO	1,2-DICHLOROPROPANE	OV	2.7	U	N		UG/KG	5.39	U	5.39	1	19.1
11SB57-0406	20121030	SO	1,2-DICHLOROPROPANE	OV	3.08	U	N		UG/KG	6.17	U	6.17	1	19.8
11SB57-0607	20121030	SO	1,2-DICHLOROPROPANE	OV	2.65	U	N		UG/KG	5.3	U	5.3	1	17
11SB58-0305	20121030	SO	1,2-DICHLOROPROPANE	OV	2.49	U	N		UG/KG	4.98	U	4.98	1	16.3
11SB58-0506	20121030	SO	1,2-DICHLOROPROPANE	OV	2.41	U	N		UG/KG	4.82	U	4.82	1	15.7
11SB59-0204	20121030	SO	1,2-DICHLOROPROPANE	OV	3.02	U	N		UG/KG	6.03	U	6.03	1	19.4
11SB60-0204	20121129	SO	1,2-DICHLOROPROPANE	OV	2.36	U	N		UG/KG	4.73	U	4.73	1	15.38

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB60-0204-D	20121129	SO	1,2-DICHLOROPROPANE	OV	2.47	U	N		UG/KG	4.93	U	4.93	1	13.53
11SB60-0405	20121129	SO	1,2-DICHLOROPROPANE	OV	2.23	U	N		UG/KG	4.46	U	4.46	1	13.12
11SB61-0810	20121129	SO	1,2-DICHLOROPROPANE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	17.22
11SB61-1011	20121129	SO	1,2-DICHLOROPROPANE	OV	2.54	U	N		UG/KG	5.09	U	5.09	1	20.37
11SB62-0911	20121129	SO	1,2-DICHLOROPROPANE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	14.28
11SB62-1112	20121129	SO	1,2-DICHLOROPROPANE	OV	2.53	U	N		UG/KG	5.06	U	5.06	1	19.21
11SB63-0911	20121129	SO	1,2-DICHLOROPROPANE	OV	130	U	N		UG/KG	260	U	260	50	18.5
11SB63-1112	20121129	SO	1,2-DICHLOROPROPANE	OV	161	U	N		UG/KG	322	U	322	50	23.2
11SB64-0911	20121129	SO	1,2-DICHLOROPROPANE	OV	2.43	U	N		UG/KG	4.86	U	4.86	1	16.4
11SB64-1112	20121129	SO	1,2-DICHLOROPROPANE	OV	2.47	U	N		UG/KG	4.94	U	4.94	1	14.2
11SB65-0911	20121129	SO	1,2-DICHLOROPROPANE	OV	2.4	U	N		UG/KG	4.8	U	4.8	1	13.22
11SB65-1112	20121129	SO	1,2-DICHLOROPROPANE	OV	2.44	UJ	N	D	UG/KG	4.87	UN	4.87	1	14.32
11SB66-1315	20130123	SO	1,2-DICHLOROPROPANE	OV	2.46	UJ	N	D	UG/KG	4.93	U	4.93	1	14.43
11SB66-1516	20130123	SO	1,2-DICHLOROPROPANE	OV	2.92	U	N		UG/KG	5.84	U	5.84	1	16.87
11SB66-1516-D	20130123	SO	1,2-DICHLOROPROPANE	OV	2.83	U	N		UG/KG	5.67	U	5.67	1	18.5
11SB67-1416	20130123	SO	1,2-DICHLOROPROPANE	OV	130	U	N		UG/KG	260	U	260	50	14.63
11SB67-1617	20130123	SO	1,2-DICHLOROPROPANE	OV	121	U	N		UG/KG	242	U	242	50	15.86
11SB68-1315	20130123	SO	1,2-DICHLOROPROPANE	OV	103	U	N		UG/KG	206	U	206	50	14.52
11SB68-1516	20130123	SO	1,2-DICHLOROPROPANE	OV	112	U	N		UG/KG	223	U	223	50	14.97
11SB69-1416	20130123	SO	1,2-DICHLOROPROPANE	OV	2.19	U	N		UG/KG	4.38	U	4.38	1	16.29
11SB69-1617	20130123	SO	1,2-DICHLOROPROPANE	OV	2.18	U	N		UG/KG	4.37	U	4.37	1	18.65
11SB70-1315	20130123	SO	1,2-DICHLOROPROPANE	OV	1.98	U	N		UG/KG	3.96	U	3.96	1	16.04
11SB70-1516	20130123	SO	1,2-DICHLOROPROPANE	OV	2.63	U	N		UG/KG	5.26	U	5.26	1	18.12
11SB51-0204	20121030	SO	1,3-DICHLOROBENZENE	OV	2.59	U	N		UG/KG	5.19	U	5.19	1	15.3
11SB51-0204-D	20121030	SO	1,3-DICHLOROBENZENE	OV	2.39	U	N		UG/KG	4.77	U	4.77	1	12.3
11SB51-0506	20121030	SO	1,3-DICHLOROBENZENE	OV	2.39	U	N		UG/KG	4.79	U	4.79	1	13
11SB52-0204	20121030	SO	1,3-DICHLOROBENZENE	OV	2.48	UJ	N	D	UG/KG	4.95	NU	4.95	1	15.3
11SB52-0506	20121030	SO	1,3-DICHLOROBENZENE	OV	2.4	U	N		UG/KG	4.81	U	4.81	1	14.9
11SB53-0204	20121030	SO	1,3-DICHLOROBENZENE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	17.6
11SB53-0506	20121030	SO	1,3-DICHLOROBENZENE	OV	2.59	U	N		UG/KG	5.18	U	5.18	1	14.3
11SB54-0204	20121030	SO	1,3-DICHLOROBENZENE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	15.2
11SB54-0405	20121030	SO	1,3-DICHLOROBENZENE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	16.3
11SB55-0406	20121030	SO	1,3-DICHLOROBENZENE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	15.8
11SB55-0607	20121030	SO	1,3-DICHLOROBENZENE	OV	2.44	U	N		UG/KG	4.89	U	4.89	1	14.9
11SB56-0406	20121030	SO	1,3-DICHLOROBENZENE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	11.4
11SB56-0708	20121030	SO	1,3-DICHLOROBENZENE	OV	2.7	U	N		UG/KG	5.39	U	5.39	1	19.1
11SB57-0406	20121030	SO	1,3-DICHLOROBENZENE	OV	3.08	U	N		UG/KG	6.17	U	6.17	1	19.8
11SB57-0607	20121030	SO	1,3-DICHLOROBENZENE	OV	2.65	U	N		UG/KG	5.3	U	5.3	1	17
11SB58-0305	20121030	SO	1,3-DICHLOROBENZENE	OV	2.49	U	N		UG/KG	4.98	U	4.98	1	16.3
11SB58-0506	20121030	SO	1,3-DICHLOROBENZENE	OV	2.41	U	N		UG/KG	4.82	U	4.82	1	15.7
11SB59-0204	20121030	SO	1,3-DICHLOROBENZENE	OV	3.02	U	N		UG/KG	6.03	U	6.03	1	19.4
11SB60-0204	20121129	SO	1,3-DICHLOROBENZENE	OV	2.36	U	N		UG/KG	4.73	U	4.73	1	15.38
11SB60-0204-D	20121129	SO	1,3-DICHLOROBENZENE	OV	2.47	U	N		UG/KG	4.93	U	4.93	1	13.53
11SB60-0405	20121129	SO	1,3-DICHLOROBENZENE	OV	2.23	U	N		UG/KG	4.46	U	4.46	1	13.12
11SB61-0810	20121129	SO	1,3-DICHLOROBENZENE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	17.22
11SB61-1011	20121129	SO	1,3-DICHLOROBENZENE	OV	2.54	U	N		UG/KG	5.09	U	5.09	1	20.37
11SB62-0911	20121129	SO	1,3-DICHLOROBENZENE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	14.28
11SB62-1112	20121129	SO	1,3-DICHLOROBENZENE	OV	2.53	U	N		UG/KG	5.06	U	5.06	1	19.21
11SB63-0911	20121129	SO	1,3-DICHLOROBENZENE	OV	130	U	N		UG/KG	260	U	260	50	18.5
11SB63-1112	20121129	SO	1,3-DICHLOROBENZENE	OV	161	U	N		UG/KG	322	U	322	50	23.2
11SB64-0911	20121129	SO	1,3-DICHLOROBENZENE	OV	2.43	U	N		UG/KG	4.86	U	4.86	1	16.4
11SB64-1112	20121129	SO	1,3-DICHLOROBENZENE	OV	2.47	U	N		UG/KG	4.94	U	4.94	1	14.2
11SB65-0911	20121129	SO	1,3-DICHLOROBENZENE	OV	2.4	U	N		UG/KG	4.8	U	4.8	1	13.22
11SB65-1112	20121129	SO	1,3-DICHLOROBENZENE	OV	2.44	UJ	N	D	UG/KG	4.87	UN	4.87	1	14.32
11SB66-1315	20130123	SO	1,3-DICHLOROBENZENE	OV	2.46	UJ	N	D	UG/KG	4.93	UN	4.93	1	14.43
11SB66-1516	20130123	SO	1,3-DICHLOROBENZENE	OV	2.92	U	N		UG/KG	5.84	U	5.84	1	16.87
11SB66-1516-D	20130123	SO	1,3-DICHLOROBENZENE	OV	2.83	U	N		UG/KG	5.67	U	5.67	1	18.5
11SB67-1416	20130123	SO	1,3-DICHLOROBENZENE	OV	130	U	N		UG/KG	260	U	260	50	14.63
11SB67-1617	20130123	SO	1,3-DICHLOROBENZENE	OV	121	U	N		UG/KG	242	U	242	50	15.86
11SB68-1315	20130123	SO	1,3-DICHLOROBENZENE	OV	103	U	N		UG/KG	206	U	206	50	14.52
11SB68-1516	20130123	SO	1,3-DICHLOROBENZENE	OV	112	U	N		UG/KG	223	U	223	50	14.97
11SB69-1416	20130123	SO	1,3-DICHLOROBENZENE	OV	2.19	U	N		UG/KG	4.38	U	4.38	1	16.29
11SB69-1617	20130123	SO	1,3-DICHLOROBENZENE	OV	2.18	U	N		UG/KG	4.37	U	4.37	1	18.65
11SB70-1315	20130123	SO	1,3-DICHLOROBENZENE	OV	1.98	U	N		UG/KG	3.96	U	3.96	1	16.04
11SB70-1516	20130123	SO	1,3-DICHLOROBENZENE	OV	2.63	U	N		UG/KG	5.26	U	5.26	1	18.12
11SB360405	20111117	SO	1,4-DICHLOROBENZENE	OV	71.2	J	Y	P	UG/KG	71.200000	JD	226	50	15.5
11SB380406	20111115	SO	1,4-DICHLOROBENZENE	OV	3.63	J	Y	P	UG/KG	3.630000	J	7.79	1	40.38
11SB410204	20111117	SO	1,4-DICHLOROBENZENE	OV	137	J	Y	P	UG/KG	137.000000	JD	228	50	15.5
11SB410405	20111117	SO	1,4-DICHLOROBENZENE	OV	150	J	Y	P	UG/KG	150.000000	JD	266	50	15.5
11SB51-0204	20121030	SO	1,4-DICHLOROBENZENE	OV	2.59	U	N		UG/KG	5.19	U	5.19	1	15.3
11SB51-0204-D	20121030	SO	1,4-DICHLOROBENZENE	OV	2.39	U	N		UG/KG	4.77	U	4.77	1	12.3
11SB51-0506	20121030	SO	1,4-DICHLOROBENZENE	OV	2.39	U	N		UG/KG	4.79	U	4.79	1	13
11SB52-0204	20121030	SO	1,4-DICHLOROBENZENE	OV	2.48	UJ	N	D	UG/KG	4.95	NU	4.95	1	15.3
11SB52-0506	20121030	SO	1,4-DICHLOROBENZENE	OV	2.4	U	N		UG/KG	4.81	U	4.81	1	14.9
11SB53-0204	20121030	SO	1,4-DICHLOROBENZENE	OV	3.27	J	Y	P	UG/KG	3.27	J	5.1	1	17.6
11SB54-0204	20121030	SO	1,4-DICHLOROBENZENE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	15.2
11SB54-0405	20121030	SO	1,4-DICHLOROBENZENE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	16.3
11SB55-0406	20121030	SO	1,4-DICHLOROBENZENE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	15.8
11SB55-0607	20121030	SO	1,4-DICHLOROBENZENE	OV	2.44	U	N		UG/KG	4.89	U	4.89	1	14.9
11SB56-0406	20121030	SO	1,4-DICHLOROBENZENE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	11.4
11SB56-0708	20121030	SO	1,4-DICHLOROBENZENE	OV	2.7	U	N		UG/KG	5.39	U	5.39	1	19.1

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB57-0406	20121030	SO	1,4-DICHLOROBENZENE	OV	3.08	U	N		UG/KG	6.17	U	6.17	1	19.8
11SB57-0607	20121030	SO	1,4-DICHLOROBENZENE	OV	2.65	U	N		UG/KG	5.3	U	5.3	1	17
11SB58-0305	20121030	SO	1,4-DICHLOROBENZENE	OV	2.49	U	N		UG/KG	4.98	U	4.98	1	16.3
11SB58-0506	20121030	SO	1,4-DICHLOROBENZENE	OV	2.41	U	N		UG/KG	4.82	U	4.82	1	15.7
11SB59-0204	20121030	SO	1,4-DICHLOROBENZENE	OV	3.02	U	N		UG/KG	6.03	U	6.03	1	19.4
11SB60-0204	20121129	SO	1,4-DICHLOROBENZENE	OV	2.36	U	N		UG/KG	4.73	U	4.73	1	15.38
11SB60-0204-D	20121129	SO	1,4-DICHLOROBENZENE	OV	2.47	U	N		UG/KG	4.93	U	4.93	1	13.53
11SB60-0405	20121129	SO	1,4-DICHLOROBENZENE	OV	2.23	U	N		UG/KG	4.46	U	4.46	1	13.12
11SB61-0810	20121129	SO	1,4-DICHLOROBENZENE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	17.22
11SB61-1011	20121129	SO	1,4-DICHLOROBENZENE	OV	2.54	U	N		UG/KG	5.09	U	5.09	1	20.37
11SB62-0911	20121129	SO	1,4-DICHLOROBENZENE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	14.28
11SB62-1112	20121129	SO	1,4-DICHLOROBENZENE	OV	2.53	U	N		UG/KG	5.06	U	5.06	1	19.21
11SB63-0911	20121129	SO	1,4-DICHLOROBENZENE	OV	130	U	N		UG/KG	260	U	260	50	18.5
11SB63-1112	20121129	SO	1,4-DICHLOROBENZENE	OV	161	U	N		UG/KG	322	U	322	50	23.2
11SB65-0911	20121129	SO	1,4-DICHLOROBENZENE	OV	2.4	U	N		UG/KG	4.8	U	4.8	1	13.22
11SB65-1112	20121129	SO	1,4-DICHLOROBENZENE	OV	2.44	UJ	N	D	UG/KG	4.87	UN	4.87	1	14.32
11SB66-1315	20130123	SO	1,4-DICHLOROBENZENE	OV	2.46	UJ	N	D	UG/KG	4.93	UN	4.93	1	14.43
11SB66-1516	20130123	SO	1,4-DICHLOROBENZENE	OV	2.92	U	N		UG/KG	5.84	U	5.84	1	16.87
11SB66-1516-D	20130123	SO	1,4-DICHLOROBENZENE	OV	2.83	U	N		UG/KG	5.67	U	5.67	1	18.5
11SB67-1416	20130123	SO	1,4-DICHLOROBENZENE	OV	130	U	N		UG/KG	260	U	260	50	14.63
11SB67-1617	20130123	SO	1,4-DICHLOROBENZENE	OV	121	U	N		UG/KG	242	U	242	50	15.86
11SB68-1315	20130123	SO	1,4-DICHLOROBENZENE	OV	103	U	N		UG/KG	206	U	206	50	14.52
11SB68-1516	20130123	SO	1,4-DICHLOROBENZENE	OV	112	U	N		UG/KG	223	U	223	50	14.97
11SB69-1416	20130123	SO	1,4-DICHLOROBENZENE	OV	2.19	U	N		UG/KG	4.38	U	4.38	1	16.29
11SB69-1617	20130123	SO	1,4-DICHLOROBENZENE	OV	2.18	U	N		UG/KG	4.37	U	4.37	1	18.65
11SB70-1315	20130123	SO	1,4-DICHLOROBENZENE	OV	1.98	U	N		UG/KG	3.96	U	3.96	1	16.04
11SB70-1516	20130123	SO	1,4-DICHLOROBENZENE	OV	2.63	U	N		UG/KG	5.26	U	5.26	1	18.12
11SB010002	20110426	SO	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	212	UJ	N	C	UG/KG	418	YU	418	1	21.1
11SB010002-D	20110426	SO	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	206	UJ	N	C	UG/KG	407	YU	407	1	21
11SB010406	20110426	SO	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	193	UJ	N	C	UG/KG	380	YU	380	1	17.7
11SB010406-D	20110426	SO	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	197	UJ	N	C	UG/KG	389	YU	389	1	19.4
11SB020002	20110426	SO	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	206	UJ	N	C	UG/KG	407	YU	407	1	20.6
11SB020406	20110426	SO	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	211	UJ	N	C	UG/KG	416	YU	416	1	24.3
11SB030002	20110426	SO	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	200	UJ	N	C	UG/KG	396	YU	396	1	18.7
11SB030406	20110426	SO	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	189	UJ	N	C	UG/KG	373	YU	373	1	13.7
11SB040002	20110426	SO	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	206	UJ	N	C	UG/KG	407	YU	407	1	20.9
11SB040406	20110426	SO	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	189	UJ	N	C	UG/KG	373	YU	373	1	12.8
11SB270507	20110426	SO	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	193	UJ	N	C	UG/KG	382	YU	382	1	14.1
11SS050002	20110426	SO	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	198	UJ	N	C	UG/KG	391	YU	391	1	16.6
11SS060002	20110426	SO	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	196	UJ	N	C	UG/KG	388	YU	388	1	19.2
11SS070002	20110426	SO	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	207	UJ	N	C	UG/KG	409	YU	409	1	21.9
11SS080002	20110426	SO	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	193	UJ	N	C	UG/KG	382	YU	382	1	16.9
11SS100002	20110426	SO	2,2'-OXYBIS(1-CHLOROPROPANE)	OS	222	UJ	N	C	UG/KG	439	YU	439	1	27.3
11SS110002	20110426	SO	2,3,4,6,7,8-HXCDF	DIOX	4.51	J	Y	P	NG/KG	4.51	J	4.79	1	16
11SS140002	20110426	SO	2,3,4,6,7,8-HXCDF	DIOX	1.68	J	Y	P	NG/KG	1.68	J	4.66	1	20
11SS200002	20110426	SO	2,3,4,6,7,8-HXCDF	DIOX	0.383	J	Y	P	NG/KG	0.383	J	4.63	1	14
11SS220002	20110426	SO	2,3,4,6,7,8-HXCDF	DIOX	1.31	J	Y	P	NG/KG	1.31	J	4.78	1	13
11SS110002	20110426	SO	2,3,4,7,8-PECDF	DIOX	1.04	J	Y	P	NG/KG	1.04	J	4.79	1	16
11SS140002	20110426	SO	2,3,4,7,8-PECDF	DIOX	3.12	J	Y	P	NG/KG	3.12	J	4.66	1	20
11SS220002	20110426	SO	2,3,4,7,8-PECDF	DIOX	2.03	J	Y	P	NG/KG	2.03	J	4.78	1	13
11SS190002	20110426	SO	2,3,7,8-TCDD	DIOX	0.24	J	Y	P	NG/KG	0.24	J	0.952	1	18
11SS220002	20110426	SO	2,3,7,8-TCDD	DIOX	0.69	J	Y	P	NG/KG	0.69	J	0.956	1	13
11SB020002	20110426	SO	2,3,7,8-TCDF	DIOX	0.49	U	N	A	NG/KG	0.49	J	0.981	1	20
11SS090002	20110426	SO	2,3,7,8-TCDF	DIOX	0.374	U	N	A	NG/KG	0.374	J	0.954	1	19
11SS140002	20110426	SO	2,3,7,8-TCDF	DIOX	0.507	U	N	A	NG/KG	0.507	J	0.933	1	20
11SS180002	20110426	SO	2,3,7,8-TCDF	DIOX	0.481	U	N	A	NG/KG	0.481	J	0.95	1	19
11SS190002	20110426	SO	2,3,7,8-TCDF	DIOX	0.455	U	N	A	NG/KG	0.455	J	0.952	1	18
11SS200002	20110426	SO	2,3,7,8-TCDF	DIOX	0.503	U	N	A	NG/KG	0.503	J	0.925	1	14
11SS210002	20110426	SO	2,3,7,8-TCDF	DIOX	0.369	U	N	A	NG/KG	0.369	J	0.962	1	19
11SS210002-D	20110426	SO	2,3,7,8-TCDF	DIOX	0.507	U	N	A	NG/KG	0.507	J	0.905	1	21
11SS220002	20110426	SO	2,3,7,8-TCDF	DIOX	0.673	U	N	A	NG/KG	0.673	J	0.956	1	13
11SS230002	20110426	SO	2,3,7,8-TCDF	DIOX	0.369	U	N	A	NG/KG	0.369	J	0.956	1	19
11SS240002	20110426	SO	2,3,7,8-TCDF	DIOX	0.506	U	N	A	NG/KG	0.506	J	0.934	1	17
11SS110002-D	20110426	SO	2,4-DINITROPHENOL	OS	2040	UJ	N	C	UG/KG	4040	UX	4040	1	18.8
11SS120002	20110426	SO	2,4-DINITROPHENOL	OS	1960	UJ	N	C	UG/KG	3870	UX	3870	1	17
11SS130002	20110426	SO	2,4-DINITROPHENOL	OS	1930	UJ	N	C	UG/KG	3800	UX	3800	1	18.2
11SS140002	20110426	SO	2,4-DINITROPHENOL	OS	2030	UJ	N	C	UG/KG	4010	UX	4010	1	18.8
11SS150002	20110426	SO	2,4-DINITROPHENOL	OS	2070	UJ	N	C	UG/KG	4090	UX	4090	1	19.4
11SS160002	20110426	SO	2,4-DINITROPHENOL	OS	2140	UJ	N	C	UG/KG	4240	UX	4240	1	22.6
11SS170002	20110426	SO	2,4-DINITROPHENOL	OS	2000	UJ	N	C	UG/KG	3940	UX	3940	1	16.3
11SS180002	20110426	SO	2,4-DINITROPHENOL	OS	1940	UJ	N	C	UG/KG	3830	UX	3830	1	17.8
11SS290002	20110427	SO	2,4-DINITROPHENOL	OS	2130	UJ	N	C	UG/KG	4210	UX	4210	1	22.6
11SS300002	20110427	SO	2,4-DINITROPHENOL	OS	1890	UJ	N	C	UG/KG	3730	UX	3730	1	15
11SS310002	20110426	SO	2,4-DINITROPHENOL	OS	2030	UJ	N	C	UG/KG	4020	UX	4020	1	19.5
11SS310002-D	20110427	SO	2,4-DINITROPHENOL	OS	2100	UJ	N	C	UG/KG	4160	UX	4160	1	21.7
11SS320002	20110426	SO	2,4-DINITROPHENOL	OS	2040	UJ	N	C	UG/KG	4040	UX	4040	1	20.4
11SB040002	20110426	SO	2-BUTANONE	OV	3.68	J	Y	P	UG/KG	3.68	J	11.9	1	20.9
11SB340406	20111116	SO	2-BUTANONE	OV	243	UJ	N	C	UG/KG	487.000000	UX	487	50	17.6
11SB340708	20111116	SO	2-BUTANONE	OV	4.29	J	Y	CP	UG/KG	4.290000	JX	9.53	1	17.6
11SB350305	20111116	SO	2-BUTANONE	OV	5.75	UJ	N	C	UG/KG	11.500000	UX	11.5	1	17.6
11SB350506	20111116	SO	2-BUTANONE	OV	5.44	UJ	N	C	UG/KG	10.900000	UX	10.9	1	17.6

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB360204	20111117	SO	2-BUTANONE	OV	233	UJ	N	C	UG/KG	466.000000	UX	466	50	15.5
11SB360405	20111117	SO	2-BUTANONE	OV	226	UJ	N	C	UG/KG	453.000000	UX	453	50	15.5
11SB360405-D	20111117	SO	2-BUTANONE	OV	219	UJ	N	C	UG/KG	437.000000	UX	437	50	13.3
11SB370103	20111116	SO	2-BUTANONE	OV	5.24	UJ	N	C	UG/KG	10.500000	UX	10.5	1	15.5
11SB370304	20111116	SO	2-BUTANONE	OV	4.63	UJ	N	C	UG/KG	9.260000	UX	9.26	1	13.4
11SB390406	20111115	SO	2-BUTANONE	OV	2.87	U	N	B	UG/KG	2.870000	J	11.2	1	51.6
11SB410204	20111117	SO	2-BUTANONE	OV	228	UJ	N	C	UG/KG	456.000000	UX	456	50	15.5
11SB410405	20111117	SO	2-BUTANONE	OV	266	UJ	N	C	UG/KG	532.000000	UX	532	50	15.5
11SB420102	20111116	SO	2-BUTANONE	OV	4.58	UJ	N	C	UG/KG	9.160000	UX	9.16	1	17.6
11SB420203	20111116	SO	2-BUTANONE	OV	4.65	UJ	N	C	UG/KG	9.300000	UX	9.3	1	14.4
11SB440406	20111116	SO	2-BUTANONE	OV	4.64	UJ	N	C	UG/KG	9.280000	UX	9.28	1	15.7
11SB450506	20111116	SO	2-BUTANONE	OV	2.76	J	Y	P	UG/KG	2.760000	J	8.99	1	12
11SB460305	20111117	SO	2-BUTANONE	OV	4.55	UJ	N	C	UG/KG	9.100000	UX	9.1	1	15.5
11SB460506	20111117	SO	2-BUTANONE	OV	215	UJ	N	C	UG/KG	430.000000	UX	430	50	8.5
11SB470304	20111116	SO	2-BUTANONE	OV	4.91	UJ	N	C	UG/KG	9.810000	UX	9.81	1	17.8
11SB500305	20111116	SO	2-BUTANONE	OV	4.99	UJ	N	C	UG/KG	9.980000	UX	9.98	1	12.7
11SB51-0204	20121030	SO	2-BUTANONE	OV	5.19	U	N		UG/KG	10.4	U	10.4	1	15.3
11SB51-0204-D	20121030	SO	2-BUTANONE	OV	4.77	U	N		UG/KG	9.55	U	9.55	1	12.3
11SB51-0506	20121030	SO	2-BUTANONE	OV	4.79	U	N		UG/KG	9.58	U	9.58	1	13
11SB52-0204	20121030	SO	2-BUTANONE	OV	4.52	J	Y	P	UG/KG	4.52	J	9.9	1	15.3
11SB52-0506	20121030	SO	2-BUTANONE	OV	4.81	U	N		UG/KG	9.62	U	9.62	1	14.9
11SB53-0204	20121030	SO	2-BUTANONE	OV	5.42	J	Y	P	UG/KG	5.42	J	10.2	1	17.6
11SB53-0506	20121030	SO	2-BUTANONE	OV	5.18	U	N		UG/KG	10.4	U	10.4	1	14.3
11SB54-0204	20121030	SO	2-BUTANONE	OV	4.48	U	N		UG/KG	8.96	U	8.96	1	15.2
11SB54-0405	20121030	SO	2-BUTANONE	OV	4.61	U	N		UG/KG	9.22	U	9.22	1	16.3
11SB55-0406	20121030	SO	2-BUTANONE	OV	4.61	U	N		UG/KG	9.21	U	9.21	1	15.8
11SB55-0607	20121030	SO	2-BUTANONE	OV	4.89	U	N		UG/KG	9.77	U	9.77	1	14.9
11SB56-0406	20121030	SO	2-BUTANONE	OV	4.74	U	N		UG/KG	9.48	U	9.48	1	11.4
11SB56-0708	20121030	SO	2-BUTANONE	OV	3.93	J	Y	P	UG/KG	3.93	J	10.8	1	19.1
11SB57-0406	20121030	SO	2-BUTANONE	OV	9.34	J	Y	P	UG/KG	9.34	J	12.3	1	19.8
11SB57-0607	20121030	SO	2-BUTANONE	OV	5.3	U	N		UG/KG	10.6	U	10.6	1	17
11SB58-0305	20121030	SO	2-BUTANONE	OV	4.98	U	N		UG/KG	9.96	U	9.96	1	16.3
11SB58-0506	20121030	SO	2-BUTANONE	OV	4.82	U	N		UG/KG	9.65	U	9.65	1	15.7
11SB59-0204	20121030	SO	2-BUTANONE	OV	6.03	U	N		UG/KG	12.1	U	12.1	1	19.4
11SB60-0204	20121129	SO	2-BUTANONE	OV	4.73	U	N		UG/KG	9.45	U	9.45	1	15.38
11SB60-0204-D	20121129	SO	2-BUTANONE	OV	4.93	U	N		UG/KG	9.87	U	9.87	1	13.53
11SB60-0405	20121129	SO	2-BUTANONE	OV	4.46	U	N		UG/KG	8.92	U	8.92	1	13.12
11SB61-0810	20121129	SO	2-BUTANONE	OV	4.79	U	N		UG/KG	9.59	U	9.59	1	17.22
11SB61-1011	20121129	SO	2-BUTANONE	OV	5.09	U	N		UG/KG	10.2	U	10.2	1	20.37
11SB62-0911	20121129	SO	2-BUTANONE	OV	4.74	U	N		UG/KG	9.48	U	9.48	1	14.28
11SB62-1112	20121129	SO	2-BUTANONE	OV	5.06	U	N		UG/KG	10.1	U	10.1	1	19.21
11SB63-0911	20121129	SO	2-BUTANONE	OV	260	U	N		UG/KG	521	U	521	50	18.5
11SB63-1112	20121129	SO	2-BUTANONE	OV	322	U	N		UG/KG	643	U	643	50	23.2
11SB64-0911	20121129	SO	2-BUTANONE	OV	4.86	U	N		UG/KG	9.73	U	9.73	1	16.4
11SB64-1112	20121129	SO	2-BUTANONE	OV	4.94	UJ	N	C	UG/KG	9.88	U	9.88	1	14.2
11SB65-0911	20121129	SO	2-BUTANONE	OV	4.8	U	N		UG/KG	9.6	U	9.6	1	13.22
11SB65-1112	20121129	SO	2-BUTANONE	OV	4.87	U	N		UG/KG	9.74	U	9.74	1	14.32
11SB66-1315	20130123	SO	2-BUTANONE	OV	4.93	U	N		UG/KG	9.85	U	9.85	1	14.43
11SB66-1516	20130123	SO	2-BUTANONE	OV	5.84	U	N		UG/KG	11.7	U	11.7	1	16.87
11SB66-1516-D	20130123	SO	2-BUTANONE	OV	5.67	U	N		UG/KG	11.3	U	11.3	1	18.5
11SB67-1416	20130123	SO	2-BUTANONE	OV	260	U	N		UG/KG	520	U	520	50	14.63
11SB67-1617	20130123	SO	2-BUTANONE	OV	242	U	N		UG/KG	483	U	483	50	15.86
11SB68-1315	20130123	SO	2-BUTANONE	OV	206	U	N		UG/KG	412	U	412	50	14.52
11SB68-1516	20130123	SO	2-BUTANONE	OV	223	U	N		UG/KG	447	U	447	50	14.97
11SB69-1416	20130123	SO	2-BUTANONE	OV	4.38	U	N		UG/KG	8.76	U	8.76	1	16.29
11SB69-1617	20130123	SO	2-BUTANONE	OV	4.37	U	N		UG/KG	8.73	U	8.73	1	18.65
11SB70-1315	20130123	SO	2-BUTANONE	OV	3.96	U	N		UG/KG	7.92	U	7.92	1	16.04
11SB70-1516	20130123	SO	2-BUTANONE	OV	5.26	U	N		UG/KG	10.5	U	10.5	1	18.12
11SB010002	20110426	SO	2-CHLORONAPHTHALENE	OS	212	UJ	N	C	UG/KG	418	UX	418	1	21.1
11SB020406	20110426	SO	2-CHLORONAPHTHALENE	OS	211	UJ	N	C	UG/KG	416	UX	416	1	24.3
11SB030002	20110426	SO	2-CHLORONAPHTHALENE	OS	200	UJ	N	C	UG/KG	396	UX	396	1	18.7
11SB260507	20110427	SO	2-CHLORONAPHTHALENE	OS	186	UJ	N	C	UG/KG	368	UX	368	1	14.9
11SS050002	20110426	SO	2-CHLORONAPHTHALENE	OS	198	UJ	N	C	UG/KG	391	UX	391	1	16.6
11SS060002	20110426	SO	2-CHLORONAPHTHALENE	OS	196	UJ	N	C	UG/KG	388	UX	388	1	19.2
11SS070002	20110426	SO	2-CHLORONAPHTHALENE	OS	207	UJ	N	C	UG/KG	409	UX	409	1	21.9
11SS080002	20110426	SO	2-CHLORONAPHTHALENE	OS	193	UJ	N	C	UG/KG	382	UX	382	1	16.9
11SS100002	20110426	SO	2-CHLORONAPHTHALENE	OS	222	UJ	N	C	UG/KG	439	UX	439	1	27.3
11SS110002-D	20110426	SO	2-CHLORONAPHTHALENE	OS	204	UJ	N	C	UG/KG	404	UX	404	1	18.8
11SS120002	20110426	SO	2-CHLORONAPHTHALENE	OS	196	UJ	N	C	UG/KG	387	UX	387	1	17
11SS130002	20110426	SO	2-CHLORONAPHTHALENE	OS	193	UJ	N	C	UG/KG	380	UX	380	1	18.2
11SS140002	20110426	SO	2-CHLORONAPHTHALENE	OS	203	UJ	N	C	UG/KG	401	UX	401	1	18.8
11SS150002	20110426	SO	2-CHLORONAPHTHALENE	OS	207	UJ	N	C	UG/KG	409	UX	409	1	19.4
11SS160002	20110426	SO	2-CHLORONAPHTHALENE	OS	214	UJ	N	C	UG/KG	424	UX	424	1	22.6
11SS170002	20110426	SO	2-CHLORONAPHTHALENE	OS	200	UJ	N	C	UG/KG	394	UX	394	1	16.3
11SS180002	20110426	SO	2-CHLORONAPHTHALENE	OS	194	UJ	N	C	UG/KG	383	UX	383	1	17.8
11SS290002	20110427	SO	2-CHLORONAPHTHALENE	OS	213	UJ	N	C	UG/KG	421	UX	421	1	22.6
11SS300002	20110427	SO	2-CHLORONAPHTHALENE	OS	189	UJ	N	C	UG/KG	373	UX	373	1	15
11SS310002	20110426	SO	2-CHLORONAPHTHALENE	OS	203	UJ	N	C	UG/KG	402	UX	402	1	19.5
11SS310002-D	20110427	SO	2-CHLORONAPHTHALENE	OS	210	UJ	N	C	UG/KG	416	UX	416	1	21.7
11SS320002	20110426	SO	2-CHLORONAPHTHALENE	OS	204	UJ	N	C	UG/KG	404	UX	404	1	20.4
11SB340406	20111116	SO	2-HEXANONE	OV	122	UJ	N	C	UG/KG	243.000000	UX	243	50	17.6

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB340708	20111116	SO	2-HEXANONE	OV	2.38	UJ	N	C	UG/KG	4.760000	UX	4.76	1	17.6
11SB350305	20111116	SO	2-HEXANONE	OV	2.88	UJ	N	C	UG/KG	5.750000	UX	5.75	1	17.6
11SB350506	20111116	SO	2-HEXANONE	OV	2.72	UJ	N	C	UG/KG	5.440000	UX	5.44	1	17.6
11SB360204	20111117	SO	2-HEXANONE	OV	117	UJ	N	C	UG/KG	233.000000	UX	233	50	15.5
11SB360405-D	20111117	SO	2-HEXANONE	OV	109	UJ	N	C	UG/KG	219.000000	UX	219	50	13.3
11SB370103	20111116	SO	2-HEXANONE	OV	2.62	UJ	N	C	UG/KG	5.240000	UX	5.24	1	15.5
11SB370304	20111116	SO	2-HEXANONE	OV	2.32	UJ	N	C	UG/KG	4.630000	UX	4.63	1	13.4
11SB420102	20111116	SO	2-HEXANONE	OV	2.29	UJ	N	C	UG/KG	4.580000	UX	4.58	1	17.6
11SB420203	20111116	SO	2-HEXANONE	OV	2.33	UJ	N	C	UG/KG	4.650000	UX	4.65	1	14.4
11SB440406	20111116	SO	2-HEXANONE	OV	2.32	UJ	N	C	UG/KG	4.640000	UX	4.64	1	15.7
11SB460506	20111117	SO	2-HEXANONE	OV	108	UJ	N	C	UG/KG	215.000000	UX	215	50	8.5
11SB470304	20111116	SO	2-HEXANONE	OV	2.45	UJ	N	C	UG/KG	4.910000	UX	4.91	1	17.8
11SB500305	20111116	SO	2-HEXANONE	OV	2.5	UJ	N	C	UG/KG	4.990000	UX	4.99	1	12.7
11SB51-0204	20121030	SO	2-HEXANONE	OV	2.59	U	N		UG/KG	5.19	U	5.19	1	15.3
11SB51-0204-D	20121030	SO	2-HEXANONE	OV	2.39	U	N		UG/KG	4.77	U	4.77	1	12.3
11SB51-0506	20121030	SO	2-HEXANONE	OV	2.39	U	N		UG/KG	4.79	U	4.79	1	13
11SB52-0204	20121030	SO	2-HEXANONE	OV	2.48	U	N		UG/KG	4.95	U	4.95	1	15.3
11SB52-0506	20121030	SO	2-HEXANONE	OV	2.4	U	N		UG/KG	4.81	U	4.81	1	14.9
11SB53-0204	20121030	SO	2-HEXANONE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	17.6
11SB53-0506	20121030	SO	2-HEXANONE	OV	2.59	U	N		UG/KG	5.18	U	5.18	1	14.3
11SB54-0204	20121030	SO	2-HEXANONE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	15.2
11SB54-0405	20121030	SO	2-HEXANONE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	16.3
11SB55-0406	20121030	SO	2-HEXANONE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	15.8
11SB55-0607	20121030	SO	2-HEXANONE	OV	2.44	U	N		UG/KG	4.89	U	4.89	1	14.9
11SB56-0406	20121030	SO	2-HEXANONE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	11.4
11SB56-0708	20121030	SO	2-HEXANONE	OV	2.7	U	N		UG/KG	5.39	U	5.39	1	19.1
11SB57-0406	20121030	SO	2-HEXANONE	OV	3.08	U	N		UG/KG	6.17	U	6.17	1	19.8
11SB57-0607	20121030	SO	2-HEXANONE	OV	2.65	U	N		UG/KG	5.3	U	5.3	1	17
11SB58-0305	20121030	SO	2-HEXANONE	OV	2.49	U	N		UG/KG	4.98	U	4.98	1	16.3
11SB58-0506	20121030	SO	2-HEXANONE	OV	2.41	U	N		UG/KG	4.82	U	4.82	1	15.7
11SB59-0204	20121030	SO	2-HEXANONE	OV	3.02	U	N		UG/KG	6.03	U	6.03	1	19.4
11SB60-0204	20121129	SO	2-HEXANONE	OV	4.73	UJ	N	C	UG/KG	9.45	UX	9.45	1	15.38
11SB60-0204-D	20121129	SO	2-HEXANONE	OV	4.93	UJ	N	C	UG/KG	9.87	UX	9.87	1	13.53
11SB60-0405	20121129	SO	2-HEXANONE	OV	4.46	UJ	N	C	UG/KG	8.92	UX	8.92	1	13.12
11SB61-0810	20121129	SO	2-HEXANONE	OV	4.79	UJ	N	C	UG/KG	9.59	UX	9.59	1	17.22
11SB61-1011	20121129	SO	2-HEXANONE	OV	5.09	UJ	N	C	UG/KG	10.2	UX	10.2	1	20.37
11SB62-0911	20121129	SO	2-HEXANONE	OV	4.74	UJ	N	C	UG/KG	9.48	UX	9.48	1	14.28
11SB62-1112	20121129	SO	2-HEXANONE	OV	5.06	UJ	N	C	UG/KG	10.1	UX	10.1	1	19.21
11SB63-0911	20121129	SO	2-HEXANONE	OV	260	UJ	N	C	UG/KG	521	UX	521	50	18.5
11SB63-1112	20121129	SO	2-HEXANONE	OV	322	UJ	N	C	UG/KG	643	UX	643	50	23.2
11SB64-0911	20121129	SO	2-HEXANONE	OV	4.86	UJ	N	C	UG/KG	9.73	UX	9.73	1	16.4
11SB64-1112	20121129	SO	2-HEXANONE	OV	2.47	U	N		UG/KG	4.94	U	4.94	1	14.2
11SB65-0911	20121129	SO	2-HEXANONE	OV	4.8	UJ	N	C	UG/KG	9.6	UX	9.6	1	13.22
11SB65-1112	20121129	SO	2-HEXANONE	OV	4.87	UJ	N	C	UG/KG	9.74	UNX	9.74	1	14.32
11SB66-1315	20130123	SO	2-HEXANONE	OV	4.93	U	N		UG/KG	9.85	U	9.85	1	14.43
11SB66-1516	20130123	SO	2-HEXANONE	OV	5.84	U	N		UG/KG	11.7	U	11.7	1	16.87
11SB66-1516-D	20130123	SO	2-HEXANONE	OV	5.67	U	N		UG/KG	11.3	U	11.3	1	18.5
11SB67-1416	20130123	SO	2-HEXANONE	OV	260	U	N		UG/KG	520	U	520	50	14.63
11SB67-1617	20130123	SO	2-HEXANONE	OV	242	U	N		UG/KG	483	U	483	50	15.86
11SB68-1315	20130123	SO	2-HEXANONE	OV	206	U	N		UG/KG	412	U	412	50	14.52
11SB68-1516	20130123	SO	2-HEXANONE	OV	223	U	N		UG/KG	447	U	447	50	14.97
11SB69-1416	20130123	SO	2-HEXANONE	OV	4.38	U	N		UG/KG	8.76	U	8.76	1	16.29
11SB69-1617	20130123	SO	2-HEXANONE	OV	4.37	U	N		UG/KG	8.73	U	8.73	1	18.65
11SB70-1315	20130123	SO	2-HEXANONE	OV	3.96	U	N		UG/KG	7.92	U	7.92	1	16.04
11SB70-1516	20130123	SO	2-HEXANONE	OV	5.26	U	N		UG/KG	10.5	U	10.5	1	18.12
11SS130002	20110426	SO	2-METHYLNAPHTHALENE	PAH	10.8	J	Y	EP	UG/KG	10.8	QJD	38.4	5	18.2
11SS310002	20110426	SO	2-METHYLNAPHTHALENE	PAH	2.52	J	Y	EP	UG/KG	2.52	QJ	8.12	1	19.5
11SS320002	20110426	SO	2-METHYLNAPHTHALENE	PAH	2.52	J	Y	EP	UG/KG	2.52	QJ	8.16	1	20.4
11SB010002	20110426	SO	3,3'-DICHLOROBENZIDINE	OS	212	UJ	N	C	UG/KG	418	UX	418	1	21.1
11SB010002-D	20110426	SO	3,3'-DICHLOROBENZIDINE	OS	206	UJ	N	C	UG/KG	407	UX	407	1	21
11SB010406	20110426	SO	3,3'-DICHLOROBENZIDINE	OS	193	UJ	N	C	UG/KG	380	UX	380	1	17.7
11SB010406-D	20110426	SO	3,3'-DICHLOROBENZIDINE	OS	197	UJ	N	C	UG/KG	389	UX	389	1	19.4
11SB020002	20110426	SO	3,3'-DICHLOROBENZIDINE	OS	206	UJ	N	C	UG/KG	407	UX	407	1	20.6
11SB020406	20110426	SO	3,3'-DICHLOROBENZIDINE	OS	211	UJ	N	C	UG/KG	416	UX	416	1	24.3
11SB030002	20110426	SO	3,3'-DICHLOROBENZIDINE	OS	200	UJ	N	C	UG/KG	396	UX	396	1	18.7
11SB030406	20110426	SO	3,3'-DICHLOROBENZIDINE	OS	189	UJ	N	C	UG/KG	373	UX	373	1	13.7
11SB040002	20110426	SO	3,3'-DICHLOROBENZIDINE	OS	206	UJ	N	C	UG/KG	407	UX	407	1	20.9
11SB040406	20110426	SO	3,3'-DICHLOROBENZIDINE	OS	189	UJ	N	C	UG/KG	373	UX	373	1	12.8
11SB270507	20110426	SO	3,3'-DICHLOROBENZIDINE	OS	193	UJ	N	C	UG/KG	382	UX	382	1	14.1
11SS050002	20110426	SO	3,3'-DICHLOROBENZIDINE	OS	198	UJ	N	C	UG/KG	391	UX	391	1	16.6
11SS060002	20110426	SO	3,3'-DICHLOROBENZIDINE	OS	196	UJ	N	C	UG/KG	388	UX	388	1	19.2
11SS070002	20110426	SO	3,3'-DICHLOROBENZIDINE	OS	207	UJ	N	C	UG/KG	409	UX	409	1	21.9
11SS080002	20110426	SO	3,3'-DICHLOROBENZIDINE	OS	193	UJ	N	C	UG/KG	382	UX	382	1	16.9
11SS100002	20110426	SO	3,3'-DICHLOROBENZIDINE	OS	222	UJ	N	C	UG/KG	439	UX	439	1	27.3
11SS140002	20110426	SO	4,4'-DDE	PEST	1.4	J	Y	U	UG/KG	1.4	P	0.809	1	18.8
11SB010002-D	20110426	SO	4,6-DINITRO-2-METHYLPHENOL	OS	2060	UJ	N	C	UG/KG	4070	U	4070	1	21
11SB010406	20110426	SO	4,6-DINITRO-2-METHYLPHENOL	OS	1930	UJ	N	C	UG/KG	3800	U	3800	1	17.7
11SB010406-D	20110426	SO	4,6-DINITRO-2-METHYLPHENOL	OS	1970	UJ	N	C	UG/KG	3890	U	3890	1	19.4
11SB020002	20110426	SO	4,6-DINITRO-2-METHYLPHENOL	OS	2060	UJ	N	C	UG/KG	4070	U	4070	1	20.6
11SB030406	20110426	SO	4,6-DINITRO-2-METHYLPHENOL	OS	1890	UJ	N	C	UG/KG	3730	U	3730	1	13.7
11SB040002	20110426	SO	4,6-DINITRO-2-METHYLPHENOL	OS	2060	UJ	N	C	UG/KG	4070	U	4070	1	20.9

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB040406	20110426	SO	4,6-DINITRO-2-METHYLPHENOL	OS	1890	UJ	N	C	UG/KG	3730	U	3730	1	12.8
11SB270507	20110426	SO	4,6-DINITRO-2-METHYLPHENOL	OS	1930	UJ	N	C	UG/KG	3820	U	3820	1	14.1
11SS110002-D	20110426	SO	4,6-DINITRO-2-METHYLPHENOL	OS	2040	UJ	N	C	UG/KG	4040	UX	4040	1	18.8
11SS120002	20110426	SO	4,6-DINITRO-2-METHYLPHENOL	OS	1960	UJ	N	C	UG/KG	3870	UX	3870	1	17
11SS130002	20110426	SO	4,6-DINITRO-2-METHYLPHENOL	OS	1930	UJ	N	C	UG/KG	3800	UX	3800	1	18.2
11SS140002	20110426	SO	4,6-DINITRO-2-METHYLPHENOL	OS	2030	UJ	N	C	UG/KG	4010	UX	4010	1	18.8
11SS150002	20110426	SO	4,6-DINITRO-2-METHYLPHENOL	OS	2070	UJ	N	C	UG/KG	4090	UX	4090	1	19.4
11SS160002	20110426	SO	4,6-DINITRO-2-METHYLPHENOL	OS	2140	UJ	N	C	UG/KG	4240	UX	4240	1	22.6
11SS170002	20110426	SO	4,6-DINITRO-2-METHYLPHENOL	OS	2000	UJ	N	C	UG/KG	3940	UX	3940	1	16.3
11SS180002	20110426	SO	4,6-DINITRO-2-METHYLPHENOL	OS	1940	UJ	N	C	UG/KG	3830	UX	3830	1	17.8
11SS290002	20110427	SO	4,6-DINITRO-2-METHYLPHENOL	OS	2130	UJ	N	C	UG/KG	4210	UX	4210	1	22.6
11SS300002	20110427	SO	4,6-DINITRO-2-METHYLPHENOL	OS	1890	UJ	N	C	UG/KG	3730	UX	3730	1	15
11SS310002	20110426	SO	4,6-DINITRO-2-METHYLPHENOL	OS	2030	UJ	N	C	UG/KG	4020	UX	4020	1	19.5
11SS310002-D	20110427	SO	4,6-DINITRO-2-METHYLPHENOL	OS	2100	UJ	N	C	UG/KG	4160	UX	4160	1	21.7
11SS320002	20110426	SO	4,6-DINITRO-2-METHYLPHENOL	OS	2040	UJ	N	C	UG/KG	4040	UX	4040	1	20.4
11SS110002-D	20110426	SO	4-CHLOROPHENYL PHENYL ETHER	OS	204	UJ	N	C	UG/KG	404	UX	404	1	18.8
11SS120002	20110426	SO	4-CHLOROPHENYL PHENYL ETHER	OS	196	UJ	N	C	UG/KG	387	UX	387	1	17
11SS130002	20110426	SO	4-CHLOROPHENYL PHENYL ETHER	OS	193	UJ	N	C	UG/KG	380	UX	380	1	18.2
11SS140002	20110426	SO	4-CHLOROPHENYL PHENYL ETHER	OS	203	UJ	N	C	UG/KG	401	UX	401	1	18.8
11SS150002	20110426	SO	4-CHLOROPHENYL PHENYL ETHER	OS	207	UJ	N	C	UG/KG	409	UX	409	1	19.4
11SS160002	20110426	SO	4-CHLOROPHENYL PHENYL ETHER	OS	214	UJ	N	C	UG/KG	424	UX	424	1	22.6
11SS170002	20110426	SO	4-CHLOROPHENYL PHENYL ETHER	OS	200	UJ	N	C	UG/KG	394	UX	394	1	16.3
11SS180002	20110426	SO	4-CHLOROPHENYL PHENYL ETHER	OS	194	UJ	N	C	UG/KG	383	UX	383	1	17.8
11SS290002	20110427	SO	4-CHLOROPHENYL PHENYL ETHER	OS	213	UJ	N	C	UG/KG	421	UX	421	1	22.6
11SS300002	20110427	SO	4-CHLOROPHENYL PHENYL ETHER	OS	189	UJ	N	C	UG/KG	373	UX	373	1	15
11SS310002	20110426	SO	4-CHLOROPHENYL PHENYL ETHER	OS	203	UJ	N	C	UG/KG	402	UX	402	1	19.5
11SS310002-D	20110427	SO	4-CHLOROPHENYL PHENYL ETHER	OS	210	UJ	N	C	UG/KG	416	UX	416	1	21.7
11SS320002	20110426	SO	4-CHLOROPHENYL PHENYL ETHER	OS	204	UJ	N	C	UG/KG	404	UX	404	1	20.4
11SB010002	20110426	SO	4-METHYL-2-PENTANONE	OV	2.51	UJ	N	C	UG/KG	5.03	YU	5.03	1	21.1
11SB010002-D	20110426	SO	4-METHYL-2-PENTANONE	OV	2.45	UJ	N	C	UG/KG	4.9	YU	4.9	1	21
11SB010406	20110426	SO	4-METHYL-2-PENTANONE	OV	2.38	UJ	N	C	UG/KG	4.75	YU	4.75	1	17.7
11SB010406-D	20110426	SO	4-METHYL-2-PENTANONE	OV	2.4	UJ	N	C	UG/KG	4.79	YU	4.79	1	19.4
11SB020406	20110426	SO	4-METHYL-2-PENTANONE	OV	2.55	UJ	N	C	UG/KG	5.1	YU	5.1	1	24.3
11SB040002	20110426	SO	4-METHYL-2-PENTANONE	OV	2.98	UJ	N	C	UG/KG	5.97	YU	5.97	1	20.9
11SB040406	20110426	SO	4-METHYL-2-PENTANONE	OV	2.51	UJ	N	C	UG/KG	5.03	YU	5.03	1	12.8
11SB250507	20110426	SO	4-METHYL-2-PENTANONE	OV	2.9	UJ	N	C	UG/KG	5.79	YU	5.79	1	18.9
11SB270507	20110426	SO	4-METHYL-2-PENTANONE	OV	2.24	UJ	N	C	UG/KG	4.48	YU	4.48	1	14.1
11SB280507	20110426	SO	4-METHYL-2-PENTANONE	OV	3.31	UJ	N	C	UG/KG	6.62	YU	6.62	1	28.9
11SB350305	20111116	SO	4-METHYL-2-PENTANONE	OV	2.88	UJ	N	C	UG/KG	5.750000	UX	5.75	1	17.6
11SB350506	20111116	SO	4-METHYL-2-PENTANONE	OV	2.72	UJ	N	C	UG/KG	5.440000	UX	5.44	1	17.6
11SB51-0204	20121030	SO	4-METHYL-2-PENTANONE	OV	2.59	U	N		UG/KG	5.19	U	5.19	1	15.3
11SB51-0204-D	20121030	SO	4-METHYL-2-PENTANONE	OV	2.39	U	N		UG/KG	4.77	U	4.77	1	12.3
11SB51-0506	20121030	SO	4-METHYL-2-PENTANONE	OV	2.39	U	N		UG/KG	4.79	U	4.79	1	13
11SB52-0204	20121030	SO	4-METHYL-2-PENTANONE	OV	2.48	U	N		UG/KG	4.95	U	4.95	1	15.3
11SB52-0506	20121030	SO	4-METHYL-2-PENTANONE	OV	2.4	U	N		UG/KG	4.81	U	4.81	1	14.9
11SB53-0204	20121030	SO	4-METHYL-2-PENTANONE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	17.6
11SB53-0506	20121030	SO	4-METHYL-2-PENTANONE	OV	2.59	U	N		UG/KG	5.18	U	5.18	1	14.3
11SB54-0204	20121030	SO	4-METHYL-2-PENTANONE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	15.2
11SB54-0405	20121030	SO	4-METHYL-2-PENTANONE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	16.3
11SB55-0406	20121030	SO	4-METHYL-2-PENTANONE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	15.8
11SB55-0607	20121030	SO	4-METHYL-2-PENTANONE	OV	2.44	U	N		UG/KG	4.89	U	4.89	1	14.9
11SB56-0406	20121030	SO	4-METHYL-2-PENTANONE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	11.4
11SB56-0708	20121030	SO	4-METHYL-2-PENTANONE	OV	2.7	U	N		UG/KG	5.39	U	5.39	1	19.1
11SB57-0406	20121030	SO	4-METHYL-2-PENTANONE	OV	3.08	U	N		UG/KG	6.17	U	6.17	1	19.8
11SB57-0607	20121030	SO	4-METHYL-2-PENTANONE	OV	2.65	U	N		UG/KG	5.3	U	5.3	1	17
11SB58-0305	20121030	SO	4-METHYL-2-PENTANONE	OV	2.49	UJ	N	C	UG/KG	4.98	UX	4.98	1	16.3
11SB58-0506	20121030	SO	4-METHYL-2-PENTANONE	OV	2.41	UJ	N	C	UG/KG	4.82	UX	4.82	1	15.7
11SB59-0204	20121030	SO	4-METHYL-2-PENTANONE	OV	3.02	UJ	N	C	UG/KG	6.03	UX	6.03	1	19.4
11SB60-0204	20121129	SO	4-METHYL-2-PENTANONE	OV	4.73	UJ	N	C	UG/KG	9.45	UX	9.45	1	15.38
11SB60-0204-D	20121129	SO	4-METHYL-2-PENTANONE	OV	4.93	UJ	N	C	UG/KG	9.87	UX	9.87	1	13.53
11SB60-0405	20121129	SO	4-METHYL-2-PENTANONE	OV	4.46	UJ	N	C	UG/KG	8.92	UX	8.92	1	13.12
11SB61-0810	20121129	SO	4-METHYL-2-PENTANONE	OV	4.79	UJ	N	C	UG/KG	9.59	UX	9.59	1	17.22
11SB61-1011	20121129	SO	4-METHYL-2-PENTANONE	OV	5.09	UJ	N	C	UG/KG	10.2	UX	10.2	1	20.37
11SB62-0911	20121129	SO	4-METHYL-2-PENTANONE	OV	4.74	UJ	N	C	UG/KG	9.48	UX	9.48	1	14.28
11SB62-1112	20121129	SO	4-METHYL-2-PENTANONE	OV	5.06	UJ	N	C	UG/KG	10.1	UX	10.1	1	19.21
11SB63-0911	20121129	SO	4-METHYL-2-PENTANONE	OV	260	UJ	N	C	UG/KG	521	UX	521	50	18.5
11SB63-1112	20121129	SO	4-METHYL-2-PENTANONE	OV	322	UJ	N	C	UG/KG	643	UX	643	50	23.2
11SB64-0911	20121129	SO	4-METHYL-2-PENTANONE	OV	4.86	UJ	N	C	UG/KG	9.73	UX	9.73	1	16.4
11SB64-1112	20121129	SO	4-METHYL-2-PENTANONE	OV	2.47	UJ	N	C	UG/KG	4.94	UX	4.94	1	14.2
11SB65-0911	20121129	SO	4-METHYL-2-PENTANONE	OV	4.8	UJ	N	C	UG/KG	9.6	UX	9.6	1	13.22
11SB65-1112	20121129	SO	4-METHYL-2-PENTANONE	OV	4.87	UJ	N	C	UG/KG	9.74	UNX	9.74	1	14.32
11SB66-1315	20130123	SO	4-METHYL-2-PENTANONE	OV	4.93	U	N		UG/KG	9.85	U	9.85	1	14.43
11SB66-1516	20130123	SO	4-METHYL-2-PENTANONE	OV	5.84	U	N		UG/KG	11.7	U	11.7	1	16.87
11SB66-1516-D	20130123	SO	4-METHYL-2-PENTANONE	OV	5.67	U	N		UG/KG	11.3	U	11.3	1	18.5
11SB67-1416	20130123	SO	4-METHYL-2-PENTANONE	OV	260	U	N		UG/KG	520	U	520	50	14.63
11SB67-1617	20130123	SO	4-METHYL-2-PENTANONE	OV	242	U	N		UG/KG	483	U	483	50	15.86
11SB68-1315	20130123	SO	4-METHYL-2-PENTANONE	OV	206	U	N		UG/KG	412	U	412	50	14.52
11SB68-1516	20130123	SO	4-METHYL-2-PENTANONE	OV	223	U	N		UG/KG	447	U	447	50	14.97
11SB69-1416	20130123	SO	4-METHYL-2-PENTANONE	OV	4.38	U	N		UG/KG	8.76	U	8.76	1	16.29
11SB69-1617	20130123	SO	4-METHYL-2-PENTANONE	OV	4.37	U	N		UG/KG	8.73	U	8.73	1	18.65
11SB70-1315	20130123	SO	4-METHYL-2-PENTANONE	OV	3.96	U	N		UG/KG	7.92	U	7.92	1	16.04

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB70-1516	20130123	SO	4-METHYL-2-PENTANONE	OV	5.26	U	N		UG/KG	10.5	U	10.5	1	18.12
11SB260507	20110427	SO	4-NITROANILINE	OS	744	UJ	N	C	UG/KG	1450	UX	1450	1	14.9
11SS110002-D	20110426	SO	4-NITROANILINE	OS	816	UJ	N	C	UG/KG	1590	UX	1590	1	18.8
11SS120002	20110426	SO	4-NITROANILINE	OS	783	UJ	N	C	UG/KG	1530	UX	1530	1	17
11SS130002	20110426	SO	4-NITROANILINE	OS	769	UJ	N	C	UG/KG	1500	UX	1500	1	18.2
11SS140002	20110426	SO	4-NITROANILINE	OS	810	UJ	N	C	UG/KG	1580	UX	1580	1	18.8
11SS150002	20110426	SO	4-NITROANILINE	OS	827	UJ	N	C	UG/KG	1610	UX	1610	1	19.4
11SS160002	20110426	SO	4-NITROANILINE	OS	857	UJ	N	C	UG/KG	1670	UX	1670	1	22.6
11SS170002	20110426	SO	4-NITROANILINE	OS	797	UJ	N	C	UG/KG	1550	UX	1550	1	16.3
11SS180002	20110426	SO	4-NITROANILINE	OS	775	UJ	N	C	UG/KG	1510	UX	1510	1	17.8
11SS290002	20110427	SO	4-NITROANILINE	OS	851	UJ	N	C	UG/KG	1660	UX	1660	1	22.6
11SS300002	20110427	SO	4-NITROANILINE	OS	754	UJ	N	C	UG/KG	1470	UX	1470	1	15
11SS310002	20110426	SO	4-NITROANILINE	OS	812	UJ	N	C	UG/KG	1580	UX	1580	1	19.5
11SS310002-D	20110427	SO	4-NITROANILINE	OS	840	UJ	N	C	UG/KG	1640	UX	1640	1	21.7
11SS320002	20110426	SO	4-NITROANILINE	OS	816	UJ	N	C	UG/KG	1590	UX	1590	1	20.4
11SB280507	20110426	SO	4-NITROPHENOL	OS	902	UJ	N	C	UG/KG	1760	YU	1760	1	28.9
11SS090002	20110426	SO	4-NITROPHENOL	OS	869	UJ	N	C	UG/KG	1690	YU	1690	1	23.2
11SS110002	20110426	SO	4-NITROPHENOL	OS	770	UJ	N	C	UG/KG	1500	YU	1500	1	17.8
11SS110002	20110426	SO	ACENAPHTHENE	PAH	17.2	J	Y	G	UG/KG	17.2		7.7	1	17.8
11SS110002-D	20110426	SO	ACENAPHTHENE	PAH	4.08	UJ	N	G	UG/KG	8.16	QU	8.16	1	18.8
11SS320002	20110426	SO	ACENAPHTHENE	PAH	2.57	J	Y	EP	UG/KG	2.57	QJ	8.16	1	20.4
11SS110002	20110426	SO	ACENAPHTHYLENE	PAH	3.57	J	Y	P	UG/KG	3.57	J	7.7	1	17.8
11SS110002-D	20110426	SO	ACENAPHTHYLENE	PAH	5.84	J	Y	P	UG/KG	5.84	J	8.16	1	18.8
11SS290002	20110427	SO	ACENAPHTHYLENE	PAH	5.09	J	Y	P	UG/KG	5.09	J	8.51	1	22.6
11SB020002	20110426	SO	ACETONE	OV	14.6	J	Y	CP	UG/KG	14.6	JY	21.9	1	20.6
11SB030002	20110426	SO	ACETONE	OV	11.2	UR	R	C	UG/KG	22.5	UY	22.5	1	18.7
11SB030406	20110426	SO	ACETONE	OV	9.53	UR	R	C	UG/KG	19.1	UY	19.1	1	13.7
11SB260507	20110427	SO	ACETONE	OV	11.1	UJ	N	C	UG/KG	22.3	UY	22.3	1	14.9
11SB340406	20111116	SO	ACETONE	OV	270	J	Y	CP	UG/KG	270.000000	JDX	974	50	17.6
11SB340708	20111116	SO	ACETONE	OV	14.6	J	Y	CP	UG/KG	14.600000	JX	19.1	1	17.6
11SB350305	20111116	SO	ACETONE	OV	11.5	UJ	N	C	UG/KG	23.000000	UX	23	1	17.6
11SB350506	20111116	SO	ACETONE	OV	6.24	J	Y	CP	UG/KG	6.240000	JX	21.7	1	17.6
11SB360204	20111117	SO	ACETONE	OV	466	UJ	N	C	UG/KG	933.000000	UX	933	50	15.5
11SB360405	20111117	SO	ACETONE	OV	453	UJ	N	C	UG/KG	906.000000	UX	906	50	15.5
11SB360405-D	20111117	SO	ACETONE	OV	437	UJ	N	C	UG/KG	875.000000	UX	875	50	13.3
11SB370103	20111116	SO	ACETONE	OV	10.5	UJ	N	C	UG/KG	20.900000	UX	20.9	1	15.5
11SB370304	20111116	SO	ACETONE	OV	9.26	UJ	N	C	UG/KG	18.500000	UX	18.5	1	13.4
11SB380607	20111115	SO	ACETONE	OV	13.7	UJ	N	C	UG/KG	27.400000	UX	27.4	1	38.4
11SB390406	20111115	SO	ACETONE	OV	18.5	U	N	B	UG/KG	18.500000	J	22.4	1	51.6
11SB390708	20111115	SO	ACETONE	OV	14.5	UJ	N	C	UG/KG	29.100000	UX	29.1	1	39.4
11SB400305	20111115	SO	ACETONE	OV	628	UJ	N	C	UG/KG	1260.00000	UX	1260	50	33.3
11SB400506	20111115	SO	ACETONE	OV	1860	UJ	N	C	UG/KG	3720.00000	UX	3720	100	51.6
11SB410204	20111117	SO	ACETONE	OV	456	UJ	N	C	UG/KG	911.000000	UX	911	50	15.5
11SB410405	20111117	SO	ACETONE	OV	532	UJ	N	C	UG/KG	1060.00000	UX	1060	50	15.5
11SB420102	20111116	SO	ACETONE	OV	9.16	UJ	N	C	UG/KG	18.300000	UX	18.3	1	17.6
11SB420203	20111116	SO	ACETONE	OV	9.3	UJ	N	C	UG/KG	18.600000	UX	18.6	1	14.4
11SB430406	20111116	SO	ACETONE	OV	11.1	J	Y	P	UG/KG	11.100000	J	21.5	1	22.3
11SB430809	20111116	SO	ACETONE	OV	6.89	J	Y	P	UG/KG	6.890000	J	22.1	1	15.7
11SB440406	20111116	SO	ACETONE	OV	9.28	UJ	N	C	UG/KG	18.600000	UX	18.6	1	15.7
11SB460305	20111117	SO	ACETONE	OV	9.1	UJ	N	C	UG/KG	18.200000	UX	18.2	1	15.5
11SB460506	20111117	SO	ACETONE	OV	430	UJ	N	C	UG/KG	860.000000	UX	860	50	8.5
11SB470304	20111116	SO	ACETONE	OV	9.81	UJ	N	C	UG/KG	19.600000	UX	19.6	1	17.8
11SB480305	20111116	SO	ACETONE	OV	20.5	J	Y	P	UG/KG	20.500000	J	22.7	1	20.4
11SB500305	20111116	SO	ACETONE	OV	6.25	J	Y	CP	UG/KG	6.250000	JX	20	1	12.7
11SB51-0204	20121030	SO	ACETONE	OV	14	J	Y	CP	UG/KG	14	JY	20.7	1	15.3
11SB51-0204-D	20121030	SO	ACETONE	OV	11.9	J	Y	CP	UG/KG	11.9	JY	19.1	1	12.3
11SB51-0506	20121030	SO	ACETONE	OV	9.58	UJ	N	C	UG/KG	19.2	UY	19.2	1	13
11SB52-0204	20121030	SO	ACETONE	OV	49.2	J	Y	CD	UG/KG	49.2	YN	19.8	1	15.3
11SB52-0506	20121030	SO	ACETONE	OV	9.62	UJ	N	C	UG/KG	19.2	UY	19.2	1	14.9
11SB53-0204	20121030	SO	ACETONE	OV	49.1	J	Y	C	UG/KG	49.1	Y	20.4	1	17.6
11SB53-0506	20121030	SO	ACETONE	OV	5.34	J	Y	CP	UG/KG	5.34	JY	20.7	1	14.3
11SB54-0204	20121030	SO	ACETONE	OV	5.96	J	Y	CP	UG/KG	5.96	JY	17.9	1	15.2
11SB54-0405	20121030	SO	ACETONE	OV	7.22	J	Y	CP	UG/KG	7.22	JY	18.4	1	16.3
11SB55-0406	20121030	SO	ACETONE	OV	9.21	UJ	N	C	UG/KG	18.4	UY	18.4	1	15.8
11SB55-0607	20121030	SO	ACETONE	OV	9.77	UJ	N	C	UG/KG	19.5	UY	19.5	1	14.9
11SB56-0406	20121030	SO	ACETONE	OV	4.87	J	Y	CP	UG/KG	4.87	JY	19	1	11.4
11SB56-0708	20121030	SO	ACETONE	OV	26.3	J	Y	C	UG/KG	26.3	Y	21.6	1	19.1
11SB57-0406	20121030	SO	ACETONE	OV	36.7	J	Y	C	UG/KG	36.7	Y	24.7	1	19.8
11SB57-0607	20121030	SO	ACETONE	OV	15.2	J	Y	CP	UG/KG	15.2	JY	21.2	1	17
11SB58-0305	20121030	SO	ACETONE	OV	9.96	UJ	N	C	UG/KG	19.9	UY	19.9	1	16.3
11SB58-0506	20121030	SO	ACETONE	OV	9.65	UJ	N	C	UG/KG	19.3	UY	19.3	1	15.7
11SB59-0204	20121030	SO	ACETONE	OV	12.1	UJ	N	C	UG/KG	24.1	UY	24.1	1	19.4
11SB60-0204	20121129	SO	ACETONE	OV	9.45	U	N		UG/KG	18.9	U	18.9	1	15.38
11SB60-0204-D	20121129	SO	ACETONE	OV	9.87	U	N		UG/KG	19.7	U	19.7	1	13.53
11SB60-0405	20121129	SO	ACETONE	OV	8.92	U	N		UG/KG	17.8	U	17.8	1	13.12
11SB61-1011	20121129	SO	ACETONE	OV	10.2	U	N		UG/KG	20.4	U	20.4	1	20.37
11SB62-1112	20121129	SO	ACETONE	OV	10.1	U	N		UG/KG	20.3	U	20.3	1	19.21
11SB63-0911	20121129	SO	ACETONE	OV	521	UJ	N	C	UG/KG	1040	UY	1040	50	18.5
11SB63-1112	20121129	SO	ACETONE	OV	643	UJ	N	C	UG/KG	1290	UY	1290	50	23.2
11SB64-1112	20121129	SO	ACETONE	OV	8.99	J	Y	CP	UG/KG	8.99	JY	19.8	1	14.2
11SB65-1112	20121129	SO	ACETONE	OV	9.74	UJ	N	C	UG/KG	19.5	UNY	19.5	1	14.32

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB66-1315	20130123	SO	ACETONE	OV	16.2	J	Y	CP	UG/KG	16.2	JY	19.7	1	14.43
11SB66-1516	20130123	SO	ACETONE	OV	11.7	UJ	N	C	UG/KG	23.4	UY	23.4	1	16.87
11SB66-1516-D	20130123	SO	ACETONE	OV	11.3	UJ	N	C	UG/KG	22.7	UY	22.7	1	18.5
11SB67-1416	20130123	SO	ACETONE	OV	520	UJ	N	C	UG/KG	1040	UY	1040	50	14.63
11SB67-1617	20130123	SO	ACETONE	OV	483	UJ	N	C	UG/KG	966	UY	966	50	15.86
11SB68-1315	20130123	SO	ACETONE	OV	412	UJ	N	C	UG/KG	825	UY	825	50	14.52
11SB68-1516	20130123	SO	ACETONE	OV	447	UJ	N	C	UG/KG	894	UY	894	50	14.97
11SB69-1416	20130123	SO	ACETONE	OV	17.7	J	Y	C	UG/KG	17.7	Y	17.5	1	16.29
11SB69-1617	20130123	SO	ACETONE	OV	8.73	UJ	N	C	UG/KG	17.5	UY	17.5	1	18.65
11SB70-1315	20130123	SO	ACETONE	OV	13.2	J	Y	CP	UG/KG	13.2	JY	15.8	1	16.04
11SB70-1516	20130123	SO	ACETONE	OV	10.5	UJ	N	C	UG/KG	21	UY	21	1	18.12
11SB260507	20110427	SO	ACETOPHENONE	OS	186	UJ	N	C	UG/KG	368	UY	368	1	14.9
11SS100002	20110426	SO	ALPHA-BHC	PEST	0.226	J	Y	CPU	UG/KG	0.226	PJMX	0.909	1	27.3
11SS110002	20110426	SO	ANTHRACENE	PAH	28.6	J	Y	G	UG/KG	28.6		7.7	1	17.8
11SS110002-D	20110426	SO	ANTHRACENE	PAH	5.14	J	Y	GP	UG/KG	5.14	J	8.16	1	18.8
11SS140002	20110426	SO	ANTHRACENE	PAH	3.9	J	Y	P	UG/KG	3.9	J	8.1	1	18.8
11SS070002	20110426	SO	ANTIMONY	M	0.995	UJ	N	D	MG/KG	1.24	U	1.24	2	21.9
11SS080002	20110426	SO	ANTIMONY	M	0.958	UJ	N	D	MG/KG	1.2	U	1.2	2	16.9
11SS090002	20110426	SO	ANTIMONY	M	0.997	UJ	N	D	MG/KG	1.25	UN	1.25	2	23.2
11SS100002	20110426	SO	ANTIMONY	M	1.04	UJ	N	D	MG/KG	1.3	U	1.3	2	27.3
11SS110002	20110426	SO	ANTIMONY	M	0.968	UJ	N	D	MG/KG	1.21	UN	1.21	2	17.8
11SS110002-D	20110426	SO	ANTIMONY	M	0.991	UJ	N	D	MG/KG	1.24	UN	1.24	2	18.8
11SS120002	20110426	SO	ANTIMONY	M	0.96	UJ	N	D	MG/KG	1.2	UN	1.2	2	17
11SS130002	20110426	SO	ANTIMONY	M	0.973	UJ	N	D	MG/KG	1.22	UN	1.22	2	18.2
11SS140002	20110426	SO	ANTIMONY	M	0.985	UJ	N	D	MG/KG	1.23	UN	1.23	2	18.8
11SS150002	20110426	SO	ANTIMONY	M	0.982	UJ	N	D	MG/KG	1.23	UN	1.23	2	19.4
11SS160002	20110426	SO	ANTIMONY	M	1.04	UJ	N	D	MG/KG	1.31	UN	1.31	2	22.6
11SS170002	20110426	SO	ANTIMONY	M	0.928	UJ	N	D	MG/KG	1.16	UN	1.16	2	16.3
11SS180002	20110426	SO	ANTIMONY	M	0.959	UJ	N	D	MG/KG	1.2	UN	1.2	2	17.8
11SS290002	20110427	SO	ANTIMONY	M	1.02	UJ	N	D	MG/KG	1.28	UN	1.28	2	22.6
11SS300002	20110427	SO	ANTIMONY	M	0.923	UJ	N	D	MG/KG	1.15	UN	1.15	2	15
11SS310002	20110426	SO	ANTIMONY	M	0.96	UJ	N	D	MG/KG	1.2	UN	1.2	2	19.5
11SS310002-D	20110427	SO	ANTIMONY	M	1.04	UJ	N	D	MG/KG	1.3	UN	1.3	2	21.7
11SS320002	20110426	SO	ANTIMONY	M	0.953	UJ	N	D	MG/KG	1.19	UN	1.19	2	20.4
11SB010002	20110426	SO	AROCLOR-1016	PCB	10.2	UJ	N	C	UG/KG	20.9	UX	20.9	1	21.1
11SB010002-D	20110426	SO	AROCLOR-1016	PCB	10.5	UJ	N	C	UG/KG	21.4	UX	21.4	1	21
11SB010406	20110426	SO	AROCLOR-1016	PCB	9.85	UJ	N	C	UG/KG	20.1	UX	20.1	1	17.7
11SB020002	20110426	SO	AROCLOR-1016	PCB	10.3	UJ	N	C	UG/KG	21	UX	21	1	20.6
11SB020406	20110426	SO	AROCLOR-1016	PCB	10.7	UJ	N	C	UG/KG	21.9	UX	21.9	1	24.3
11SB030002	20110426	SO	AROCLOR-1016	PCB	10.2	UJ	N	C	UG/KG	20.8	UX	20.8	1	18.7
11SB030406	20110426	SO	AROCLOR-1016	PCB	9.65	UJ	N	C	UG/KG	19.7	UX	19.7	1	13.7
11SB040002	20110426	SO	AROCLOR-1016	PCB	10.3	UJ	N	C	UG/KG	20.9	UX	20.9	1	20.9
11SB040406	20110426	SO	AROCLOR-1016	PCB	9.24	UJ	N	C	UG/KG	18.9	UX	18.9	1	12.8
11SB010406	20110426	SO	BARIUM	M	53	J	Y	G	MG/KG	53	D	4.72	2	17.7
11SB010406-D	20110426	SO	BARIUM	M	124	J	Y	G	MG/KG	124	D	4.99	2	19.4
11SB010002	20110426	SO	BENZALDEHYDE	OS	212	UJ	N	C	UG/KG	418	YU	418	1	21.1
11SB020406	20110426	SO	BENZALDEHYDE	OS	211	UJ	N	C	UG/KG	416	YU	416	1	24.3
11SB030002	20110426	SO	BENZALDEHYDE	OS	200	UJ	N	C	UG/KG	396	YU	396	1	18.7
11SB280507	20110426	SO	BENZALDEHYDE	OS	226	UJ	N	C	UG/KG	446	YU	446	1	28.9
11SS050002	20110426	SO	BENZALDEHYDE	OS	198	UJ	N	C	UG/KG	391	YU	391	1	16.6
11SS060002	20110426	SO	BENZALDEHYDE	OS	196	UJ	N	C	UG/KG	388	YU	388	1	19.2
11SS070002	20110426	SO	BENZALDEHYDE	OS	207	UJ	N	C	UG/KG	409	YU	409	1	21.9
11SS080002	20110426	SO	BENZALDEHYDE	OS	193	UJ	N	C	UG/KG	382	YU	382	1	16.9
11SS090002	20110426	SO	BENZALDEHYDE	OS	218	UJ	N	C	UG/KG	430	YU	430	1	23.2
11SS100002	20110426	SO	BENZALDEHYDE	OS	222	UJ	N	C	UG/KG	439	YU	439	1	27.3
11SS110002	20110426	SO	BENZALDEHYDE	OS	193	UJ	N	C	UG/KG	381	YU	381	1	17.8
11SS110002-D	20110426	SO	BENZALDEHYDE	OS	204	UJ	N	C	UG/KG	404	YU	404	1	18.8
11SS120002	20110426	SO	BENZALDEHYDE	OS	196	UJ	N	C	UG/KG	387	YU	387	1	17
11SS130002	20110426	SO	BENZALDEHYDE	OS	193	UJ	N	C	UG/KG	380	YU	380	1	18.2
11SS140002	20110426	SO	BENZALDEHYDE	OS	203	UJ	N	C	UG/KG	401	YU	401	1	18.8
11SS150002	20110426	SO	BENZALDEHYDE	OS	207	UJ	N	C	UG/KG	409	YU	409	1	19.4
11SS160002	20110426	SO	BENZALDEHYDE	OS	214	UJ	N	C	UG/KG	424	YU	424	1	22.6
11SS170002	20110426	SO	BENZALDEHYDE	OS	200	UJ	N	C	UG/KG	394	YU	394	1	16.3
11SS180002	20110426	SO	BENZALDEHYDE	OS	194	UJ	N	C	UG/KG	383	YU	383	1	17.8
11SS290002	20110427	SO	BENZALDEHYDE	OS	213	UJ	N	C	UG/KG	421	YU	421	1	22.6
11SS300002	20110427	SO	BENZALDEHYDE	OS	189	UJ	N	C	UG/KG	373	YU	373	1	15
11SS310002	20110426	SO	BENZALDEHYDE	OS	203	UJ	N	C	UG/KG	402	YU	402	1	19.5
11SS310002-D	20110427	SO	BENZALDEHYDE	OS	210	UJ	N	C	UG/KG	416	YU	416	1	21.7
11SS320002	20110426	SO	BENZALDEHYDE	OS	204	UJ	N	C	UG/KG	404	YU	404	1	20.4
11SB360405	20111117	SO	BENZENE	OV	146	J	Y	P	UG/KG	146.000000	JD	226	50	15.5
11SB51-0204	20121030	SO	BENZENE	OV	2.59	U	N		UG/KG	5.19	U	5.19	1	15.3
11SB51-0204-D	20121030	SO	BENZENE	OV	2.39	U	N		UG/KG	4.77	U	4.77	1	12.3
11SB51-0506	20121030	SO	BENZENE	OV	2.39	U	N		UG/KG	4.79	U	4.79	1	13
11SB52-0204	20121030	SO	BENZENE	OV	2.48	U	N		UG/KG	4.95	U	4.95	1	15.3
11SB52-0506	20121030	SO	BENZENE	OV	2.4	U	N		UG/KG	4.81	U	4.81	1	14.9
11SB53-0204	20121030	SO	BENZENE	OV	2.15	J	Y	P	UG/KG	2.15	J	5.1	1	17.6
11SB53-0506	20121030	SO	BENZENE	OV	2.59	U	N		UG/KG	5.18	U	5.18	1	14.3
11SB54-0204	20121030	SO	BENZENE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	15.2
11SB54-0405	20121030	SO	BENZENE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	16.3
11SB55-0406	20121030	SO	BENZENE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	15.8
11SB55-0607	20121030	SO	BENZENE	OV	2.44	U	N		UG/KG	4.89	U	4.89	1	14.9

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB56-0406	20121030	SO	BENZENE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	11.4
11SB56-0708	20121030	SO	BENZENE	OV	2.7	U	N		UG/KG	5.39	U	5.39	1	19.1
11SB57-0406	20121030	SO	BENZENE	OV	3.08	U	N		UG/KG	6.17	U	6.17	1	19.8
11SB57-0607	20121030	SO	BENZENE	OV	2.65	U	N		UG/KG	5.3	U	5.3	1	17
11SB58-0305	20121030	SO	BENZENE	OV	2.49	U	N		UG/KG	4.98	U	4.98	1	16.3
11SB58-0506	20121030	SO	BENZENE	OV	2.41	U	N		UG/KG	4.82	U	4.82	1	15.7
11SB59-0204	20121030	SO	BENZENE	OV	3.02	U	N		UG/KG	6.03	U	6.03	1	19.4
11SB60-0204	20121129	SO	BENZENE	OV	2.36	U	N		UG/KG	4.73	U	4.73	1	15.38
11SB60-0204-D	20121129	SO	BENZENE	OV	2.47	U	N		UG/KG	4.93	U	4.93	1	13.53
11SB60-0405	20121129	SO	BENZENE	OV	2.23	U	N		UG/KG	4.46	U	4.46	1	13.12
11SB61-0810	20121129	SO	BENZENE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	17.22
11SB61-1011	20121129	SO	BENZENE	OV	2.54	U	N		UG/KG	5.09	U	5.09	1	20.37
11SB62-0911	20121129	SO	BENZENE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	14.28
11SB62-1112	20121129	SO	BENZENE	OV	2.53	U	N		UG/KG	5.06	U	5.06	1	19.21
11SB63-0911	20121129	SO	BENZENE	OV	130	U	N		UG/KG	260	U	260	50	18.5
11SB63-1112	20121129	SO	BENZENE	OV	161	U	N		UG/KG	322	U	322	50	23.2
11SB64-0911	20121129	SO	BENZENE	OV	1.61	J	Y	P	UG/KG	1.61	J	4.86	1	16.4
11SB64-1112	20121129	SO	BENZENE	OV	1.3	J	Y	P	UG/KG	1.3	J	4.94	1	14.2
11SB65-0911	20121129	SO	BENZENE	OV	2.4	U	N		UG/KG	4.8	U	4.8	1	13.22
11SB65-1112	20121129	SO	BENZENE	OV	2.44	UJ	N	D	UG/KG	4.87	UN	4.87	1	14.32
11SB66-1315	20130123	SO	BENZENE	OV	2.46	U	N		UG/KG	4.93	U	4.93	1	14.43
11SB66-1516	20130123	SO	BENZENE	OV	2.92	U	N		UG/KG	5.84	U	5.84	1	16.87
11SB66-1516-D	20130123	SO	BENZENE	OV	2.83	U	N		UG/KG	5.67	U	5.67	1	18.5
11SB67-1416	20130123	SO	BENZENE	OV	130	U	N		UG/KG	260	U	260	50	14.63
11SB67-1617	20130123	SO	BENZENE	OV	121	U	N		UG/KG	242	U	242	50	15.86
11SB68-1315	20130123	SO	BENZENE	OV	103	U	N		UG/KG	206	U	206	50	14.52
11SB68-1516	20130123	SO	BENZENE	OV	112	U	N		UG/KG	223	U	223	50	14.97
11SB69-1416	20130123	SO	BENZENE	OV	2.19	U	N		UG/KG	4.38	U	4.38	1	16.29
11SB69-1617	20130123	SO	BENZENE	OV	2.18	U	N		UG/KG	4.37	U	4.37	1	18.65
11SB70-1315	20130123	SO	BENZENE	OV	1.98	U	N		UG/KG	3.96	U	3.96	1	16.04
11SB70-1516	20130123	SO	BENZENE	OV	2.63	U	N		UG/KG	5.26	U	5.26	1	18.12
11SS070002	20110426	SO	BENZO(A)ANTHRACENE	PAH	5.49	J	Y	P	UG/KG	5.49	J	8.27	1	21.9
11SS110002	20110426	SO	BENZO(A)ANTHRACENE	PAH	130	J	Y	G	UG/KG	130		7.7	1	17.8
11SS110002-D	20110426	SO	BENZO(A)ANTHRACENE	PAH	20.8	J	Y	G	UG/KG	20.8		8.16	1	18.8
11SS070002	20110426	SO	BENZO(A)PYRENE	PAH	3.9	J	Y	P	UG/KG	3.9	J	8.27	1	21.9
11SS110002	20110426	SO	BENZO(A)PYRENE	PAH	136	J	Y	G	UG/KG	136		7.7	1	17.8
11SS110002-D	20110426	SO	BENZO(A)PYRENE	PAH	27.8	J	Y	G	UG/KG	27.8		8.16	1	18.8
11SS050002	20110426	SO	BENZO(B)FLUORANTHENE	PAH	4.63	J	Y	P	UG/KG	4.63	J	7.9	1	16.6
11SS110002	20110426	SO	BENZO(B)FLUORANTHENE	PAH	183	J	Y	G	UG/KG	183		7.7	1	17.8
11SS110002-D	20110426	SO	BENZO(B)FLUORANTHENE	PAH	48.9	J	Y	G	UG/KG	48.9		8.16	1	18.8
11SS170002	20110426	SO	BENZO(B)FLUORANTHENE	PAH	3.63	J	Y	P	UG/KG	3.63	J	7.97	1	16.3
11SS060002	20110426	SO	BENZO(G,H,I)PERYLENE	PAH	2.71	J	Y	P	UG/KG	2.71	J	7.84	1	19.2
11SS070002	20110426	SO	BENZO(G,H,I)PERYLENE	PAH	4.98	J	Y	P	UG/KG	4.98	J	8.27	1	21.9
11SS110002	20110426	SO	BENZO(G,H,I)PERYLENE	PAH	117	J	Y	G	UG/KG	117		7.7	1	17.8
11SS110002-D	20110426	SO	BENZO(G,H,I)PERYLENE	PAH	26.1	J	Y	G	UG/KG	26.1		8.16	1	18.8
11SS050002	20110426	SO	BENZO(K)FLUORANTHENE	PAH	2.93	J	Y	P	UG/KG	2.93	J	7.9	1	16.6
11SS110002	20110426	SO	BENZO(K)FLUORANTHENE	PAH	83.1	J	Y	G	UG/KG	83.1		7.7	1	17.8
11SS110002-D	20110426	SO	BENZO(K)FLUORANTHENE	PAH	17.3	J	Y	G	UG/KG	17.3		8.16	1	18.8
11SS170002	20110426	SO	BENZO(K)FLUORANTHENE	PAH	2.59	J	Y	P	UG/KG	2.59	J	7.97	1	16.3
11SB010406	20110426	SO	BERYLLIUM	M	0.554	J	Y	P	MG/KG	0.554	JD	0.59	2	17.7
11SB010406-D	20110426	SO	BERYLLIUM	M	0.493	J	Y	P	MG/KG	0.493	JD	0.623	2	19.4
11SB020002	20110426	SO	BERYLLIUM	M	0.532	J	Y	P	MG/KG	0.532	JD	0.608	2	20.6
11SB020406	20110426	SO	BERYLLIUM	M	0.827	J	Y	P	MG/KG	0.827	JD	1.63	5	24.3
11SB030002	20110426	SO	BERYLLIUM	M	0.481	J	Y	P	MG/KG	0.481	JD	0.612	2	18.7
11SB030406	20110426	SO	BERYLLIUM	M	0.392	J	Y	P	MG/KG	0.392	JD	0.588	2	13.7
11SB040002	20110426	SO	BERYLLIUM	M	0.545	J	Y	P	MG/KG	0.545	JD	0.597	2	20.9
11SS090002	20110426	SO	BERYLLIUM	M	0.58	J	Y	P	MG/KG	0.58	JD	0.623	2	23.2
11SS100002	20110426	SO	BERYLLIUM	M	0.511	J	Y	P	MG/KG	0.511	JD	0.649	2	27.3
11SS120002	20110426	SO	BERYLLIUM	M	0.373	J	Y	P	MG/KG	0.373	JD	0.6	2	17
11SS140002	20110426	SO	BERYLLIUM	M	0.573	J	Y	P	MG/KG	0.573	JD	0.616	2	18.8
11SS170002	20110426	SO	BERYLLIUM	M	0.438	J	Y	P	MG/KG	0.438	JD	0.58	2	16.3
11SS290002	20110427	SO	BERYLLIUM	M	0.622	J	Y	P	MG/KG	0.622	JD	0.64	2	22.6
11SB020002	20110426	SO	BETA-BHC	PEST	0.265	J	Y	CP	UG/KG	0.265	J	0.827	1	20.6
11SB030002	20110426	SO	BETA-BHC	PEST	0.221	J	Y	CP	UG/KG	0.221	J	0.819	1	18.7
11SB030406	20110426	SO	BETA-BHC	PEST	0.488	J	Y	CPU	UG/KG	0.488	JP	0.777	1	13.7
11SB51-0204	20121030	SO	BROMOCHLOROMETHANE	OV	2.59	U	N		UG/KG	5.19	U	5.19	1	15.3
11SB51-0204-D	20121030	SO	BROMOCHLOROMETHANE	OV	2.39	U	N		UG/KG	4.77	U	4.77	1	12.3
11SB51-0506	20121030	SO	BROMOCHLOROMETHANE	OV	2.39	U	N		UG/KG	4.79	U	4.79	1	13
11SB52-0204	20121030	SO	BROMOCHLOROMETHANE	OV	2.48	U	N		UG/KG	4.95	U	4.95	1	15.3
11SB52-0506	20121030	SO	BROMOCHLOROMETHANE	OV	2.4	U	N		UG/KG	4.81	U	4.81	1	14.9
11SB53-0204	20121030	SO	BROMOCHLOROMETHANE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	17.6
11SB53-0506	20121030	SO	BROMOCHLOROMETHANE	OV	2.59	U	N		UG/KG	5.18	U	5.18	1	14.3
11SB54-0204	20121030	SO	BROMOCHLOROMETHANE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	15.2
11SB54-0405	20121030	SO	BROMOCHLOROMETHANE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	16.3
11SB55-0406	20121030	SO	BROMOCHLOROMETHANE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	15.8
11SB55-0607	20121030	SO	BROMOCHLOROMETHANE	OV	2.44	U	N		UG/KG	4.89	U	4.89	1	14.9
11SB56-0406	20121030	SO	BROMOCHLOROMETHANE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	11.4
11SB56-0708	20121030	SO	BROMOCHLOROMETHANE	OV	2.7	U	N		UG/KG	5.39	U	5.39	1	19.1
11SB57-0406	20121030	SO	BROMOCHLOROMETHANE	OV	3.08	U	N		UG/KG	6.17	U	6.17	1	19.8
11SB57-0607	20121030	SO	BROMOCHLOROMETHANE	OV	2.65	U	N		UG/KG	5.3	U	5.3	1	17
11SB58-0305	20121030	SO	BROMOCHLOROMETHANE	OV	2.49	U	N		UG/KG	4.98	U	4.98	1	16.3

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB58-0506	20121030	SO	BROMOCHLOROMETHANE	OV	2.41	U	N		UG/KG	4.82	U	4.82	1	15.7
11SB59-0204	20121030	SO	BROMOCHLOROMETHANE	OV	3.02	U	N		UG/KG	6.03	U	6.03	1	19.4
11SB60-0204	20121129	SO	BROMOCHLOROMETHANE	OV	2.36	U	N		UG/KG	4.73	U	4.73	1	15.38
11SB60-0204-D	20121129	SO	BROMOCHLOROMETHANE	OV	2.47	U	N		UG/KG	4.93	U	4.93	1	13.53
11SB60-0405	20121129	SO	BROMOCHLOROMETHANE	OV	2.23	U	N		UG/KG	4.46	U	4.46	1	13.12
11SB61-0810	20121129	SO	BROMOCHLOROMETHANE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	17.22
11SB61-1011	20121129	SO	BROMOCHLOROMETHANE	OV	2.54	U	N		UG/KG	5.09	U	5.09	1	20.37
11SB62-0911	20121129	SO	BROMOCHLOROMETHANE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	14.28
11SB62-1112	20121129	SO	BROMOCHLOROMETHANE	OV	2.53	U	N		UG/KG	5.06	U	5.06	1	19.21
11SB63-0911	20121129	SO	BROMOCHLOROMETHANE	OV	130	U	N		UG/KG	260	U	260	50	18.5
11SB63-1112	20121129	SO	BROMOCHLOROMETHANE	OV	161	U	N		UG/KG	322	U	322	50	23.2
11SB64-0911	20121129	SO	BROMOCHLOROMETHANE	OV	2.43	U	N		UG/KG	4.86	U	4.86	1	16.4
11SB64-1112	20121129	SO	BROMOCHLOROMETHANE	OV	2.47	U	N		UG/KG	4.94	U	4.94	1	14.2
11SB65-0911	20121129	SO	BROMOCHLOROMETHANE	OV	2.4	U	N		UG/KG	4.8	U	4.8	1	13.22
11SB65-1112	20121129	SO	BROMOCHLOROMETHANE	OV	2.44	UJ	N	D	UG/KG	4.87	UN	4.87	1	14.32
11SB66-1315	20130123	SO	BROMOCHLOROMETHANE	OV	2.46	U	N		UG/KG	4.93	U	4.93	1	14.43
11SB66-1516	20130123	SO	BROMOCHLOROMETHANE	OV	2.92	U	N		UG/KG	5.84	U	5.84	1	16.87
11SB66-1516-D	20130123	SO	BROMOCHLOROMETHANE	OV	2.83	U	N		UG/KG	5.67	U	5.67	1	18.5
11SB67-1416	20130123	SO	BROMOCHLOROMETHANE	OV	130	U	N		UG/KG	260	U	260	50	14.63
11SB67-1617	20130123	SO	BROMOCHLOROMETHANE	OV	121	U	N		UG/KG	242	U	242	50	15.86
11SB68-1315	20130123	SO	BROMOCHLOROMETHANE	OV	103	U	N		UG/KG	206	U	206	50	14.52
11SB68-1516	20130123	SO	BROMOCHLOROMETHANE	OV	112	U	N		UG/KG	223	U	223	50	14.97
11SB69-1416	20130123	SO	BROMOCHLOROMETHANE	OV	2.19	U	N		UG/KG	4.38	U	4.38	1	16.29
11SB69-1617	20130123	SO	BROMOCHLOROMETHANE	OV	2.18	U	N		UG/KG	4.37	U	4.37	1	18.65
11SB70-1315	20130123	SO	BROMOCHLOROMETHANE	OV	1.98	U	N		UG/KG	3.96	U	3.96	1	16.04
11SB70-1516	20130123	SO	BROMOCHLOROMETHANE	OV	2.63	U	N		UG/KG	5.26	U	5.26	1	18.12
11SB010002	20110426	SO	BROMODICHLOROMETHANE	OV	2.51	UJ	N	C	UG/KG	5.03	U	5.03	1	21.1
11SB010002-D	20110426	SO	BROMODICHLOROMETHANE	OV	2.45	UJ	N	C	UG/KG	4.9	U	4.9	1	21
11SB010406	20110426	SO	BROMODICHLOROMETHANE	OV	2.38	UJ	N	C	UG/KG	4.75	U	4.75	1	17.7
11SB010406-D	20110426	SO	BROMODICHLOROMETHANE	OV	2.4	UJ	N	C	UG/KG	4.79	U	4.79	1	19.4
11SB020406	20110426	SO	BROMODICHLOROMETHANE	OV	2.55	UJ	N	C	UG/KG	5.1	U	5.1	1	24.3
11SB040002	20110426	SO	BROMODICHLOROMETHANE	OV	2.98	UJ	N	C	UG/KG	5.97	U	5.97	1	20.9
11SB040406	20110426	SO	BROMODICHLOROMETHANE	OV	2.51	UJ	N	C	UG/KG	5.03	U	5.03	1	12.8
11SB250507	20110426	SO	BROMODICHLOROMETHANE	OV	2.9	UJ	N	C	UG/KG	5.79	U	5.79	1	18.9
11SB270507	20110426	SO	BROMODICHLOROMETHANE	OV	2.24	UJ	N	C	UG/KG	4.48	U	4.48	1	14.1
11SB280507	20110426	SO	BROMODICHLOROMETHANE	OV	3.31	UJ	N	C	UG/KG	6.62	U	6.62	1	28.9
11SB51-0204	20121030	SO	BROMODICHLOROMETHANE	OV	2.59	U	N		UG/KG	5.19	U	5.19	1	15.3
11SB51-0204-D	20121030	SO	BROMODICHLOROMETHANE	OV	2.39	U	N		UG/KG	4.77	U	4.77	1	12.3
11SB51-0506	20121030	SO	BROMODICHLOROMETHANE	OV	2.39	U	N		UG/KG	4.79	U	4.79	1	13
11SB52-0204	20121030	SO	BROMODICHLOROMETHANE	OV	2.48	U	N		UG/KG	4.95	U	4.95	1	15.3
11SB52-0506	20121030	SO	BROMODICHLOROMETHANE	OV	2.4	U	N		UG/KG	4.81	U	4.81	1	14.9
11SB53-0204	20121030	SO	BROMODICHLOROMETHANE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	17.6
11SB53-0506	20121030	SO	BROMODICHLOROMETHANE	OV	2.59	U	N		UG/KG	5.18	U	5.18	1	14.3
11SB54-0204	20121030	SO	BROMODICHLOROMETHANE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	15.2
11SB54-0405	20121030	SO	BROMODICHLOROMETHANE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	16.3
11SB55-0406	20121030	SO	BROMODICHLOROMETHANE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	15.8
11SB55-0607	20121030	SO	BROMODICHLOROMETHANE	OV	2.44	U	N		UG/KG	4.89	U	4.89	1	14.9
11SB56-0406	20121030	SO	BROMODICHLOROMETHANE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	11.4
11SB56-0708	20121030	SO	BROMODICHLOROMETHANE	OV	2.7	U	N		UG/KG	5.39	U	5.39	1	19.1
11SB57-0406	20121030	SO	BROMODICHLOROMETHANE	OV	3.08	U	N		UG/KG	6.17	U	6.17	1	19.8
11SB57-0607	20121030	SO	BROMODICHLOROMETHANE	OV	2.65	U	N		UG/KG	5.3	U	5.3	1	17
11SB58-0305	20121030	SO	BROMODICHLOROMETHANE	OV	2.49	U	N		UG/KG	4.98	U	4.98	1	16.3
11SB58-0506	20121030	SO	BROMODICHLOROMETHANE	OV	2.41	U	N		UG/KG	4.82	U	4.82	1	15.7
11SB59-0204	20121030	SO	BROMODICHLOROMETHANE	OV	3.02	U	N		UG/KG	6.03	U	6.03	1	19.4
11SB60-0204	20121129	SO	BROMODICHLOROMETHANE	OV	2.36	U	N		UG/KG	4.73	U	4.73	1	15.38
11SB60-0204-D	20121129	SO	BROMODICHLOROMETHANE	OV	2.47	U	N		UG/KG	4.93	U	4.93	1	13.53
11SB60-0405	20121129	SO	BROMODICHLOROMETHANE	OV	2.23	U	N		UG/KG	4.46	U	4.46	1	13.12
11SB61-0810	20121129	SO	BROMODICHLOROMETHANE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	17.22
11SB61-1011	20121129	SO	BROMODICHLOROMETHANE	OV	2.54	U	N		UG/KG	5.09	U	5.09	1	20.37
11SB62-0911	20121129	SO	BROMODICHLOROMETHANE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	14.28
11SB62-1112	20121129	SO	BROMODICHLOROMETHANE	OV	2.53	U	N		UG/KG	5.06	U	5.06	1	19.21
11SB63-0911	20121129	SO	BROMODICHLOROMETHANE	OV	130	U	N		UG/KG	260	U	260	50	18.5
11SB63-1112	20121129	SO	BROMODICHLOROMETHANE	OV	161	U	N		UG/KG	322	U	322	50	23.2
11SB64-0911	20121129	SO	BROMODICHLOROMETHANE	OV	2.43	U	N		UG/KG	4.86	U	4.86	1	16.4
11SB64-1112	20121129	SO	BROMODICHLOROMETHANE	OV	2.47	U	N		UG/KG	4.94	U	4.94	1	14.2
11SB65-0911	20121129	SO	BROMODICHLOROMETHANE	OV	2.4	U	N		UG/KG	4.8	U	4.8	1	13.22
11SB65-1112	20121129	SO	BROMODICHLOROMETHANE	OV	2.44	UJ	N	D	UG/KG	4.87	UN	4.87	1	14.32
11SB66-1315	20130123	SO	BROMODICHLOROMETHANE	OV	2.46	U	N		UG/KG	4.93	U	4.93	1	14.43
11SB66-1516	20130123	SO	BROMODICHLOROMETHANE	OV	2.92	U	N		UG/KG	5.84	U	5.84	1	16.87
11SB66-1516-D	20130123	SO	BROMODICHLOROMETHANE	OV	2.83	U	N		UG/KG	5.67	U	5.67	1	18.5
11SB67-1416	20130123	SO	BROMODICHLOROMETHANE	OV	130	U	N		UG/KG	260	U	260	50	14.63
11SB67-1617	20130123	SO	BROMODICHLOROMETHANE	OV	121	U	N		UG/KG	242	U	242	50	15.86
11SB68-1315	20130123	SO	BROMODICHLOROMETHANE	OV	103	U	N		UG/KG	206	U	206	50	14.52
11SB68-1516	20130123	SO	BROMODICHLOROMETHANE	OV	112	U	N		UG/KG	223	U	223	50	14.97
11SB69-1416	20130123	SO	BROMODICHLOROMETHANE	OV	2.19	U	N		UG/KG	4.38	U	4.38	1	16.29
11SB69-1617	20130123	SO	BROMODICHLOROMETHANE	OV	2.18	U	N		UG/KG	4.37	U	4.37	1	18.65
11SB70-1315	20130123	SO	BROMODICHLOROMETHANE	OV	1.98	U	N		UG/KG	3.96	U	3.96	1	16.04
11SB70-1516	20130123	SO	BROMODICHLOROMETHANE	OV	2.63	U	N		UG/KG	5.26	U	5.26	1	18.12
11SB010002	20110426	SO	BROMOFORM	OV	2.51	UJ	N	C	UG/KG	5.03	UX	5.03	1	21.1
11SB010002-D	20110426	SO	BROMOFORM	OV	2.45	UJ	N	C	UG/KG	4.9	UX	4.9	1	21
11SB010406	20110426	SO	BROMOFORM	OV	2.38	UJ	N	C	UG/KG	4.75	UX	4.75	1	17.7

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB010406-D	20110426	SO	BROMOFORM	OV	2.4	UJ	N	C	UG/KG	4.79	UX	4.79	1	19.4
11SB020406	20110426	SO	BROMOFORM	OV	2.55	UJ	N	C	UG/KG	5.1	UX	5.1	1	24.3
11SB040002	20110426	SO	BROMOFORM	OV	2.98	UJ	N	C	UG/KG	5.97	UX	5.97	1	20.9
11SB040406	20110426	SO	BROMOFORM	OV	2.51	UJ	N	C	UG/KG	5.03	UX	5.03	1	12.8
11SB250507	20110426	SO	BROMOFORM	OV	2.9	UJ	N	C	UG/KG	5.79	UX	5.79	1	18.9
11SB270507	20110426	SO	BROMOFORM	OV	2.24	UJ	N	C	UG/KG	4.48	UX	4.48	1	14.1
11SB280507	20110426	SO	BROMOFORM	OV	3.31	UJ	N	C	UG/KG	6.62	UX	6.62	1	28.9
11SB350305	20111116	SO	BROMOFORM	OV	2.88	UJ	N	C	UG/KG	5.750000	UX	5.75	1	17.6
11SB350506	20111116	SO	BROMOFORM	OV	2.72	UJ	N	C	UG/KG	5.440000	UX	5.44	1	17.6
11SB51-0204	20121030	SO	BROMOFORM	OV	2.59	U	N		UG/KG	5.19	U	5.19	1	15.3
11SB51-0204-D	20121030	SO	BROMOFORM	OV	2.39	U	N		UG/KG	4.77	U	4.77	1	12.3
11SB51-0506	20121030	SO	BROMOFORM	OV	2.39	U	N		UG/KG	4.79	U	4.79	1	13
11SB52-0204	20121030	SO	BROMOFORM	OV	2.48	U	N		UG/KG	4.95	U	4.95	1	15.3
11SB52-0506	20121030	SO	BROMOFORM	OV	2.4	U	N		UG/KG	4.81	U	4.81	1	14.9
11SB53-0204	20121030	SO	BROMOFORM	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	17.6
11SB53-0506	20121030	SO	BROMOFORM	OV	2.59	U	N		UG/KG	5.18	U	5.18	1	14.3
11SB54-0204	20121030	SO	BROMOFORM	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	15.2
11SB54-0405	20121030	SO	BROMOFORM	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	16.3
11SB55-0406	20121030	SO	BROMOFORM	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	15.8
11SB55-0607	20121030	SO	BROMOFORM	OV	2.44	U	N		UG/KG	4.89	U	4.89	1	14.9
11SB56-0406	20121030	SO	BROMOFORM	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	11.4
11SB56-0708	20121030	SO	BROMOFORM	OV	2.7	U	N		UG/KG	5.39	U	5.39	1	19.1
11SB57-0406	20121030	SO	BROMOFORM	OV	3.08	U	N		UG/KG	6.17	U	6.17	1	19.8
11SB57-0607	20121030	SO	BROMOFORM	OV	2.65	U	N		UG/KG	5.3	U	5.3	1	17
11SB58-0305	20121030	SO	BROMOFORM	OV	2.49	U	N		UG/KG	4.98	U	4.98	1	16.3
11SB58-0506	20121030	SO	BROMOFORM	OV	2.41	U	N		UG/KG	4.82	U	4.82	1	15.7
11SB59-0204	20121030	SO	BROMOFORM	OV	3.02	U	N		UG/KG	6.03	U	6.03	1	19.4
11SB60-0204	20121129	SO	BROMOFORM	OV	2.36	U	N		UG/KG	4.73	UQ	4.73	1	15.38
11SB60-0204-D	20121129	SO	BROMOFORM	OV	2.47	U	N		UG/KG	4.93	UQ	4.93	1	13.53
11SB60-0405	20121129	SO	BROMOFORM	OV	2.23	U	N		UG/KG	4.46	UQ	4.46	1	13.12
11SB61-0810	20121129	SO	BROMOFORM	OV	2.4	U	N		UG/KG	4.79	UQ	4.79	1	17.22
11SB61-1011	20121129	SO	BROMOFORM	OV	2.54	U	N		UG/KG	5.09	UQ	5.09	1	20.37
11SB62-0911	20121129	SO	BROMOFORM	OV	2.37	U	N		UG/KG	4.74	UQ	4.74	1	14.28
11SB62-1112	20121129	SO	BROMOFORM	OV	2.53	U	N		UG/KG	5.06	UQ	5.06	1	19.21
11SB63-0911	20121129	SO	BROMOFORM	OV	130	U	N		UG/KG	260	U	260	50	18.5
11SB63-1112	20121129	SO	BROMOFORM	OV	161	U	N		UG/KG	322	U	322	50	23.2
11SB64-0911	20121129	SO	BROMOFORM	OV	2.43	U	N		UG/KG	4.86	UQ	4.86	1	16.4
11SB64-1112	20121129	SO	BROMOFORM	OV	2.47	U	N		UG/KG	4.94	U	4.94	1	14.2
11SB65-0911	20121129	SO	BROMOFORM	OV	2.4	U	N		UG/KG	4.8	UQ	4.8	1	13.22
11SB65-1112	20121129	SO	BROMOFORM	OV	2.44	U	N		UG/KG	4.87	U	4.87	1	14.32
11SB66-1315	20130123	SO	BROMOFORM	OV	2.46	U	N		UG/KG	4.93	U	4.93	1	14.43
11SB66-1516	20130123	SO	BROMOFORM	OV	2.92	U	N		UG/KG	5.84	U	5.84	1	16.87
11SB66-1516-D	20130123	SO	BROMOFORM	OV	2.83	U	N		UG/KG	5.67	U	5.67	1	18.5
11SB67-1416	20130123	SO	BROMOFORM	OV	130	U	N		UG/KG	260	U	260	50	14.63
11SB67-1617	20130123	SO	BROMOFORM	OV	121	U	N		UG/KG	242	U	242	50	15.86
11SB68-1315	20130123	SO	BROMOFORM	OV	103	U	N		UG/KG	206	U	206	50	14.52
11SB68-1516	20130123	SO	BROMOFORM	OV	112	U	N		UG/KG	223	U	223	50	14.97
11SB69-1416	20130123	SO	BROMOFORM	OV	2.19	U	N		UG/KG	4.38	U	4.38	1	16.29
11SB69-1617	20130123	SO	BROMOFORM	OV	2.18	U	N		UG/KG	4.37	U	4.37	1	18.65
11SB70-1315	20130123	SO	BROMOFORM	OV	1.98	U	N		UG/KG	3.96	U	3.96	1	16.04
11SB70-1516	20130123	SO	BROMOFORM	OV	2.63	U	N		UG/KG	5.26	U	5.26	1	18.12
11SB010002	20110426	SO	BROMOMETHANE	OV	5.03	UJ	N	C	UG/KG	10.1	UX	10.1	1	21.1
11SB010002-D	20110426	SO	BROMOMETHANE	OV	4.9	UJ	N	C	UG/KG	9.8	UX	9.8	1	21
11SB010406	20110426	SO	BROMOMETHANE	OV	4.75	UJ	N	C	UG/KG	9.5	UX	9.5	1	17.7
11SB010406-D	20110426	SO	BROMOMETHANE	OV	4.79	UJ	N	C	UG/KG	9.59	UX	9.59	1	19.4
11SB020406	20110426	SO	BROMOMETHANE	OV	5.1	UJ	N	C	UG/KG	10.2	UX	10.2	1	24.3
11SB040002	20110426	SO	BROMOMETHANE	OV	5.97	UJ	N	C	UG/KG	11.9	UX	11.9	1	20.9
11SB040406	20110426	SO	BROMOMETHANE	OV	5.03	UJ	N	C	UG/KG	10.1	UX	10.1	1	12.8
11SB250507	20110426	SO	BROMOMETHANE	OV	5.79	UJ	N	C	UG/KG	11.6	UX	11.6	1	18.9
11SB270507	20110426	SO	BROMOMETHANE	OV	4.48	UJ	N	C	UG/KG	8.97	UX	8.97	1	14.1
11SB280507	20110426	SO	BROMOMETHANE	OV	6.62	UJ	N	C	UG/KG	13.2	UX	13.2	1	28.9
11SB51-0204	20121030	SO	BROMOMETHANE	OV	5.19	UJ	N	C	UG/KG	10.4	UX	10.4	1	15.3
11SB51-0204-D	20121030	SO	BROMOMETHANE	OV	4.77	UJ	N	C	UG/KG	9.55	UX	9.55	1	12.3
11SB51-0506	20121030	SO	BROMOMETHANE	OV	4.79	UJ	N	C	UG/KG	9.58	UX	9.58	1	13
11SB52-0204	20121030	SO	BROMOMETHANE	OV	4.95	UJ	N	C	UG/KG	9.9	UX	9.9	1	15.3
11SB52-0506	20121030	SO	BROMOMETHANE	OV	4.81	UJ	N	C	UG/KG	9.62	UX	9.62	1	14.9
11SB53-0204	20121030	SO	BROMOMETHANE	OV	5.1	UJ	N	C	UG/KG	10.2	UX	10.2	1	17.6
11SB53-0506	20121030	SO	BROMOMETHANE	OV	5.18	UJ	N	C	UG/KG	10.4	UX	10.4	1	14.3
11SB54-0204	20121030	SO	BROMOMETHANE	OV	4.48	UJ	N	C	UG/KG	8.96	UX	8.96	1	15.2
11SB54-0405	20121030	SO	BROMOMETHANE	OV	4.61	UJ	N	C	UG/KG	9.22	UX	9.22	1	16.3
11SB55-0406	20121030	SO	BROMOMETHANE	OV	4.61	UJ	N	C	UG/KG	9.21	UX	9.21	1	15.8
11SB55-0607	20121030	SO	BROMOMETHANE	OV	4.89	UJ	N	C	UG/KG	9.77	UX	9.77	1	14.9
11SB56-0406	20121030	SO	BROMOMETHANE	OV	4.74	UJ	N	C	UG/KG	9.48	UX	9.48	1	11.4
11SB56-0708	20121030	SO	BROMOMETHANE	OV	5.39	UJ	N	C	UG/KG	10.8	UX	10.8	1	19.1
11SB57-0406	20121030	SO	BROMOMETHANE	OV	6.17	UJ	N	C	UG/KG	12.3	UX	12.3	1	19.8
11SB57-0607	20121030	SO	BROMOMETHANE	OV	5.3	UJ	N	C	UG/KG	10.6	UX	10.6	1	17
11SB58-0305	20121030	SO	BROMOMETHANE	OV	4.98	UJ	N	C	UG/KG	9.96	UX	9.96	1	16.3
11SB58-0506	20121030	SO	BROMOMETHANE	OV	4.82	UJ	N	C	UG/KG	9.65	UX	9.65	1	15.7
11SB59-0204	20121030	SO	BROMOMETHANE	OV	6.03	UJ	N	C	UG/KG	12.1	UX	12.1	1	19.4
11SB60-0204	20121129	SO	BROMOMETHANE	OV	4.73	U	N		UG/KG	9.45	U	9.45	1	15.38
11SB60-0204-D	20121129	SO	BROMOMETHANE	OV	4.93	U	N		UG/KG	9.87	U	9.87	1	13.53

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB60-0405	20121129	SO	BROMOMETHANE	OV	4.46	U	N		UG/KG	8.92	U	8.92	1	13.12
11SB61-0810	20121129	SO	BROMOMETHANE	OV	4.79	U	N		UG/KG	9.59	U	9.59	1	17.22
11SB61-1011	20121129	SO	BROMOMETHANE	OV	5.09	U	N		UG/KG	10.2	U	10.2	1	20.37
11SB62-0911	20121129	SO	BROMOMETHANE	OV	4.74	U	N		UG/KG	9.48	U	9.48	1	14.28
11SB62-1112	20121129	SO	BROMOMETHANE	OV	5.06	U	N		UG/KG	10.1	U	10.1	1	19.21
11SB63-0911	20121129	SO	BROMOMETHANE	OV	260	U	N		UG/KG	521	U	521	50	18.5
11SB63-1112	20121129	SO	BROMOMETHANE	OV	322	U	N		UG/KG	643	U	643	50	23.2
11SB64-0911	20121129	SO	BROMOMETHANE	OV	4.86	U	N		UG/KG	9.73	U	9.73	1	16.4
11SB64-1112	20121129	SO	BROMOMETHANE	OV	4.94	U	N		UG/KG	9.88	UQX	9.88	1	14.2
11SB65-0911	20121129	SO	BROMOMETHANE	OV	4.8	U	N		UG/KG	9.6	U	9.6	1	13.22
11SB65-1112	20121129	SO	BROMOMETHANE	OV	4.87	U	N		UG/KG	9.74	U	9.74	1	14.32
11SB66-1315	20130123	SO	BROMOMETHANE	OV	4.93	U	N		UG/KG	9.85	UN	9.85	1	14.43
11SB66-1516	20130123	SO	BROMOMETHANE	OV	5.84	U	N		UG/KG	11.7	U	11.7	1	16.87
11SB66-1516-D	20130123	SO	BROMOMETHANE	OV	5.67	U	N		UG/KG	11.3	U	11.3	1	18.5
11SB67-1416	20130123	SO	BROMOMETHANE	OV	260	U	N		UG/KG	520	U	520	50	14.63
11SB67-1617	20130123	SO	BROMOMETHANE	OV	242	U	N		UG/KG	483	U	483	50	15.86
11SB68-1315	20130123	SO	BROMOMETHANE	OV	206	U	N		UG/KG	412	U	412	50	14.52
11SB68-1516	20130123	SO	BROMOMETHANE	OV	223	U	N		UG/KG	447	U	447	50	14.97
11SB69-1416	20130123	SO	BROMOMETHANE	OV	4.38	U	N		UG/KG	8.76	U	8.76	1	16.29
11SB69-1617	20130123	SO	BROMOMETHANE	OV	4.37	U	N		UG/KG	8.73	U	8.73	1	18.65
11SB70-1315	20130123	SO	BROMOMETHANE	OV	3.96	U	N		UG/KG	7.92	U	7.92	1	16.04
11SB70-1516	20130123	SO	BROMOMETHANE	OV	5.26	U	N		UG/KG	10.5	U	10.5	1	18.12
11SS070002	20110426	SO	CADMIUM	M	0.249	UJ	N	F	MG/KG	0.622	U	0.622	2	21.9
11SS080002	20110426	SO	CADMIUM	M	0.239	UJ	N	F	MG/KG	0.599	UMN	0.599	2	16.9
11SS090002	20110426	SO	CADMIUM	M	0.249	UJ	N	F	MG/KG	0.623	UMN	0.623	2	23.2
11SS100002	20110426	SO	CADMIUM	M	0.26	UJ	N	F	MG/KG	0.649	UMN	0.649	2	27.3
11SS110002	20110426	SO	CADMIUM	M	0.242	UJ	N	F	MG/KG	0.605	UN	0.605	2	17.8
11SS110002-D	20110426	SO	CADMIUM	M	0.248	UJ	N	F	MG/KG	0.619	XUN	0.619	2	18.8
11SS120002	20110426	SO	CADMIUM	M	0.24	UJ	N	F	MG/KG	0.6	MUN	0.6	2	17
11SS130002	20110426	SO	CADMIUM	M	0.243	UJ	N	F	MG/KG	0.608	MUN	0.608	2	18.2
11SS140002	20110426	SO	CADMIUM	M	0.246	UJ	N	F	MG/KG	0.616	UN	0.616	2	18.8
11SS150002	20110426	SO	CADMIUM	M	0.246	UJ	N	F	MG/KG	0.614	MUN	0.614	2	19.4
11SS160002	20110426	SO	CADMIUM	M	0.261	UJ	N	F	MG/KG	0.653	MUN	0.653	2	22.6
11SS170002	20110426	SO	CADMIUM	M	0.232	UJ	N	F	MG/KG	0.58	UMXN	0.58	2	16.3
11SS180002	20110426	SO	CADMIUM	M	0.24	UJ	N	F	MG/KG	0.599	UMXN	0.599	2	17.8
11SS290002	20110427	SO	CADMIUM	M	0.256	UJ	N	F	MG/KG	0.64	XUN	0.64	2	22.6
11SS300002	20110427	SO	CADMIUM	M	0.174	J	Y	CDFKP	MG/KG	0.174	JDXN	0.577	2	15
11SS310002	20110426	SO	CADMIUM	M	0.139	J	Y	CDFKP	MG/KG	0.139	JDXN	0.6	2	19.5
11SS310002-D	20110427	SO	CADMIUM	M	0.259	UJ	N	F	MG/KG	0.648	XUN	0.648	2	21.7
11SS320002	20110426	SO	CADMIUM	M	0.238	UJ	N	F	MG/KG	0.596	UXN	0.596	2	20.4
11SB010002	20110426	SO	CALCIUM	M	560	J	Y	GP	MG/KG	560	JD	627	2	21.1
11SB010002-D	20110426	SO	CALCIUM	M	8080	J	Y	G	MG/KG	8080	D	612	2	21
11SB010406	20110426	SO	CALCIUM	M	310	J	Y	P	MG/KG	310	JD	590	2	17.7
11SB010406-D	20110426	SO	CALCIUM	M	420	J	Y	P	MG/KG	420	JD	623	2	19.4
11SB020002	20110426	SO	CALCIUM	M	278	J	Y	P	MG/KG	278	JD	608	2	20.6
11SB020406	20110426	SO	CALCIUM	M	418	J	Y	P	MG/KG	418	JD	1630	5	24.3
11SB030002	20110426	SO	CALCIUM	M	544	J	Y	P	MG/KG	544	JD	612	2	18.7
11SB040406	20110426	SO	CALCIUM	M	168	J	Y	P	MG/KG	168	JD	559	2	12.8
11SS110002	20110426	SO	CALCIUM	M	13700	J	Y	G	MG/KG	13700	D	605	2	17.8
11SS110002-D	20110426	SO	CALCIUM	M	5030	J	Y	G	MG/KG	5030	D	619	2	18.8
11SS170002	20110426	SO	CALCIUM	M	242	J	Y	P	MG/KG	242	JD	580	2	16.3
11SB51-0204	20121030	SO	CARBON DISULFIDE	OV	2.59	U	N		UG/KG	5.19	U	5.19	1	15.3
11SB51-0204-D	20121030	SO	CARBON DISULFIDE	OV	2.39	U	N		UG/KG	4.77	U	4.77	1	12.3
11SB51-0506	20121030	SO	CARBON DISULFIDE	OV	2.39	U	N		UG/KG	4.79	U	4.79	1	13
11SB52-0204	20121030	SO	CARBON DISULFIDE	OV	2.48	U	N		UG/KG	4.95	U	4.95	1	15.3
11SB52-0506	20121030	SO	CARBON DISULFIDE	OV	2.4	U	N		UG/KG	4.81	U	4.81	1	14.9
11SB53-0204	20121030	SO	CARBON DISULFIDE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	17.6
11SB53-0506	20121030	SO	CARBON DISULFIDE	OV	2.59	U	N		UG/KG	5.18	U	5.18	1	14.3
11SB54-0204	20121030	SO	CARBON DISULFIDE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	15.2
11SB54-0405	20121030	SO	CARBON DISULFIDE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	16.3
11SB55-0406	20121030	SO	CARBON DISULFIDE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	15.8
11SB55-0607	20121030	SO	CARBON DISULFIDE	OV	2.44	U	N		UG/KG	4.89	U	4.89	1	14.9
11SB56-0406	20121030	SO	CARBON DISULFIDE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	11.4
11SB56-0708	20121030	SO	CARBON DISULFIDE	OV	2.7	U	N		UG/KG	5.39	U	5.39	1	19.1
11SB57-0406	20121030	SO	CARBON DISULFIDE	OV	3.08	U	N		UG/KG	6.17	U	6.17	1	19.8
11SB57-0607	20121030	SO	CARBON DISULFIDE	OV	2.65	U	N		UG/KG	5.3	U	5.3	1	17
11SB58-0305	20121030	SO	CARBON DISULFIDE	OV	2.49	U	N		UG/KG	4.98	U	4.98	1	16.3
11SB58-0506	20121030	SO	CARBON DISULFIDE	OV	2.41	U	N		UG/KG	4.82	U	4.82	1	15.7
11SB59-0204	20121030	SO	CARBON DISULFIDE	OV	3.02	U	N		UG/KG	6.03	U	6.03	1	19.4
11SB60-0204	20121129	SO	CARBON DISULFIDE	OV	2.36	U	N		UG/KG	4.73	U	4.73	1	15.38
11SB60-0204-D	20121129	SO	CARBON DISULFIDE	OV	2.47	U	N		UG/KG	4.93	U	4.93	1	13.53
11SB60-0405	20121129	SO	CARBON DISULFIDE	OV	2.23	U	N		UG/KG	4.46	U	4.46	1	13.12
11SB61-0810	20121129	SO	CARBON DISULFIDE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	17.22
11SB61-1011	20121129	SO	CARBON DISULFIDE	OV	2.54	U	N		UG/KG	5.09	U	5.09	1	20.37
11SB62-0911	20121129	SO	CARBON DISULFIDE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	14.28
11SB62-1112	20121129	SO	CARBON DISULFIDE	OV	2.53	U	N		UG/KG	5.06	U	5.06	1	19.21
11SB63-0911	20121129	SO	CARBON DISULFIDE	OV	130	U	N		UG/KG	260	U	260	50	18.5
11SB63-1112	20121129	SO	CARBON DISULFIDE	OV	161	U	N		UG/KG	322	U	322	50	23.2
11SB64-0911	20121129	SO	CARBON DISULFIDE	OV	2.43	U	N		UG/KG	4.86	U	4.86	1	16.4
11SB64-1112	20121129	SO	CARBON DISULFIDE	OV	2.47	U	N		UG/KG	4.94	U	4.94	1	14.2
11SB65-0911	20121129	SO	CARBON DISULFIDE	OV	2.4	U	N		UG/KG	4.8	U	4.8	1	13.22

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB65-1112	20121129	SO	CARBON DISULFIDE	OV	2.44	U	N		UG/KG	4.87	U	4.87	1	14.32
11SB66-1315	20130123	SO	CARBON DISULFIDE	OV	2.46	U	N		UG/KG	4.93	U	4.93	1	14.43
11SB66-1516	20130123	SO	CARBON DISULFIDE	OV	2.92	U	N		UG/KG	5.84	U	5.84	1	16.87
11SB66-1516-D	20130123	SO	CARBON DISULFIDE	OV	2.83	U	N		UG/KG	5.67	U	5.67	1	18.5
11SB67-1416	20130123	SO	CARBON DISULFIDE	OV	130	U	N		UG/KG	260	U	260	50	14.63
11SB67-1617	20130123	SO	CARBON DISULFIDE	OV	121	U	N		UG/KG	242	U	242	50	15.86
11SB68-1315	20130123	SO	CARBON DISULFIDE	OV	103	U	N		UG/KG	206	U	206	50	14.52
11SB68-1516	20130123	SO	CARBON DISULFIDE	OV	112	U	N		UG/KG	223	U	223	50	14.97
11SB69-1416	20130123	SO	CARBON DISULFIDE	OV	2.19	U	N		UG/KG	4.38	U	4.38	1	16.29
11SB69-1617	20130123	SO	CARBON DISULFIDE	OV	2.18	U	N		UG/KG	4.37	U	4.37	1	18.65
11SB70-1315	20130123	SO	CARBON DISULFIDE	OV	1.98	U	N		UG/KG	3.96	U	3.96	1	16.04
11SB70-1516	20130123	SO	CARBON DISULFIDE	OV	2.63	U	N		UG/KG	5.26	U	5.26	1	18.12
11SB010002	20110426	SO	CARBON TETRACHLORIDE	OV	2.51	UJ	N	C	UG/KG	5.03	UX	5.03	1	21.1
11SB010002-D	20110426	SO	CARBON TETRACHLORIDE	OV	2.45	UJ	N	C	UG/KG	4.9	UX	4.9	1	21
11SB010406	20110426	SO	CARBON TETRACHLORIDE	OV	2.38	UJ	N	C	UG/KG	4.75	UX	4.75	1	17.7
11SB010406-D	20110426	SO	CARBON TETRACHLORIDE	OV	2.4	UJ	N	C	UG/KG	4.79	UX	4.79	1	19.4
11SB020406	20110426	SO	CARBON TETRACHLORIDE	OV	2.55	UJ	N	C	UG/KG	5.1	UX	5.1	1	24.3
11SB040002	20110426	SO	CARBON TETRACHLORIDE	OV	2.98	UJ	N	C	UG/KG	5.97	UX	5.97	1	20.9
11SB040406	20110426	SO	CARBON TETRACHLORIDE	OV	2.51	UJ	N	C	UG/KG	5.03	UX	5.03	1	12.8
11SB250507	20110426	SO	CARBON TETRACHLORIDE	OV	2.9	UJ	N	C	UG/KG	5.79	UX	5.79	1	18.9
11SB270507	20110426	SO	CARBON TETRACHLORIDE	OV	2.24	UJ	N	C	UG/KG	4.48	UX	4.48	1	14.1
11SB280507	20110426	SO	CARBON TETRACHLORIDE	OV	3.31	UJ	N	C	UG/KG	6.62	UX	6.62	1	28.9
11SB51-0204	20121030	SO	CARBON TETRACHLORIDE	OV	2.59	U	N		UG/KG	5.19	U	5.19	1	15.3
11SB51-0204-D	20121030	SO	CARBON TETRACHLORIDE	OV	2.39	U	N		UG/KG	4.77	U	4.77	1	12.3
11SB51-0506	20121030	SO	CARBON TETRACHLORIDE	OV	2.39	U	N		UG/KG	4.79	U	4.79	1	13
11SB52-0204	20121030	SO	CARBON TETRACHLORIDE	OV	2.48	U	N		UG/KG	4.95	U	4.95	1	15.3
11SB52-0506	20121030	SO	CARBON TETRACHLORIDE	OV	2.4	U	N		UG/KG	4.81	U	4.81	1	14.9
11SB53-0204	20121030	SO	CARBON TETRACHLORIDE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	17.6
11SB53-0506	20121030	SO	CARBON TETRACHLORIDE	OV	2.59	U	N		UG/KG	5.18	U	5.18	1	14.3
11SB54-0204	20121030	SO	CARBON TETRACHLORIDE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	15.2
11SB54-0405	20121030	SO	CARBON TETRACHLORIDE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	16.3
11SB55-0406	20121030	SO	CARBON TETRACHLORIDE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	15.8
11SB55-0607	20121030	SO	CARBON TETRACHLORIDE	OV	2.44	U	N		UG/KG	4.89	U	4.89	1	14.9
11SB56-0406	20121030	SO	CARBON TETRACHLORIDE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	11.4
11SB56-0708	20121030	SO	CARBON TETRACHLORIDE	OV	2.7	U	N		UG/KG	5.39	U	5.39	1	19.1
11SB57-0406	20121030	SO	CARBON TETRACHLORIDE	OV	3.08	U	N		UG/KG	6.17	U	6.17	1	19.8
11SB57-0607	20121030	SO	CARBON TETRACHLORIDE	OV	2.65	U	N		UG/KG	5.3	U	5.3	1	17
11SB58-0305	20121030	SO	CARBON TETRACHLORIDE	OV	2.49	U	N		UG/KG	4.98	U	4.98	1	16.3
11SB58-0506	20121030	SO	CARBON TETRACHLORIDE	OV	2.41	U	N		UG/KG	4.82	U	4.82	1	15.7
11SB59-0204	20121030	SO	CARBON TETRACHLORIDE	OV	3.02	U	N		UG/KG	6.03	U	6.03	1	19.4
11SB60-0204	20121129	SO	CARBON TETRACHLORIDE	OV	2.36	U	N		UG/KG	4.73	U	4.73	1	15.38
11SB60-0204-D	20121129	SO	CARBON TETRACHLORIDE	OV	2.47	U	N		UG/KG	4.93	U	4.93	1	13.53
11SB60-0405	20121129	SO	CARBON TETRACHLORIDE	OV	2.23	U	N		UG/KG	4.46	U	4.46	1	13.12
11SB61-0810	20121129	SO	CARBON TETRACHLORIDE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	17.22
11SB61-1011	20121129	SO	CARBON TETRACHLORIDE	OV	2.54	U	N		UG/KG	5.09	U	5.09	1	20.37
11SB62-0911	20121129	SO	CARBON TETRACHLORIDE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	14.28
11SB62-1112	20121129	SO	CARBON TETRACHLORIDE	OV	2.53	U	N		UG/KG	5.06	U	5.06	1	19.21
11SB63-0911	20121129	SO	CARBON TETRACHLORIDE	OV	130	U	N		UG/KG	260	U	260	50	18.5
11SB63-1112	20121129	SO	CARBON TETRACHLORIDE	OV	161	U	N		UG/KG	322	U	322	50	23.2
11SB64-0911	20121129	SO	CARBON TETRACHLORIDE	OV	2.43	U	N		UG/KG	4.86	U	4.86	1	16.4
11SB64-1112	20121129	SO	CARBON TETRACHLORIDE	OV	2.47	U	N		UG/KG	4.94	U	4.94	1	14.2
11SB65-0911	20121129	SO	CARBON TETRACHLORIDE	OV	2.4	U	N		UG/KG	4.8	U	4.8	1	13.22
11SB65-1112	20121129	SO	CARBON TETRACHLORIDE	OV	2.44	U	N		UG/KG	4.87	U	4.87	1	14.32
11SB66-1315	20130123	SO	CARBON TETRACHLORIDE	OV	2.46	U	N		UG/KG	4.93	U	4.93	1	14.43
11SB66-1516	20130123	SO	CARBON TETRACHLORIDE	OV	2.92	U	N		UG/KG	5.84	U	5.84	1	16.87
11SB66-1516-D	20130123	SO	CARBON TETRACHLORIDE	OV	2.83	U	N		UG/KG	5.67	U	5.67	1	18.5
11SB67-1416	20130123	SO	CARBON TETRACHLORIDE	OV	130	U	N		UG/KG	260	U	260	50	14.63
11SB67-1617	20130123	SO	CARBON TETRACHLORIDE	OV	121	U	N		UG/KG	242	U	242	50	15.86
11SB68-1315	20130123	SO	CARBON TETRACHLORIDE	OV	103	U	N		UG/KG	206	U	206	50	14.52
11SB68-1516	20130123	SO	CARBON TETRACHLORIDE	OV	112	U	N		UG/KG	223	U	223	50	14.97
11SB69-1416	20130123	SO	CARBON TETRACHLORIDE	OV	2.19	U	N		UG/KG	4.38	U	4.38	1	16.29
11SB69-1617	20130123	SO	CARBON TETRACHLORIDE	OV	2.18	U	N		UG/KG	4.37	U	4.37	1	18.65
11SB70-1315	20130123	SO	CARBON TETRACHLORIDE	OV	1.98	U	N		UG/KG	3.96	U	3.96	1	16.04
11SB70-1516	20130123	SO	CARBON TETRACHLORIDE	OV	2.63	U	N		UG/KG	5.26	U	5.26	1	18.12
11SB360405	20111117	SO	CHLOROBENZENE	OV	1670	J	Y	G	UG/KG	1670.00000	D	226	50	15.5
11SB360405-D	20111117	SO	CHLOROBENZENE	OV	724	J	Y	G	UG/KG	724.000000	D	219	50	13.3
11SB410204	20111117	SO	CHLOROBENZENE	OV	183	J	Y	P	UG/KG	183.000000	JD	228	50	15.5
11SB51-0204	20121030	SO	CHLOROBENZENE	OV	2.59	U	N		UG/KG	5.19	U	5.19	1	15.3
11SB51-0204-D	20121030	SO	CHLOROBENZENE	OV	2.39	U	N		UG/KG	4.77	U	4.77	1	12.3
11SB51-0506	20121030	SO	CHLOROBENZENE	OV	2.39	U	N		UG/KG	4.79	U	4.79	1	13
11SB52-0204	20121030	SO	CHLOROBENZENE	OV	2.48	UJ	N	D	UG/KG	4.95	NU	4.95	1	15.3
11SB52-0506	20121030	SO	CHLOROBENZENE	OV	3.15	J	Y	P	UG/KG	3.15	J	4.81	1	14.9
11SB54-0204	20121030	SO	CHLOROBENZENE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	15.2
11SB54-0405	20121030	SO	CHLOROBENZENE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	16.3
11SB55-0406	20121030	SO	CHLOROBENZENE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	15.8
11SB55-0607	20121030	SO	CHLOROBENZENE	OV	2.44	U	N		UG/KG	4.89	U	4.89	1	14.9
11SB56-0406	20121030	SO	CHLOROBENZENE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	11.4
11SB56-0708	20121030	SO	CHLOROBENZENE	OV	2.7	U	N		UG/KG	5.39	U	5.39	1	19.1
11SB57-0406	20121030	SO	CHLOROBENZENE	OV	3.08	U	N		UG/KG	6.17	U	6.17	1	19.8
11SB57-0607	20121030	SO	CHLOROBENZENE	OV	2.65	U	N		UG/KG	5.3	U	5.3	1	17
11SB58-0305	20121030	SO	CHLOROBENZENE	OV	2.49	U	N		UG/KG	4.98	U	4.98	1	16.3

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB58-0506	20121030	SO	CHLOROBENZENE	OV	2.41	U	N		UG/KG	4.82	U	4.82	1	15.7
11SB59-0204	20121030	SO	CHLOROBENZENE	OV	3.02	U	N		UG/KG	6.03	U	6.03	1	19.4
11SB60-0204	20121129	SO	CHLOROBENZENE	OV	2.36	U	N		UG/KG	4.73	UQ	4.73	1	15.38
11SB60-0204-D	20121129	SO	CHLOROBENZENE	OV	2.47	U	N		UG/KG	4.93	UQ	4.93	1	13.53
11SB60-0405	20121129	SO	CHLOROBENZENE	OV	2.23	U	N		UG/KG	4.46	UQ	4.46	1	13.12
11SB61-0810	20121129	SO	CHLOROBENZENE	OV	2.4	U	N		UG/KG	4.79	UQ	4.79	1	17.22
11SB61-1011	20121129	SO	CHLOROBENZENE	OV	2.54	U	N		UG/KG	5.09	UQ	5.09	1	20.37
11SB62-0911	20121129	SO	CHLOROBENZENE	OV	2.37	U	N		UG/KG	4.74	UQ	4.74	1	14.28
11SB62-1112	20121129	SO	CHLOROBENZENE	OV	2.53	U	N		UG/KG	5.06	UQ	5.06	1	19.21
11SB63-0911	20121129	SO	CHLOROBENZENE	OV	130	U	N		UG/KG	260	U	260	50	18.5
11SB63-1112	20121129	SO	CHLOROBENZENE	OV	81.7	J	Y	P	UG/KG	81.7	JD	322	50	23.2
11SB65-0911	20121129	SO	CHLOROBENZENE	OV	2.4	U	N		UG/KG	4.8	UQ	4.8	1	13.22
11SB65-1112	20121129	SO	CHLOROBENZENE	OV	2.44	UJ	N	D	UG/KG	4.87	UN	4.87	1	14.32
11SB66-1315	20130123	SO	CHLOROBENZENE	OV	2.46	UJ	N	D	UG/KG	4.93	UN	4.93	1	14.43
11SB66-1516	20130123	SO	CHLOROBENZENE	OV	2.92	U	N		UG/KG	5.84	U	5.84	1	16.87
11SB66-1516-D	20130123	SO	CHLOROBENZENE	OV	2.83	U	N		UG/KG	5.67	U	5.67	1	18.5
11SB67-1416	20130123	SO	CHLOROBENZENE	OV	130	U	N		UG/KG	260	U	260	50	14.63
11SB67-1617	20130123	SO	CHLOROBENZENE	OV	121	U	N		UG/KG	242	U	242	50	15.86
11SB68-1315	20130123	SO	CHLOROBENZENE	OV	57.3	J	Y	P	UG/KG	57.3	JD	206	50	14.52
11SB68-1516	20130123	SO	CHLOROBENZENE	OV	88.9	J	Y	P	UG/KG	88.9	JD	223	50	14.97
11SB70-1315	20130123	SO	CHLOROBENZENE	OV	1.02	J	Y	P	UG/KG	1.02	J	3.96	1	16.04
11SB70-1516	20130123	SO	CHLOROBENZENE	OV	2.63	U	N		UG/KG	5.26	U	5.26	1	18.12
11SB51-0204	20121030	SO	CHLORODIBROMOMETHANE	OV	2.59	U	N		UG/KG	5.19	U	5.19	1	15.3
11SB51-0204-D	20121030	SO	CHLORODIBROMOMETHANE	OV	2.39	U	N		UG/KG	4.77	U	4.77	1	12.3
11SB51-0506	20121030	SO	CHLORODIBROMOMETHANE	OV	2.39	U	N		UG/KG	4.79	U	4.79	1	13
11SB52-0204	20121030	SO	CHLORODIBROMOMETHANE	OV	2.48	U	N		UG/KG	4.95	U	4.95	1	15.3
11SB52-0506	20121030	SO	CHLORODIBROMOMETHANE	OV	2.4	U	N		UG/KG	4.81	U	4.81	1	14.9
11SB53-0204	20121030	SO	CHLORODIBROMOMETHANE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	17.6
11SB53-0506	20121030	SO	CHLORODIBROMOMETHANE	OV	2.59	U	N		UG/KG	5.18	U	5.18	1	14.3
11SB54-0204	20121030	SO	CHLORODIBROMOMETHANE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	15.2
11SB54-0405	20121030	SO	CHLORODIBROMOMETHANE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	16.3
11SB55-0406	20121030	SO	CHLORODIBROMOMETHANE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	15.8
11SB55-0607	20121030	SO	CHLORODIBROMOMETHANE	OV	2.44	U	N		UG/KG	4.89	U	4.89	1	14.9
11SB56-0406	20121030	SO	CHLORODIBROMOMETHANE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	11.4
11SB56-0708	20121030	SO	CHLORODIBROMOMETHANE	OV	2.7	U	N		UG/KG	5.39	U	5.39	1	19.1
11SB57-0406	20121030	SO	CHLORODIBROMOMETHANE	OV	3.08	U	N		UG/KG	6.17	U	6.17	1	19.8
11SB57-0607	20121030	SO	CHLORODIBROMOMETHANE	OV	2.65	U	N		UG/KG	5.3	U	5.3	1	17
11SB58-0305	20121030	SO	CHLORODIBROMOMETHANE	OV	2.49	U	N		UG/KG	4.98	U	4.98	1	16.3
11SB58-0506	20121030	SO	CHLORODIBROMOMETHANE	OV	2.41	U	N		UG/KG	4.82	U	4.82	1	15.7
11SB59-0204	20121030	SO	CHLORODIBROMOMETHANE	OV	3.02	U	N		UG/KG	6.03	U	6.03	1	19.4
11SB60-0204	20121129	SO	CHLORODIBROMOMETHANE	OV	2.36	U	N		UG/KG	4.73	U	4.73	1	15.38
11SB60-0204-D	20121129	SO	CHLORODIBROMOMETHANE	OV	2.47	U	N		UG/KG	4.93	U	4.93	1	13.53
11SB60-0405	20121129	SO	CHLORODIBROMOMETHANE	OV	2.23	U	N		UG/KG	4.46	U	4.46	1	13.12
11SB61-0810	20121129	SO	CHLORODIBROMOMETHANE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	17.22
11SB61-1011	20121129	SO	CHLORODIBROMOMETHANE	OV	2.54	U	N		UG/KG	5.09	U	5.09	1	20.37
11SB62-0911	20121129	SO	CHLORODIBROMOMETHANE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	14.28
11SB62-1112	20121129	SO	CHLORODIBROMOMETHANE	OV	2.53	U	N		UG/KG	5.06	U	5.06	1	19.21
11SB63-0911	20121129	SO	CHLORODIBROMOMETHANE	OV	130	U	N		UG/KG	260	U	260	50	18.5
11SB63-1112	20121129	SO	CHLORODIBROMOMETHANE	OV	161	U	N		UG/KG	322	U	322	50	23.2
11SB64-0911	20121129	SO	CHLORODIBROMOMETHANE	OV	2.43	U	N		UG/KG	4.86	U	4.86	1	16.4
11SB64-1112	20121129	SO	CHLORODIBROMOMETHANE	OV	2.47	U	N		UG/KG	4.94	U	4.94	1	14.2
11SB65-0911	20121129	SO	CHLORODIBROMOMETHANE	OV	2.4	U	N		UG/KG	4.8	U	4.8	1	13.22
11SB65-1112	20121129	SO	CHLORODIBROMOMETHANE	OV	2.44	UJ	N	D	UG/KG	4.87	UN	4.87	1	14.32
11SB66-1315	20130123	SO	CHLORODIBROMOMETHANE	OV	2.46	U	N		UG/KG	4.93	U	4.93	1	14.43
11SB66-1516	20130123	SO	CHLORODIBROMOMETHANE	OV	2.92	U	N		UG/KG	5.84	U	5.84	1	16.87
11SB66-1516-D	20130123	SO	CHLORODIBROMOMETHANE	OV	2.83	U	N		UG/KG	5.67	U	5.67	1	18.5
11SB67-1416	20130123	SO	CHLORODIBROMOMETHANE	OV	130	U	N		UG/KG	260	U	260	50	14.63
11SB67-1617	20130123	SO	CHLORODIBROMOMETHANE	OV	121	U	N		UG/KG	242	U	242	50	15.86
11SB68-1315	20130123	SO	CHLORODIBROMOMETHANE	OV	103	U	N		UG/KG	206	U	206	50	14.52
11SB68-1516	20130123	SO	CHLORODIBROMOMETHANE	OV	112	U	N		UG/KG	223	U	223	50	14.97
11SB69-1416	20130123	SO	CHLORODIBROMOMETHANE	OV	2.19	U	N		UG/KG	4.38	U	4.38	1	16.29
11SB69-1617	20130123	SO	CHLORODIBROMOMETHANE	OV	2.18	U	N		UG/KG	4.37	U	4.37	1	18.65
11SB70-1315	20130123	SO	CHLORODIBROMOMETHANE	OV	1.98	U	N		UG/KG	3.96	U	3.96	1	16.04
11SB70-1516	20130123	SO	CHLORODIBROMOMETHANE	OV	2.63	U	N		UG/KG	5.26	U	5.26	1	18.12
11SB010002	20110426	SO	CHLOROETHANE	OV	5.03	UJ	N	C	UG/KG	10.1	UX	10.1	1	21.1
11SB010002-D	20110426	SO	CHLOROETHANE	OV	4.9	UJ	N	C	UG/KG	9.8	UX	9.8	1	21
11SB010406	20110426	SO	CHLOROETHANE	OV	4.75	UJ	N	C	UG/KG	9.5	UX	9.5	1	17.7
11SB010406-D	20110426	SO	CHLOROETHANE	OV	4.79	UJ	N	C	UG/KG	9.59	UX	9.59	1	19.4
11SB020406	20110426	SO	CHLOROETHANE	OV	5.1	UJ	N	C	UG/KG	10.2	UX	10.2	1	24.3
11SB040002	20110426	SO	CHLOROETHANE	OV	5.97	UJ	N	C	UG/KG	11.9	UX	11.9	1	20.9
11SB040406	20110426	SO	CHLOROETHANE	OV	5.03	UJ	N	C	UG/KG	10.1	UX	10.1	1	12.8
11SB250507	20110426	SO	CHLOROETHANE	OV	5.79	UJ	N	C	UG/KG	11.6	UX	11.6	1	18.9
11SB270507	20110426	SO	CHLOROETHANE	OV	4.48	UJ	N	C	UG/KG	8.97	UX	8.97	1	14.1
11SB280507	20110426	SO	CHLOROETHANE	OV	6.62	UJ	N	C	UG/KG	13.2	UX	13.2	1	28.9
11SB51-0204	20121030	SO	CHLOROETHANE	OV	5.19	U	N		UG/KG	10.4	U	10.4	1	15.3
11SB51-0204-D	20121030	SO	CHLOROETHANE	OV	4.77	U	N		UG/KG	9.55	U	9.55	1	12.3
11SB51-0506	20121030	SO	CHLOROETHANE	OV	4.79	U	N		UG/KG	9.58	U	9.58	1	13
11SB52-0204	20121030	SO	CHLOROETHANE	OV	4.95	U	N		UG/KG	9.9	U	9.9	1	15.3
11SB52-0506	20121030	SO	CHLOROETHANE	OV	4.81	U	N		UG/KG	9.62	U	9.62	1	14.9
11SB53-0204	20121030	SO	CHLOROETHANE	OV	5.1	U	N		UG/KG	10.2	U	10.2	1	17.6
11SB53-0506	20121030	SO	CHLOROETHANE	OV	5.18	U	N		UG/KG	10.4	U	10.4	1	14.3

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB54-0204	20121030	SO	CHLOROETHANE	OV	4.48	U	N		UG/KG	8.96	U	8.96	1	15.2
11SB54-0405	20121030	SO	CHLOROETHANE	OV	4.61	U	N		UG/KG	9.22	U	9.22	1	16.3
11SB55-0406	20121030	SO	CHLOROETHANE	OV	4.61	U	N		UG/KG	9.21	U	9.21	1	15.8
11SB55-0607	20121030	SO	CHLOROETHANE	OV	4.89	U	N		UG/KG	9.77	U	9.77	1	14.9
11SB56-0406	20121030	SO	CHLOROETHANE	OV	4.74	U	N		UG/KG	9.48	U	9.48	1	11.4
11SB56-0708	20121030	SO	CHLOROETHANE	OV	5.39	U	N		UG/KG	10.8	U	10.8	1	19.1
11SB57-0406	20121030	SO	CHLOROETHANE	OV	6.17	U	N		UG/KG	12.3	U	12.3	1	19.8
11SB57-0607	20121030	SO	CHLOROETHANE	OV	5.3	U	N		UG/KG	10.6	U	10.6	1	17
11SB58-0305	20121030	SO	CHLOROETHANE	OV	4.98	U	N		UG/KG	9.96	U	9.96	1	16.3
11SB58-0506	20121030	SO	CHLOROETHANE	OV	4.82	U	N		UG/KG	9.65	U	9.65	1	15.7
11SB59-0204	20121030	SO	CHLOROETHANE	OV	6.03	U	N		UG/KG	12.1	U	12.1	1	19.4
11SB60-0204	20121129	SO	CHLOROETHANE	OV	4.73	U	N		UG/KG	9.45	U	9.45	1	15.38
11SB60-0204-D	20121129	SO	CHLOROETHANE	OV	4.93	U	N		UG/KG	9.87	U	9.87	1	13.53
11SB60-0405	20121129	SO	CHLOROETHANE	OV	4.46	U	N		UG/KG	8.92	U	8.92	1	13.12
11SB61-0810	20121129	SO	CHLOROETHANE	OV	4.79	U	N		UG/KG	9.59	U	9.59	1	17.22
11SB61-1011	20121129	SO	CHLOROETHANE	OV	5.09	U	N		UG/KG	10.2	U	10.2	1	20.37
11SB62-0911	20121129	SO	CHLOROETHANE	OV	4.74	U	N		UG/KG	9.48	U	9.48	1	14.28
11SB62-1112	20121129	SO	CHLOROETHANE	OV	5.06	U	N		UG/KG	10.1	U	10.1	1	19.21
11SB63-0911	20121129	SO	CHLOROETHANE	OV	260	U	N		UG/KG	521	U	521	50	18.5
11SB63-1112	20121129	SO	CHLOROETHANE	OV	322	U	N		UG/KG	643	U	643	50	23.2
11SB64-0911	20121129	SO	CHLOROETHANE	OV	4.86	U	N		UG/KG	9.73	U	9.73	1	16.4
11SB64-1112	20121129	SO	CHLOROETHANE	OV	4.94	U	N		UG/KG	9.88	U	9.88	1	14.2
11SB65-0911	20121129	SO	CHLOROETHANE	OV	4.8	U	N		UG/KG	9.6	U	9.6	1	13.22
11SB65-1112	20121129	SO	CHLOROETHANE	OV	4.87	U	N		UG/KG	9.74	U	9.74	1	14.32
11SB66-1315	20130123	SO	CHLOROETHANE	OV	4.93	U	N		UG/KG	9.85	U	9.85	1	14.43
11SB66-1516	20130123	SO	CHLOROETHANE	OV	5.84	U	N		UG/KG	11.7	U	11.7	1	16.87
11SB66-1516-D	20130123	SO	CHLOROETHANE	OV	5.67	U	N		UG/KG	11.3	U	11.3	1	18.5
11SB67-1416	20130123	SO	CHLOROETHANE	OV	260	U	N		UG/KG	520	U	520	50	14.63
11SB67-1617	20130123	SO	CHLOROETHANE	OV	242	U	N		UG/KG	483	U	483	50	15.86
11SB68-1315	20130123	SO	CHLOROETHANE	OV	206	U	N		UG/KG	412	U	412	50	14.52
11SB68-1516	20130123	SO	CHLOROETHANE	OV	223	U	N		UG/KG	447	U	447	50	14.97
11SB69-1416	20130123	SO	CHLOROETHANE	OV	4.38	U	N		UG/KG	8.76	U	8.76	1	16.29
11SB69-1617	20130123	SO	CHLOROETHANE	OV	4.37	U	N		UG/KG	8.73	U	8.73	1	18.65
11SB70-1315	20130123	SO	CHLOROETHANE	OV	3.96	U	N		UG/KG	7.92	U	7.92	1	16.04
11SB70-1516	20130123	SO	CHLOROETHANE	OV	5.26	U	N		UG/KG	10.5	U	10.5	1	18.12
11SB51-0204	20121030	SO	CHLOROFORM	OV	2.59	U	N		UG/KG	5.19	U	5.19	1	15.3
11SB51-0204-D	20121030	SO	CHLOROFORM	OV	2.39	U	N		UG/KG	4.77	U	4.77	1	12.3
11SB51-0506	20121030	SO	CHLOROFORM	OV	2.39	U	N		UG/KG	4.79	U	4.79	1	13
11SB52-0204	20121030	SO	CHLOROFORM	OV	2.48	U	N		UG/KG	4.95	U	4.95	1	15.3
11SB52-0506	20121030	SO	CHLOROFORM	OV	2.4	U	N		UG/KG	4.81	U	4.81	1	14.9
11SB53-0204	20121030	SO	CHLOROFORM	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	17.6
11SB53-0506	20121030	SO	CHLOROFORM	OV	2.59	U	N		UG/KG	5.18	U	5.18	1	14.3
11SB54-0204	20121030	SO	CHLOROFORM	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	15.2
11SB54-0405	20121030	SO	CHLOROFORM	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	16.3
11SB55-0406	20121030	SO	CHLOROFORM	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	15.8
11SB55-0607	20121030	SO	CHLOROFORM	OV	2.44	U	N		UG/KG	4.89	U	4.89	1	14.9
11SB56-0406	20121030	SO	CHLOROFORM	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	11.4
11SB56-0708	20121030	SO	CHLOROFORM	OV	2.7	U	N		UG/KG	5.39	U	5.39	1	19.1
11SB57-0406	20121030	SO	CHLOROFORM	OV	3.08	U	N		UG/KG	6.17	U	6.17	1	19.8
11SB57-0607	20121030	SO	CHLOROFORM	OV	2.65	U	N		UG/KG	5.3	U	5.3	1	17
11SB58-0305	20121030	SO	CHLOROFORM	OV	2.49	U	N		UG/KG	4.98	U	4.98	1	16.3
11SB58-0506	20121030	SO	CHLOROFORM	OV	2.41	U	N		UG/KG	4.82	U	4.82	1	15.7
11SB59-0204	20121030	SO	CHLOROFORM	OV	3.02	U	N		UG/KG	6.03	U	6.03	1	19.4
11SB60-0204	20121129	SO	CHLOROFORM	OV	2.36	U	N		UG/KG	4.73	U	4.73	1	15.38
11SB60-0204-D	20121129	SO	CHLOROFORM	OV	2.47	U	N		UG/KG	4.93	U	4.93	1	13.53
11SB60-0405	20121129	SO	CHLOROFORM	OV	2.23	U	N		UG/KG	4.46	U	4.46	1	13.12
11SB61-0810	20121129	SO	CHLOROFORM	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	17.22
11SB61-1011	20121129	SO	CHLOROFORM	OV	2.54	U	N		UG/KG	5.09	U	5.09	1	20.37
11SB62-0911	20121129	SO	CHLOROFORM	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	14.28
11SB62-1112	20121129	SO	CHLOROFORM	OV	2.53	U	N		UG/KG	5.06	U	5.06	1	19.21
11SB63-0911	20121129	SO	CHLOROFORM	OV	130	U	N		UG/KG	260	U	260	50	18.5
11SB63-1112	20121129	SO	CHLOROFORM	OV	161	U	N		UG/KG	322	U	322	50	23.2
11SB64-0911	20121129	SO	CHLOROFORM	OV	2.43	U	N		UG/KG	4.86	U	4.86	1	16.4
11SB64-1112	20121129	SO	CHLOROFORM	OV	2.47	U	N		UG/KG	4.94	U	4.94	1	14.2
11SB65-0911	20121129	SO	CHLOROFORM	OV	2.4	U	N		UG/KG	4.8	U	4.8	1	13.22
11SB65-1112	20121129	SO	CHLOROFORM	OV	2.44	U	N		UG/KG	4.87	UN	4.87	1	14.32
11SB66-1315	20130123	SO	CHLOROFORM	OV	2.46	U	N		UG/KG	4.93	U	4.93	1	14.43
11SB66-1516	20130123	SO	CHLOROFORM	OV	2.92	U	N		UG/KG	5.84	U	5.84	1	16.87
11SB66-1516-D	20130123	SO	CHLOROFORM	OV	2.83	U	N		UG/KG	5.67	U	5.67	1	18.5
11SB67-1416	20130123	SO	CHLOROFORM	OV	130	U	N		UG/KG	260	U	260	50	14.63
11SB67-1617	20130123	SO	CHLOROFORM	OV	121	U	N		UG/KG	242	U	242	50	15.86
11SB68-1315	20130123	SO	CHLOROFORM	OV	103	U	N		UG/KG	206	U	206	50	14.52
11SB68-1516	20130123	SO	CHLOROFORM	OV	112	U	N		UG/KG	223	U	223	50	14.97
11SB69-1416	20130123	SO	CHLOROFORM	OV	2.19	U	N		UG/KG	4.38	U	4.38	1	16.29
11SB69-1617	20130123	SO	CHLOROFORM	OV	2.18	U	N		UG/KG	4.37	U	4.37	1	18.65
11SB70-1315	20130123	SO	CHLOROFORM	OV	1.98	U	N		UG/KG	3.96	U	3.96	1	16.04
11SB70-1516	20130123	SO	CHLOROFORM	OV	2.63	U	N		UG/KG	5.26	U	5.26	1	18.12
11SB51-0204	20121030	SO	CHLOROMETHANE	OV	5.19	U	N		UG/KG	10.4	U	10.4	1	15.3
11SB51-0204-D	20121030	SO	CHLOROMETHANE	OV	4.77	U	N		UG/KG	9.55	U	9.55	1	12.3
11SB51-0506	20121030	SO	CHLOROMETHANE	OV	4.79	U	N		UG/KG	9.58	U	9.58	1	13
11SB52-0204	20121030	SO	CHLOROMETHANE	OV	4.95	U	N		UG/KG	9.9	U	9.9	1	15.3

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB52-0506	20121030	SO	CHLOROMETHANE	OV	4.81	U	N		UG/KG	9.62	U	9.62	1	14.9
11SB53-0204	20121030	SO	CHLOROMETHANE	OV	5.1	U	N		UG/KG	10.2	U	10.2	1	17.6
11SB53-0506	20121030	SO	CHLOROMETHANE	OV	5.18	U	N		UG/KG	10.4	U	10.4	1	14.3
11SB54-0204	20121030	SO	CHLOROMETHANE	OV	4.48	U	N		UG/KG	8.96	U	8.96	1	15.2
11SB54-0405	20121030	SO	CHLOROMETHANE	OV	4.61	U	N		UG/KG	9.22	U	9.22	1	16.3
11SB55-0406	20121030	SO	CHLOROMETHANE	OV	4.61	U	N		UG/KG	9.21	U	9.21	1	15.8
11SB55-0607	20121030	SO	CHLOROMETHANE	OV	4.89	U	N		UG/KG	9.77	U	9.77	1	14.9
11SB56-0406	20121030	SO	CHLOROMETHANE	OV	4.74	U	N		UG/KG	9.48	U	9.48	1	11.4
11SB56-0708	20121030	SO	CHLOROMETHANE	OV	5.39	U	N		UG/KG	10.8	U	10.8	1	19.1
11SB57-0406	20121030	SO	CHLOROMETHANE	OV	6.17	U	N		UG/KG	12.3	U	12.3	1	19.8
11SB57-0607	20121030	SO	CHLOROMETHANE	OV	5.3	U	N		UG/KG	10.6	U	10.6	1	17
11SB58-0305	20121030	SO	CHLOROMETHANE	OV	4.98	U	N		UG/KG	9.96	U	9.96	1	16.3
11SB58-0506	20121030	SO	CHLOROMETHANE	OV	4.82	U	N		UG/KG	9.65	U	9.65	1	15.7
11SB59-0204	20121030	SO	CHLOROMETHANE	OV	6.03	U	N		UG/KG	12.1	U	12.1	1	19.4
11SB60-0204	20121129	SO	CHLOROMETHANE	OV	4.73	U	N		UG/KG	9.45	U	9.45	1	15.38
11SB60-0204-D	20121129	SO	CHLOROMETHANE	OV	4.93	U	N		UG/KG	9.87	U	9.87	1	13.53
11SB60-0405	20121129	SO	CHLOROMETHANE	OV	4.46	U	N		UG/KG	8.92	U	8.92	1	13.12
11SB61-0810	20121129	SO	CHLOROMETHANE	OV	4.79	U	N		UG/KG	9.59	U	9.59	1	17.22
11SB61-1011	20121129	SO	CHLOROMETHANE	OV	5.09	U	N		UG/KG	10.2	U	10.2	1	20.37
11SB62-0911	20121129	SO	CHLOROMETHANE	OV	4.74	U	N		UG/KG	9.48	U	9.48	1	14.28
11SB62-1112	20121129	SO	CHLOROMETHANE	OV	5.06	U	N		UG/KG	10.1	U	10.1	1	19.21
11SB63-0911	20121129	SO	CHLOROMETHANE	OV	260	U	N		UG/KG	521	U	521	50	18.5
11SB63-1112	20121129	SO	CHLOROMETHANE	OV	322	U	N		UG/KG	643	U	643	50	23.2
11SB64-0911	20121129	SO	CHLOROMETHANE	OV	4.86	U	N		UG/KG	9.73	U	9.73	1	16.4
11SB64-1112	20121129	SO	CHLOROMETHANE	OV	4.94	U	N		UG/KG	9.88	U	9.88	1	14.2
11SB65-0911	20121129	SO	CHLOROMETHANE	OV	4.8	U	N		UG/KG	9.6	U	9.6	1	13.22
11SB65-1112	20121129	SO	CHLOROMETHANE	OV	4.87	U	N		UG/KG	9.74	U	9.74	1	14.32
11SB66-1315	20130123	SO	CHLOROMETHANE	OV	4.93	U	N		UG/KG	9.85	U	9.85	1	14.43
11SB66-1516	20130123	SO	CHLOROMETHANE	OV	5.84	U	N		UG/KG	11.7	U	11.7	1	16.87
11SB66-1516-D	20130123	SO	CHLOROMETHANE	OV	5.67	U	N		UG/KG	11.3	U	11.3	1	18.5
11SB67-1416	20130123	SO	CHLOROMETHANE	OV	260	U	N		UG/KG	520	U	520	50	14.63
11SB67-1617	20130123	SO	CHLOROMETHANE	OV	242	U	N		UG/KG	483	U	483	50	15.86
11SB68-1315	20130123	SO	CHLOROMETHANE	OV	206	U	N		UG/KG	412	U	412	50	14.52
11SB68-1516	20130123	SO	CHLOROMETHANE	OV	223	U	N		UG/KG	447	U	447	50	14.97
11SB69-1416	20130123	SO	CHLOROMETHANE	OV	4.38	U	N		UG/KG	8.76	U	8.76	1	16.29
11SB69-1617	20130123	SO	CHLOROMETHANE	OV	4.37	U	N		UG/KG	8.73	U	8.73	1	18.65
11SB70-1315	20130123	SO	CHLOROMETHANE	OV	3.96	U	N		UG/KG	7.92	U	7.92	1	16.04
11SB70-1516	20130123	SO	CHLOROMETHANE	OV	5.26	U	N		UG/KG	10.5	U	10.5	1	18.12
11SB010406	20110426	SO	CHROMIUM	M	27.4	J	Y	G	MG/KG	27.4	D	1.18	2	17.7
11SB010406-D	20110426	SO	CHROMIUM	M	14.6	J	Y	G	MG/KG	14.6	D	1.25	2	19.4
11SS060002	20110426	SO	CHRYSENE	PAH	3.09	J	Y	P	UG/KG	3.09	J	7.84	1	19.2
11SS070002	20110426	SO	CHRYSENE	PAH	8.1	J	Y	P	UG/KG	8.1	J	8.27	1	21.9
11SS110002	20110426	SO	CHRYSENE	PAH	157	J	Y	G	UG/KG	157		7.7	1	17.8
11SS110002-D	20110426	SO	CHRYSENE	PAH	38.5	J	Y	G	UG/KG	38.5		8.16	1	18.8
11SB010002	20110426	SO	CIS-1,2-DICHLOROETHENE	OV	2.19	J	Y	GP	UG/KG	2.19	J	5.03	1	21.1
11SB010002-D	20110426	SO	CIS-1,2-DICHLOROETHENE	OV	10.4	J	Y	G	UG/KG	10.4		4.9	1	21
11SB010406	20110426	SO	CIS-1,2-DICHLOROETHENE	OV	61.6	J	Y	G	UG/KG	61.6		4.75	1	17.7
11SB010406-D	20110426	SO	CIS-1,2-DICHLOROETHENE	OV	24.7	J	Y	G	UG/KG	24.7		4.79	1	19.4
11SB020002	20110426	SO	CIS-1,2-DICHLOROETHENE	OV	3.27	J	Y	P	UG/KG	3.27	J	5.47	1	20.6
11SB390708	20111115	SO	CIS-1,2-DICHLOROETHENE	OV	6.23	J	Y	P	UG/KG	6.230000	J	7.27	1	39.4
11SB400506	20111115	SO	CIS-1,2-DICHLOROETHENE	OV	1700	J	Y	D	UG/KG	1700.00000	D	929	100	51.6
11SB410204	20111117	SO	CIS-1,2-DICHLOROETHENE	OV	156	J	Y	P	UG/KG	156.000000	JD	228	50	15.5
11SB410405	20111117	SO	CIS-1,2-DICHLOROETHENE	OV	112	J	Y	P	UG/KG	112.000000	JD	266	50	15.5
11SB460506	20111117	SO	CIS-1,2-DICHLOROETHENE	OV	117	J	Y	P	UG/KG	117.000000	JD	215	50	8.5
11SB55-0406	20121030	SO	CIS-1,2-DICHLOROETHENE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	15.8
11SB55-0607	20121030	SO	CIS-1,2-DICHLOROETHENE	OV	2.44	U	N		UG/KG	4.89	U	4.89	1	14.9
11SB56-0406	20121030	SO	CIS-1,2-DICHLOROETHENE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	11.4
11SB56-0708	20121030	SO	CIS-1,2-DICHLOROETHENE	OV	2.7	U	N		UG/KG	5.39	U	5.39	1	19.1
11SB57-0406	20121030	SO	CIS-1,2-DICHLOROETHENE	OV	3.08	U	N		UG/KG	6.17	U	6.17	1	19.8
11SB57-0607	20121030	SO	CIS-1,2-DICHLOROETHENE	OV	2.65	U	N		UG/KG	5.3	U	5.3	1	17
11SB58-0305	20121030	SO	CIS-1,2-DICHLOROETHENE	OV	2.49	U	N		UG/KG	4.98	U	4.98	1	16.3
11SB58-0506	20121030	SO	CIS-1,2-DICHLOROETHENE	OV	2.41	U	N		UG/KG	4.82	U	4.82	1	15.7
11SB59-0204	20121030	SO	CIS-1,2-DICHLOROETHENE	OV	3.02	U	N		UG/KG	6.03	U	6.03	1	19.4
11SB60-0204	20121129	SO	CIS-1,2-DICHLOROETHENE	OV	2.36	U	N		UG/KG	4.73	U	4.73	1	15.38
11SB60-0204-D	20121129	SO	CIS-1,2-DICHLOROETHENE	OV	2.47	U	N		UG/KG	4.93	U	4.93	1	13.53
11SB60-0405	20121129	SO	CIS-1,2-DICHLOROETHENE	OV	2.23	U	N		UG/KG	4.46	U	4.46	1	13.12
11SB63-0911	20121129	SO	CIS-1,2-DICHLOROETHENE	OV	141	J	Y	P	UG/KG	141	JD	260	50	18.5
11SB63-1112	20121129	SO	CIS-1,2-DICHLOROETHENE	OV	186	J	Y	P	UG/KG	186	JD	322	50	23.2
11SB64-0911	20121129	SO	CIS-1,2-DICHLOROETHENE	OV	92.4	J	Y	P	UG/KG	92.4	JD	244	50	16.4
11SB70-1315	20130123	SO	CIS-1,2-DICHLOROETHENE	OV	1.98	U	N		UG/KG	3.96	U	3.96	1	16.04
11SB70-1516	20130123	SO	CIS-1,2-DICHLOROETHENE	OV	2.63	U	N		UG/KG	5.26	U	5.26	1	18.12
11SB51-0204	20121030	SO	CIS-1,3-DICHLOROPROPENE	OV	2.59	U	N		UG/KG	5.19	U	5.19	1	15.3
11SB51-0204-D	20121030	SO	CIS-1,3-DICHLOROPROPENE	OV	2.39	U	N		UG/KG	4.77	U	4.77	1	12.3
11SB51-0506	20121030	SO	CIS-1,3-DICHLOROPROPENE	OV	2.39	U	N		UG/KG	4.79	U	4.79	1	13
11SB52-0204	20121030	SO	CIS-1,3-DICHLOROPROPENE	OV	2.48	U	N		UG/KG	4.95	U	4.95	1	15.3
11SB52-0506	20121030	SO	CIS-1,3-DICHLOROPROPENE	OV	2.4	U	N		UG/KG	4.81	U	4.81	1	14.9
11SB53-0204	20121030	SO	CIS-1,3-DICHLOROPROPENE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	17.6
11SB53-0506	20121030	SO	CIS-1,3-DICHLOROPROPENE	OV	2.59	U	N		UG/KG	5.18	U	5.18	1	14.3
11SB54-0204	20121030	SO	CIS-1,3-DICHLOROPROPENE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	15.2
11SB54-0405	20121030	SO	CIS-1,3-DICHLOROPROPENE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	16.3
11SB55-0406	20121030	SO	CIS-1,3-DICHLOROPROPENE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	15.8

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB55-0607	20121030	SO	CIS-1,3-DICHLOROPROPENE	OV	2.44	U	N		UG/KG	4.89	U	4.89	1	14.9
11SB56-0406	20121030	SO	CIS-1,3-DICHLOROPROPENE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	11.4
11SB56-0708	20121030	SO	CIS-1,3-DICHLOROPROPENE	OV	2.7	U	N		UG/KG	5.39	U	5.39	1	19.1
11SB57-0406	20121030	SO	CIS-1,3-DICHLOROPROPENE	OV	3.08	U	N		UG/KG	6.17	U	6.17	1	19.8
11SB57-0607	20121030	SO	CIS-1,3-DICHLOROPROPENE	OV	2.65	U	N		UG/KG	5.3	U	5.3	1	17
11SB58-0305	20121030	SO	CIS-1,3-DICHLOROPROPENE	OV	2.49	U	N		UG/KG	4.98	U	4.98	1	16.3
11SB58-0506	20121030	SO	CIS-1,3-DICHLOROPROPENE	OV	2.41	U	N		UG/KG	4.82	U	4.82	1	15.7
11SB59-0204	20121030	SO	CIS-1,3-DICHLOROPROPENE	OV	3.02	U	N		UG/KG	6.03	U	6.03	1	19.4
11SB60-0204	20121129	SO	CIS-1,3-DICHLOROPROPENE	OV	2.36	U	N		UG/KG	4.73	U	4.73	1	15.38
11SB60-0204-D	20121129	SO	CIS-1,3-DICHLOROPROPENE	OV	2.47	U	N		UG/KG	4.93	U	4.93	1	13.53
11SB60-0405	20121129	SO	CIS-1,3-DICHLOROPROPENE	OV	2.23	U	N		UG/KG	4.46	U	4.46	1	13.12
11SB61-0810	20121129	SO	CIS-1,3-DICHLOROPROPENE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	17.22
11SB61-1011	20121129	SO	CIS-1,3-DICHLOROPROPENE	OV	2.54	U	N		UG/KG	5.09	U	5.09	1	20.37
11SB62-0911	20121129	SO	CIS-1,3-DICHLOROPROPENE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	14.28
11SB62-1112	20121129	SO	CIS-1,3-DICHLOROPROPENE	OV	2.53	U	N		UG/KG	5.06	U	5.06	1	19.21
11SB63-0911	20121129	SO	CIS-1,3-DICHLOROPROPENE	OV	130	U	N		UG/KG	260	U	260	50	18.5
11SB63-1112	20121129	SO	CIS-1,3-DICHLOROPROPENE	OV	161	U	N		UG/KG	322	U	322	50	23.2
11SB64-0911	20121129	SO	CIS-1,3-DICHLOROPROPENE	OV	2.43	U	N		UG/KG	4.86	U	4.86	1	16.4
11SB64-1112	20121129	SO	CIS-1,3-DICHLOROPROPENE	OV	2.47	U	N		UG/KG	4.94	UQ	4.94	1	14.2
11SB65-0911	20121129	SO	CIS-1,3-DICHLOROPROPENE	OV	2.4	U	N		UG/KG	4.8	U	4.8	1	13.22
11SB65-1112	20121129	SO	CIS-1,3-DICHLOROPROPENE	OV	2.44	U	N		UG/KG	4.87	UN	4.87	1	14.32
11SB66-1315	20130123	SO	CIS-1,3-DICHLOROPROPENE	OV	2.46	U	N		UG/KG	4.93	U	4.93	1	14.43
11SB66-1516	20130123	SO	CIS-1,3-DICHLOROPROPENE	OV	2.92	U	N		UG/KG	5.84	U	5.84	1	16.87
11SB66-1516-D	20130123	SO	CIS-1,3-DICHLOROPROPENE	OV	2.83	U	N		UG/KG	5.67	U	5.67	1	18.5
11SB67-1416	20130123	SO	CIS-1,3-DICHLOROPROPENE	OV	130	U	N		UG/KG	260	U	260	50	14.63
11SB67-1617	20130123	SO	CIS-1,3-DICHLOROPROPENE	OV	121	U	N		UG/KG	242	U	242	50	15.86
11SB68-1315	20130123	SO	CIS-1,3-DICHLOROPROPENE	OV	103	U	N		UG/KG	206	U	206	50	14.52
11SB68-1516	20130123	SO	CIS-1,3-DICHLOROPROPENE	OV	112	U	N		UG/KG	223	U	223	50	14.97
11SB69-1416	20130123	SO	CIS-1,3-DICHLOROPROPENE	OV	2.19	U	N		UG/KG	4.38	U	4.38	1	16.29
11SB69-1617	20130123	SO	CIS-1,3-DICHLOROPROPENE	OV	2.18	U	N		UG/KG	4.37	U	4.37	1	18.65
11SB70-1315	20130123	SO	CIS-1,3-DICHLOROPROPENE	OV	1.98	U	N		UG/KG	3.96	U	3.96	1	16.04
11SB70-1516	20130123	SO	CIS-1,3-DICHLOROPROPENE	OV	2.63	U	N		UG/KG	5.26	U	5.26	1	18.12
11SB010002	20110426	SO	COBALT	M	6.36	J	Y	G	MG/KG	6.36	D	1.57	2	21.1
11SB010002-D	20110426	SO	COBALT	M	12.7	J	Y	G	MG/KG	12.7	D	1.53	2	21
11SB020406	20110426	SO	COBALT	M	2.56	J	Y	P	MG/KG	2.56	JD	4.09	5	24.3
11SS110002	20110426	SO	CYANIDE	MISC	0.307	UJ	N	D	MG/KG	0.921	UN*	0.921	1	17.8
11SS110002-D	20110426	SO	CYANIDE	MISC	0.318	UJ	N	D	MG/KG	0.953	UN*	0.953	1	18.8
11SS120002	20110426	SO	CYANIDE	MISC	0.317	UJ	N	D	MG/KG	0.952	UN*	0.952	1	17
11SS130002	20110426	SO	CYANIDE	MISC	0.283	UJ	N	D	MG/KG	0.849	UN*	0.849	1	18.2
11SS140002	20110426	SO	CYANIDE	MISC	0.282	UJ	N	D	MG/KG	0.847	UN*	0.847	1	18.8
11SS150002	20110426	SO	CYANIDE	MISC	0.316	UJ	N	D	MG/KG	0.949	UN*	0.949	1	19.4
11SS160002	20110426	SO	CYANIDE	MISC	0.305	UJ	N	D	MG/KG	0.915	UN*	0.915	1	22.6
11SS170002	20110426	SO	CYANIDE	MISC	0.308	UJ	N	D	MG/KG	0.924	UN*	0.924	1	16.3
11SS180002	20110426	SO	CYANIDE	MISC	0.284	UJ	N	D	MG/KG	0.853	UN*	0.853	1	17.8
11SS290002	20110427	SO	CYANIDE	MISC	0.297	UJ	N	D	MG/KG	0.89	UN*	0.89	1	22.6
11SS300002	20110427	SO	CYANIDE	MISC	0.313	UJ	N	D	MG/KG	0.938	UN*	0.938	1	15
11SS310002	20110426	SO	CYANIDE	MISC	0.323	UJ	N	D	MG/KG	0.97	UN*	0.97	1	19.5
11SS310002-D	20110427	SO	CYANIDE	MISC	0.332	UJ	N	D	MG/KG	0.997	UN*	0.997	1	21.7
11SS320002	20110426	SO	CYANIDE	MISC	0.286	UJ	N	D	MG/KG	0.857	UN*	0.857	1	20.4
11SB010002	20110426	SO	CYCLOHEXANE	OV	2.51	UJ	N	C	UG/KG	5.03	YU	5.03	1	21.1
11SB010002-D	20110426	SO	CYCLOHEXANE	OV	2.45	UJ	N	C	UG/KG	4.9	YU	4.9	1	21
11SB010406	20110426	SO	CYCLOHEXANE	OV	2.38	UJ	N	C	UG/KG	4.75	YU	4.75	1	17.7
11SB010406-D	20110426	SO	CYCLOHEXANE	OV	2.4	UJ	N	C	UG/KG	4.79	YU	4.79	1	19.4
11SB020406	20110426	SO	CYCLOHEXANE	OV	2.55	UJ	N	C	UG/KG	5.1	YU	5.1	1	24.3
11SB040002	20110426	SO	CYCLOHEXANE	OV	2.98	UJ	N	C	UG/KG	5.97	YU	5.97	1	20.9
11SB040406	20110426	SO	CYCLOHEXANE	OV	2.51	UJ	N	C	UG/KG	5.03	YU	5.03	1	12.8
11SB250507	20110426	SO	CYCLOHEXANE	OV	2.9	UJ	N	C	UG/KG	5.79	YU	5.79	1	18.9
11SB270507	20110426	SO	CYCLOHEXANE	OV	2.24	UJ	N	C	UG/KG	4.48	YU	4.48	1	14.1
11SB280507	20110426	SO	CYCLOHEXANE	OV	3.31	UJ	N	C	UG/KG	6.62	YUN	6.62	1	28.9
11SB51-0204	20121030	SO	CYCLOHEXANE	OV	2.59	U	N		UG/KG	5.19	U	5.19	1	15.3
11SB51-0204-D	20121030	SO	CYCLOHEXANE	OV	2.39	U	N		UG/KG	4.77	U	4.77	1	12.3
11SB51-0506	20121030	SO	CYCLOHEXANE	OV	2.39	U	N		UG/KG	4.79	U	4.79	1	13
11SB52-0204	20121030	SO	CYCLOHEXANE	OV	2.48	U	N		UG/KG	4.95	U	4.95	1	15.3
11SB52-0506	20121030	SO	CYCLOHEXANE	OV	2.4	U	N		UG/KG	4.81	U	4.81	1	14.9
11SB53-0204	20121030	SO	CYCLOHEXANE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	17.6
11SB53-0506	20121030	SO	CYCLOHEXANE	OV	2.59	U	N		UG/KG	5.18	U	5.18	1	14.3
11SB54-0204	20121030	SO	CYCLOHEXANE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	15.2
11SB54-0405	20121030	SO	CYCLOHEXANE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	16.3
11SB55-0406	20121030	SO	CYCLOHEXANE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	15.8
11SB55-0607	20121030	SO	CYCLOHEXANE	OV	2.44	U	N		UG/KG	4.89	U	4.89	1	14.9
11SB56-0406	20121030	SO	CYCLOHEXANE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	11.4
11SB56-0708	20121030	SO	CYCLOHEXANE	OV	2.7	U	N		UG/KG	5.39	U	5.39	1	19.1
11SB57-0406	20121030	SO	CYCLOHEXANE	OV	3.08	U	N		UG/KG	6.17	U	6.17	1	19.8
11SB57-0607	20121030	SO	CYCLOHEXANE	OV	2.65	U	N		UG/KG	5.3	U	5.3	1	17
11SB58-0305	20121030	SO	CYCLOHEXANE	OV	2.49	U	N		UG/KG	4.98	U	4.98	1	16.3
11SB58-0506	20121030	SO	CYCLOHEXANE	OV	2.41	U	N		UG/KG	4.82	U	4.82	1	15.7
11SB59-0204	20121030	SO	CYCLOHEXANE	OV	3.02	U	N		UG/KG	6.03	U	6.03	1	19.4
11SB60-0204	20121129	SO	CYCLOHEXANE	OV	2.36	U	N		UG/KG	4.73	U	4.73	1	15.38
11SB60-0204-D	20121129	SO	CYCLOHEXANE	OV	2.47	U	N		UG/KG	4.93	U	4.93	1	13.53
11SB60-0405	20121129	SO	CYCLOHEXANE	OV	2.23	U	N		UG/KG	4.46	U	4.46	1	13.12
11SB61-0810	20121129	SO	CYCLOHEXANE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	17.22

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB61-1011	20121129	SO	CYCLOHEXANE	OV	2.54	U	N		UG/KG	5.09	U	5.09	1	20.37
11SB62-0911	20121129	SO	CYCLOHEXANE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	14.28
11SB62-1112	20121129	SO	CYCLOHEXANE	OV	2.53	U	N		UG/KG	5.06	U	5.06	1	19.21
11SB63-0911	20121129	SO	CYCLOHEXANE	OV	130	U	N		UG/KG	260	U	260	50	18.5
11SB63-1112	20121129	SO	CYCLOHEXANE	OV	161	U	N		UG/KG	322	U	322	50	23.2
11SB64-0911	20121129	SO	CYCLOHEXANE	OV	2.43	U	N		UG/KG	4.86	U	4.86	1	16.4
11SB64-1112	20121129	SO	CYCLOHEXANE	OV	2.47	U	N		UG/KG	4.94	U	4.94	1	14.2
11SB65-0911	20121129	SO	CYCLOHEXANE	OV	2.4	U	N		UG/KG	4.8	U	4.8	1	13.22
11SB65-1112	20121129	SO	CYCLOHEXANE	OV	2.44	U	N		UG/KG	4.87	U	4.87	1	14.32
11SB66-1315	20130123	SO	CYCLOHEXANE	OV	2.46	U	N		UG/KG	4.93	U	4.93	1	14.43
11SB66-1516	20130123	SO	CYCLOHEXANE	OV	2.92	U	N		UG/KG	5.84	U	5.84	1	16.87
11SB66-1516-D	20130123	SO	CYCLOHEXANE	OV	2.83	U	N		UG/KG	5.67	U	5.67	1	18.5
11SB67-1416	20130123	SO	CYCLOHEXANE	OV	130	U	N		UG/KG	260	U	260	50	14.63
11SB67-1617	20130123	SO	CYCLOHEXANE	OV	121	U	N		UG/KG	242	U	242	50	15.86
11SB68-1315	20130123	SO	CYCLOHEXANE	OV	103	U	N		UG/KG	206	U	206	50	14.52
11SB68-1516	20130123	SO	CYCLOHEXANE	OV	112	U	N		UG/KG	223	U	223	50	14.97
11SB69-1416	20130123	SO	CYCLOHEXANE	OV	2.19	U	N		UG/KG	4.38	U	4.38	1	16.29
11SB69-1617	20130123	SO	CYCLOHEXANE	OV	2.18	U	N		UG/KG	4.37	U	4.37	1	18.65
11SB70-1315	20130123	SO	CYCLOHEXANE	OV	1.98	U	N		UG/KG	3.96	U	3.96	1	16.04
11SB70-1516	20130123	SO	CYCLOHEXANE	OV	2.63	U	N		UG/KG	5.26	U	5.26	1	18.12
11SB010002	20110426	SO	DELTA-BHC	PEST	0.417	UJ	N	C	UG/KG	0.822	U	0.822	1	21.1
11SB010002-D	20110426	SO	DELTA-BHC	PEST	0.428	UJ	N	C	UG/KG	0.843	UX	0.843	1	21
11SB010406	20110426	SO	DELTA-BHC	PEST	0.402	UJ	N	C	UG/KG	0.792	UX	0.792	1	17.7
11SB010406-D	20110426	SO	DELTA-BHC	PEST	0.406	UJ	N	C	UG/KG	0.799	U	0.799	1	19.4
11SB020002	20110426	SO	DELTA-BHC	PEST	0.42	UJ	N	C	UG/KG	0.827	UX	0.827	1	20.6
11SB020406	20110426	SO	DELTA-BHC	PEST	0.437	UJ	N	C	UG/KG	0.862	UX	0.862	1	24.3
11SB030002	20110426	SO	DELTA-BHC	PEST	0.416	UJ	N	C	UG/KG	0.819	UX	0.819	1	18.7
11SB030406	20110426	SO	DELTA-BHC	PEST	0.394	UJ	N	C	UG/KG	0.777	UX	0.777	1	13.7
11SB040002	20110426	SO	DELTA-BHC	PEST	0.419	UJ	N	C	UG/KG	0.825	U	0.825	1	20.9
11SB040406	20110426	SO	DELTA-BHC	PEST	0.377	UJ	N	C	UG/KG	0.744	UX	0.744	1	12.8
11SS050002	20110426	SO	DELTA-BHC	PEST	0.395	UJ	N	C	UG/KG	0.778	U	0.778	1	16.6
11SS060002	20110426	SO	DELTA-BHC	PEST	0.402	UJ	N	C	UG/KG	0.792	UX	0.792	1	19.2
11SS070002	20110426	SO	DELTA-BHC	PEST	0.421	UJ	N	C	UG/KG	0.83	UX	0.83	1	21.9
11SS080002	20110426	SO	DELTA-BHC	PEST	0.409	UJ	N	C	UG/KG	0.806	UX	0.806	1	16.9
11SS090002	20110426	SO	DELTA-BHC	PEST	0.426	UJ	N	C	UG/KG	0.839	UX	0.839	1	23.2
11SS100002	20110426	SO	DELTA-BHC	PEST	0.462	UJ	N	C	UG/KG	0.909	UX	0.909	1	27.3
11SS110002	20110426	SO	DELTA-BHC	PEST	0.411	UJ	N	C	UG/KG	0.809	UX	0.809	1	17.8
11SS110002-D	20110426	SO	DELTA-BHC	PEST	0.419	UJ	N	C	UG/KG	0.826	U	0.826	1	18.8
11SS120002	20110426	SO	DELTA-BHC	PEST	0.392	UJ	N	C	UG/KG	0.772	UX	0.772	1	17
11SS130002	20110426	SO	DELTA-BHC	PEST	0.402	UJ	N	C	UG/KG	0.792	UX	0.792	1	18.2
11SS140002	20110426	SO	DELTA-BHC	PEST	0.41	UJ	N	C	UG/KG	0.809	UX	0.809	1	18.8
11SS150002	20110426	SO	DELTA-BHC	PEST	0.405	UJ	N	C	UG/KG	0.799	U	0.799	1	19.4
11SS160002	20110426	SO	DELTA-BHC	PEST	0.431	UJ	N	C	UG/KG	0.849	U	0.849	1	22.6
11SS170002	20110426	SO	DELTA-BHC	PEST	0.393	UJ	N	C	UG/KG	0.775	U	0.775	1	16.3
11SS180002	20110426	SO	DELTA-BHC	PEST	0.4	UJ	N	C	UG/KG	0.789	U	0.789	1	17.8
11SS290002	20110427	SO	DELTA-BHC	PEST	0.42	UJ	N	C	UG/KG	0.828	U	0.828	1	22.6
11SS300002	20110427	SO	DELTA-BHC	PEST	0.39	UJ	N	C	UG/KG	0.768	U	0.768	1	15
11SS310002	20110426	SO	DELTA-BHC	PEST	0.411	UJ	N	C	UG/KG	0.81	U	0.81	1	19.5
11SS310002-D	20110427	SO	DELTA-BHC	PEST	0.417	UJ	N	C	UG/KG	0.822	U	0.822	1	21.7
11SS320002	20110426	SO	DELTA-BHC	PEST	0.413	UJ	N	C	UG/KG	0.815	U	0.815	1	20.4
11SS110002	20110426	SO	DIBENZO(A,H)ANTHRACENE	PAH	25	J	Y	G	UG/KG	25		7.7	1	17.8
11SS110002-D	20110426	SO	DIBENZO(A,H)ANTHRACENE	PAH	7.04	J	Y	GP	UG/KG	7.04	J	8.16	1	18.8
11SB010002	20110426	SO	DICHLORODIFLUOROMETHANE	OV	5.03	UJ	N	C	UG/KG	10.1	UX	10.1	1	21.1
11SB010002-D	20110426	SO	DICHLORODIFLUOROMETHANE	OV	4.9	UJ	N	C	UG/KG	9.8	UX	9.8	1	21
11SB010406	20110426	SO	DICHLORODIFLUOROMETHANE	OV	4.75	UJ	N	C	UG/KG	9.5	UX	9.5	1	17.7
11SB010406-D	20110426	SO	DICHLORODIFLUOROMETHANE	OV	4.79	UJ	N	C	UG/KG	9.59	UX	9.59	1	19.4
11SB020406	20110426	SO	DICHLORODIFLUOROMETHANE	OV	5.1	UJ	N	C	UG/KG	10.2	UX	10.2	1	24.3
11SB040002	20110426	SO	DICHLORODIFLUOROMETHANE	OV	5.97	UJ	N	C	UG/KG	11.9	UX	11.9	1	20.9
11SB040406	20110426	SO	DICHLORODIFLUOROMETHANE	OV	5.03	UJ	N	C	UG/KG	10.1	UX	10.1	1	12.8
11SB250507	20110426	SO	DICHLORODIFLUOROMETHANE	OV	5.79	UJ	N	C	UG/KG	11.6	UX	11.6	1	18.9
11SB270507	20110426	SO	DICHLORODIFLUOROMETHANE	OV	4.48	UJ	N	C	UG/KG	8.97	UX	8.97	1	14.1
11SB280507	20110426	SO	DICHLORODIFLUOROMETHANE	OV	6.62	UJ	N	C	UG/KG	13.2	UX	13.2	1	28.9
11SB51-0204	20121030	SO	DICHLORODIFLUOROMETHANE	OV	5.19	UJ	N	C	UG/KG	10.4	UX	10.4	1	15.3
11SB51-0204-D	20121030	SO	DICHLORODIFLUOROMETHANE	OV	4.77	UJ	N	C	UG/KG	9.55	UX	9.55	1	12.3
11SB51-0506	20121030	SO	DICHLORODIFLUOROMETHANE	OV	4.79	UJ	N	C	UG/KG	9.58	UX	9.58	1	13
11SB52-0204	20121030	SO	DICHLORODIFLUOROMETHANE	OV	4.95	UJ	N	C	UG/KG	9.9	UX	9.9	1	15.3
11SB52-0506	20121030	SO	DICHLORODIFLUOROMETHANE	OV	4.81	UJ	N	C	UG/KG	9.62	UX	9.62	1	14.9
11SB53-0204	20121030	SO	DICHLORODIFLUOROMETHANE	OV	5.1	UJ	N	C	UG/KG	10.2	UX	10.2	1	17.6
11SB53-0506	20121030	SO	DICHLORODIFLUOROMETHANE	OV	5.18	UJ	N	C	UG/KG	10.4	UX	10.4	1	14.3
11SB54-0204	20121030	SO	DICHLORODIFLUOROMETHANE	OV	4.48	UJ	N	C	UG/KG	8.96	UX	8.96	1	15.2
11SB54-0405	20121030	SO	DICHLORODIFLUOROMETHANE	OV	4.61	UJ	N	C	UG/KG	9.22	UX	9.22	1	16.3
11SB55-0406	20121030	SO	DICHLORODIFLUOROMETHANE	OV	4.61	UJ	N	C	UG/KG	9.21	UX	9.21	1	15.8
11SB55-0607	20121030	SO	DICHLORODIFLUOROMETHANE	OV	4.89	UJ	N	C	UG/KG	9.77	UX	9.77	1	14.9
11SB56-0406	20121030	SO	DICHLORODIFLUOROMETHANE	OV	4.74	UJ	N	C	UG/KG	9.48	UX	9.48	1	11.4
11SB56-0708	20121030	SO	DICHLORODIFLUOROMETHANE	OV	5.39	UJ	N	C	UG/KG	10.8	UX	10.8	1	19.1
11SB57-0406	20121030	SO	DICHLORODIFLUOROMETHANE	OV	6.17	UJ	N	C	UG/KG	12.3	UX	12.3	1	19.8
11SB57-0607	20121030	SO	DICHLORODIFLUOROMETHANE	OV	5.3	UJ	N	C	UG/KG	10.6	UX	10.6	1	17
11SB58-0305	20121030	SO	DICHLORODIFLUOROMETHANE	OV	4.98	UJ	N	C	UG/KG	9.96	UX	9.96	1	16.3
11SB58-0506	20121030	SO	DICHLORODIFLUOROMETHANE	OV	4.82	UJ	N	C	UG/KG	9.65	UX	9.65	1	15.7
11SB59-0204	20121030	SO	DICHLORODIFLUOROMETHANE	OV	6.03	UJ	N	C	UG/KG	12.1	UX	12.1	1	19.4
11SB60-0204	20121129	SO	DICHLORODIFLUOROMETHANE	OV	4.73	U	N		UG/KG	9.45	U	9.45	1	15.38

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB60-0204-D	20121129	SO	DICHLORODIFLUOROMETHANE	OV	4.93	U	N		UG/KG	9.87	U	9.87	1	13.53
11SB60-0405	20121129	SO	DICHLORODIFLUOROMETHANE	OV	4.46	U	N		UG/KG	8.92	U	8.92	1	13.12
11SB61-0810	20121129	SO	DICHLORODIFLUOROMETHANE	OV	4.79	U	N		UG/KG	9.59	U	9.59	1	17.22
11SB61-1011	20121129	SO	DICHLORODIFLUOROMETHANE	OV	5.09	U	N		UG/KG	10.2	U	10.2	1	20.37
11SB62-0911	20121129	SO	DICHLORODIFLUOROMETHANE	OV	4.74	U	N		UG/KG	9.48	U	9.48	1	14.28
11SB62-1112	20121129	SO	DICHLORODIFLUOROMETHANE	OV	5.06	U	N		UG/KG	10.1	U	10.1	1	19.21
11SB63-0911	20121129	SO	DICHLORODIFLUOROMETHANE	OV	260	U	N		UG/KG	521	U	521	50	18.5
11SB63-1112	20121129	SO	DICHLORODIFLUOROMETHANE	OV	322	U	N		UG/KG	643	U	643	50	23.2
11SB64-0911	20121129	SO	DICHLORODIFLUOROMETHANE	OV	4.86	U	N		UG/KG	9.73	U	9.73	1	16.4
11SB64-1112	20121129	SO	DICHLORODIFLUOROMETHANE	OV	4.94	U	N		UG/KG	9.88	U	9.88	1	14.2
11SB65-0911	20121129	SO	DICHLORODIFLUOROMETHANE	OV	4.8	U	N		UG/KG	9.6	U	9.6	1	13.22
11SB65-1112	20121129	SO	DICHLORODIFLUOROMETHANE	OV	4.87	U	N		UG/KG	9.74	U	9.74	1	14.32
11SB66-1315	20130123	SO	DICHLORODIFLUOROMETHANE	OV	4.93	U	N		UG/KG	9.85	U	9.85	1	14.43
11SB66-1516	20130123	SO	DICHLORODIFLUOROMETHANE	OV	5.84	U	N		UG/KG	11.7	U	11.7	1	16.87
11SB66-1516-D	20130123	SO	DICHLORODIFLUOROMETHANE	OV	5.67	U	N		UG/KG	11.3	U	11.3	1	18.5
11SB67-1416	20130123	SO	DICHLORODIFLUOROMETHANE	OV	260	U	N		UG/KG	520	U	520	50	14.63
11SB67-1617	20130123	SO	DICHLORODIFLUOROMETHANE	OV	242	U	N		UG/KG	483	U	483	50	15.86
11SB68-1315	20130123	SO	DICHLORODIFLUOROMETHANE	OV	206	U	N		UG/KG	412	U	412	50	14.52
11SB68-1516	20130123	SO	DICHLORODIFLUOROMETHANE	OV	223	U	N		UG/KG	447	U	447	50	14.97
11SB69-1416	20130123	SO	DICHLORODIFLUOROMETHANE	OV	4.38	U	N		UG/KG	8.76	U	8.76	1	16.29
11SB69-1617	20130123	SO	DICHLORODIFLUOROMETHANE	OV	4.37	U	N		UG/KG	8.73	U	8.73	1	18.65
11SB70-1315	20130123	SO	DICHLORODIFLUOROMETHANE	OV	3.96	U	N		UG/KG	7.92	U	7.92	1	16.04
11SB70-1516	20130123	SO	DICHLORODIFLUOROMETHANE	OV	5.26	U	N		UG/KG	10.5	U	10.5	1	18.12
11SS110002-D	20110426	SO	DIELDRIN	PEST	0.413	UJ	N	HR	UG/KG	0.815	UH2	0.815	1	18.8
11SS150002	20110426	SO	DIELDRIN	PEST	0.405	UJ	N	HR	UG/KG	0.799	UH2	0.799	1	19.4
11SS160002	20110426	SO	DIELDRIN	PEST	0.428	UJ	N	HR	UG/KG	0.844	UH2	0.844	1	22.6
11SS170002	20110426	SO	DIELDRIN	PEST	0.383	UJ	N	H	UG/KG	0.755	UH2	0.755	1	16.3
11SS180002	20110426	SO	DIELDRIN	PEST	0.414	UJ	N	H	UG/KG	0.815	UH2	0.815	1	17.8
11SS290002	20110427	SO	DIELDRIN	PEST	0.431	UJ	N	H	UG/KG	0.849	UH2	0.849	1	22.6
11SS300002	20110427	SO	DIELDRIN	PEST	0.387	UJ	N	HR	UG/KG	0.763	UH2	0.763	1	15
11SS310002	20110426	SO	DIELDRIN	PEST	0.403	UJ	N	H	UG/KG	0.795	UH2	0.795	1	19.5
11SS310002-D	20110427	SO	DIELDRIN	PEST	0.423	UJ	N	HR	UG/KG	0.833	UH2	0.833	1	21.7
11SS320002	20110426	SO	DIELDRIN	PEST	0.427	UJ	N	HR	UG/KG	0.842	UH2	0.842	1	20.4
11SB010406	20110426	SO	DIETHYL PHTHALATE	OS	300	J	Y	P	UG/KG	300	J	380	1	17.7
11SS110002-D	20110426	SO	ENDOSULFAN I	PEST	0.413	UJ	N	HR	UG/KG	0.815	UH2	0.815	1	18.8
11SS150002	20110426	SO	ENDOSULFAN I	PEST	0.405	UJ	N	HR	UG/KG	0.799	UH2	0.799	1	19.4
11SS160002	20110426	SO	ENDOSULFAN I	PEST	0.428	UJ	N	HR	UG/KG	0.844	UH2	0.844	1	22.6
11SS170002	20110426	SO	ENDOSULFAN I	PEST	0.383	UJ	N	H	UG/KG	0.755	UH2	0.755	1	16.3
11SS180002	20110426	SO	ENDOSULFAN I	PEST	0.414	UJ	N	H	UG/KG	0.815	UH2	0.815	1	17.8
11SS290002	20110427	SO	ENDOSULFAN I	PEST	0.431	UJ	N	H	UG/KG	0.849	UH2	0.849	1	22.6
11SS300002	20110427	SO	ENDOSULFAN I	PEST	0.387	UJ	N	HR	UG/KG	0.763	UH2	0.763	1	15
11SS310002	20110426	SO	ENDOSULFAN I	PEST	0.403	UJ	N	H	UG/KG	0.795	UH2	0.795	1	19.5
11SS310002-D	20110427	SO	ENDOSULFAN I	PEST	0.423	UJ	N	HR	UG/KG	0.833	UH2	0.833	1	21.7
11SS320002	20110426	SO	ENDOSULFAN I	PEST	0.427	UJ	N	HR	UG/KG	0.842	UH2	0.842	1	20.4
11SS110002-D	20110426	SO	ENDOSULFAN II	PEST	0.413	UJ	N	HR	UG/KG	0.815	UH2	0.815	1	18.8
11SS150002	20110426	SO	ENDOSULFAN II	PEST	0.405	UJ	N	HR	UG/KG	0.799	UH2	0.799	1	19.4
11SS160002	20110426	SO	ENDOSULFAN II	PEST	0.428	UJ	N	HR	UG/KG	0.844	UH2	0.844	1	22.6
11SS170002	20110426	SO	ENDOSULFAN II	PEST	0.383	UJ	N	H	UG/KG	0.755	UH2	0.755	1	16.3
11SS180002	20110426	SO	ENDOSULFAN II	PEST	0.414	UJ	N	H	UG/KG	0.815	UH2	0.815	1	17.8
11SS290002	20110427	SO	ENDOSULFAN II	PEST	0.431	UJ	N	H	UG/KG	0.849	UH2	0.849	1	22.6
11SS300002	20110427	SO	ENDOSULFAN II	PEST	0.387	UJ	N	HR	UG/KG	0.763	UH2	0.763	1	15
11SS310002	20110426	SO	ENDOSULFAN II	PEST	0.403	UJ	N	H	UG/KG	0.795	UH2	0.795	1	19.5
11SS310002-D	20110427	SO	ENDOSULFAN II	PEST	0.423	UJ	N	HR	UG/KG	0.833	UH2	0.833	1	21.7
11SS320002	20110426	SO	ENDOSULFAN II	PEST	0.427	UJ	N	HR	UG/KG	0.842	UH2	0.842	1	20.4
11SS110002-D	20110426	SO	ENDRIN	PEST	0.413	UJ	N	HR	UG/KG	0.815	UH2	0.815	1	18.8
11SS150002	20110426	SO	ENDRIN	PEST	0.405	UJ	N	HR	UG/KG	0.799	UH2	0.799	1	19.4
11SS160002	20110426	SO	ENDRIN	PEST	0.428	UJ	N	HR	UG/KG	0.844	UH2	0.844	1	22.6
11SS170002	20110426	SO	ENDRIN	PEST	0.383	UJ	N	H	UG/KG	0.755	UH2	0.755	1	16.3
11SS180002	20110426	SO	ENDRIN	PEST	0.414	UJ	N	H	UG/KG	0.815	UH2	0.815	1	17.8
11SS290002	20110427	SO	ENDRIN	PEST	0.431	UJ	N	H	UG/KG	0.849	UH2	0.849	1	22.6
11SS300002	20110427	SO	ENDRIN	PEST	0.387	UJ	N	HR	UG/KG	0.763	UH2	0.763	1	15
11SS310002	20110426	SO	ENDRIN	PEST	0.403	UJ	N	H	UG/KG	0.795	UH2	0.795	1	19.5
11SS310002-D	20110427	SO	ENDRIN	PEST	0.423	UJ	N	HR	UG/KG	0.833	UH2	0.833	1	21.7
11SS320002	20110426	SO	ENDRIN	PEST	0.427	UJ	N	HR	UG/KG	0.842	UH2	0.842	1	20.4
11SS110002-D	20110426	SO	ENDRIN ALDEHYDE	PEST	0.413	UJ	N	HR	UG/KG	0.815	UH2	0.815	1	18.8
11SS150002	20110426	SO	ENDRIN ALDEHYDE	PEST	0.405	UJ	N	HR	UG/KG	0.799	UH2	0.799	1	19.4
11SS160002	20110426	SO	ENDRIN ALDEHYDE	PEST	0.428	UJ	N	HR	UG/KG	0.844	UH2	0.844	1	22.6
11SS170002	20110426	SO	ENDRIN ALDEHYDE	PEST	0.383	UJ	N	H	UG/KG	0.755	UH2	0.755	1	16.3
11SS180002	20110426	SO	ENDRIN ALDEHYDE	PEST	0.414	UJ	N	H	UG/KG	0.815	UH2	0.815	1	17.8
11SS290002	20110427	SO	ENDRIN ALDEHYDE	PEST	0.431	UJ	N	H	UG/KG	0.849	UH2	0.849	1	22.6
11SS300002	20110427	SO	ENDRIN ALDEHYDE	PEST	0.387	UJ	N	HR	UG/KG	0.763	UH2	0.763	1	15
11SS310002	20110426	SO	ENDRIN ALDEHYDE	PEST	0.403	UJ	N	H	UG/KG	0.795	UH2	0.795	1	19.5
11SS310002-D	20110427	SO	ENDRIN ALDEHYDE	PEST	0.423	UJ	N	HR	UG/KG	0.833	UH2	0.833	1	21.7
11SS320002	20110426	SO	ENDRIN ALDEHYDE	PEST	0.427	UJ	N	HR	UG/KG	0.842	UH2	0.842	1	20.4
11SB51-0204	20121030	SO	ETHYLBENZENE	OV	2.59	U	N		UG/KG	5.19	U	5.19	1	15.3
11SB51-0204-D	20121030	SO	ETHYLBENZENE	OV	2.39	U	N		UG/KG	4.77	U	4.77	1	12.3
11SB51-0506	20121030	SO	ETHYLBENZENE	OV	2.39	U	N		UG/KG	4.79	U	4.79	1	13
11SB52-0204	20121030	SO	ETHYLBENZENE	OV	2.48	U	N		UG/KG	4.95	NU	4.95	1	15.3
11SB52-0506	20121030	SO	ETHYLBENZENE	OV	3.36	J	Y	P	UG/KG	3.36	J	4.81	1	14.9
11SB53-0204	20121030	SO	ETHYLBENZENE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	17.6
11SB53-0506	20121030	SO	ETHYLBENZENE	OV	1.94	J	Y	P	UG/KG	1.94	J	5.18	1	14.3

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB54-0204	20121030	SO	ETHYLBENZENE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	15.2
11SB54-0405	20121030	SO	ETHYLBENZENE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	16.3
11SB55-0406	20121030	SO	ETHYLBENZENE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	15.8
11SB55-0607	20121030	SO	ETHYLBENZENE	OV	2.44	U	N		UG/KG	4.89	U	4.89	1	14.9
11SB56-0406	20121030	SO	ETHYLBENZENE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	11.4
11SB56-0708	20121030	SO	ETHYLBENZENE	OV	2.7	U	N		UG/KG	5.39	U	5.39	1	19.1
11SB57-0406	20121030	SO	ETHYLBENZENE	OV	3.08	U	N		UG/KG	6.17	U	6.17	1	19.8
11SB57-0607	20121030	SO	ETHYLBENZENE	OV	2.65	U	N		UG/KG	5.3	U	5.3	1	17
11SB58-0305	20121030	SO	ETHYLBENZENE	OV	2.49	U	N		UG/KG	4.98	U	4.98	1	16.3
11SB58-0506	20121030	SO	ETHYLBENZENE	OV	2.41	U	N		UG/KG	4.82	U	4.82	1	15.7
11SB59-0204	20121030	SO	ETHYLBENZENE	OV	3.02	U	N		UG/KG	6.03	U	6.03	1	19.4
11SB60-0204	20121129	SO	ETHYLBENZENE	OV	2.36	U	N		UG/KG	4.73	U	4.73	1	15.38
11SB60-0204-D	20121129	SO	ETHYLBENZENE	OV	2.47	U	N		UG/KG	4.93	U	4.93	1	13.53
11SB60-0405	20121129	SO	ETHYLBENZENE	OV	2.23	U	N		UG/KG	4.46	U	4.46	1	13.12
11SB61-0810	20121129	SO	ETHYLBENZENE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	17.22
11SB61-1011	20121129	SO	ETHYLBENZENE	OV	2.54	U	N		UG/KG	5.09	U	5.09	1	20.37
11SB62-0911	20121129	SO	ETHYLBENZENE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	14.28
11SB62-1112	20121129	SO	ETHYLBENZENE	OV	2.53	U	N		UG/KG	5.06	U	5.06	1	19.21
11SB63-0911	20121129	SO	ETHYLBENZENE	OV	130	U	N		UG/KG	260	U	260	50	18.5
11SB63-1112	20121129	SO	ETHYLBENZENE	OV	161	U	N		UG/KG	322	U	322	50	23.2
11SB64-0911	20121129	SO	ETHYLBENZENE	OV	2.43	U	N		UG/KG	4.86	U	4.86	1	16.4
11SB64-1112	20121129	SO	ETHYLBENZENE	OV	2.47	U	N		UG/KG	4.94	U	4.94	1	14.2
11SB65-0911	20121129	SO	ETHYLBENZENE	OV	2.4	U	N		UG/KG	4.8	U	4.8	1	13.22
11SB65-1112	20121129	SO	ETHYLBENZENE	OV	2.44	UJ	N	D	UG/KG	4.87	UN	4.87	1	14.32
11SB66-1315	20130123	SO	ETHYLBENZENE	OV	2.46	U	N		UG/KG	4.93	UN	4.93	1	14.43
11SB66-1516	20130123	SO	ETHYLBENZENE	OV	2.92	U	N		UG/KG	5.84	U	5.84	1	16.87
11SB66-1516-D	20130123	SO	ETHYLBENZENE	OV	2.83	U	N		UG/KG	5.67	U	5.67	1	18.5
11SB67-1416	20130123	SO	ETHYLBENZENE	OV	130	U	N		UG/KG	260	U	260	50	14.63
11SB67-1617	20130123	SO	ETHYLBENZENE	OV	121	U	N		UG/KG	242	U	242	50	15.86
11SB68-1315	20130123	SO	ETHYLBENZENE	OV	103	U	N		UG/KG	206	U	206	50	14.52
11SB68-1516	20130123	SO	ETHYLBENZENE	OV	112	U	N		UG/KG	223	U	223	50	14.97
11SB69-1416	20130123	SO	ETHYLBENZENE	OV	2.19	U	N		UG/KG	4.38	U	4.38	1	16.29
11SB69-1617	20130123	SO	ETHYLBENZENE	OV	2.18	U	N		UG/KG	4.37	U	4.37	1	18.65
11SB70-1315	20130123	SO	ETHYLBENZENE	OV	1.98	U	N		UG/KG	3.96	U	3.96	1	16.04
11SB70-1516	20130123	SO	ETHYLBENZENE	OV	2.63	U	N		UG/KG	5.26	U	5.26	1	18.12
11SS060002	20110426	SO	FLUORANTHENE	PAH	2.92	J	Y	P	UG/KG	2.92	J	7.84	1	19.2
11SS110002	20110426	SO	FLUORANTHENE	PAH	403	J	Y	G	UG/KG	403		7.7	1	17.8
11SS110002-D	20110426	SO	FLUORANTHENE	PAH	51.5	J	Y	G	UG/KG	51.5		8.16	1	18.8
11SS170002	20110426	SO	FLUORANTHENE	PAH	2.67	J	Y	P	UG/KG	2.67	J	7.97	1	16.3
11SS110002	20110426	SO	FLUORENE	PAH	12.4	J	Y	E	UG/KG	12.4		7.7	1	17.8
11SS130002	20110426	SO	FLUORENE	PAH	16.1	J	Y	EP	UG/KG	16.1	QJD	38.4	5	18.2
11SS300002	20110427	SO	FLUORENE	PAH	3.93	J	Y	EP	UG/KG	3.93	QJ	7.54	1	15
11SS320002	20110426	SO	FLUORENE	PAH	3.25	J	Y	EP	UG/KG	3.25	QJ	8.16	1	20.4
11SS130002	20110426	SO	GAMMA-BHC (LINDANE)	PEST	2.27	J	Y	U	UG/KG	2.27	P	0.792	1	18.2
11SB010002-D	20110426	SO	GAMMA-CHLORDANE	PEST	0.428	UJ	N	H	UG/KG	0.843	UH2	0.843	1	21
11SB010406	20110426	SO	GAMMA-CHLORDANE	PEST	0.402	UJ	N	H	UG/KG	0.792	UH2	0.792	1	17.7
11SB010406-D	20110426	SO	GAMMA-CHLORDANE	PEST	0.406	UJ	N	H	UG/KG	0.799	UH2	0.799	1	19.4
11SB020406	20110426	SO	GAMMA-CHLORDANE	PEST	0.437	UJ	N	H	UG/KG	0.862	UH2	0.862	1	24.3
11SB030406	20110426	SO	GAMMA-CHLORDANE	PEST	0.355	J	Y	HP	UG/KG	0.355	JH2	0.777	1	13.7
11SB040002	20110426	SO	GAMMA-CHLORDANE	PEST	0.419	UJ	N	H	UG/KG	0.825	UH2	0.825	1	20.9
11SB040406	20110426	SO	GAMMA-CHLORDANE	PEST	0.377	UJ	N	H	UG/KG	0.744	UH2	0.744	1	12.8
11SS050002	20110426	SO	GAMMA-CHLORDANE	PEST	0.395	UJ	N	H	UG/KG	0.778	UH2	0.778	1	16.6
11SS060002	20110426	SO	GAMMA-CHLORDANE	PEST	0.935	J	Y	CH	UG/KG	0.935	XH2	0.792	1	19.2
11SS070002	20110426	SO	GAMMA-CHLORDANE	PEST	1.25	J	Y	HU	UG/KG	1.25	PH2	0.83	1	21.9
11SS090002	20110426	SO	GAMMA-CHLORDANE	PEST	0.426	UJ	N	H	UG/KG	0.839	UH2	0.839	1	23.2
11SS110002	20110426	SO	GAMMA-CHLORDANE	PEST	0.893	J	Y	CH	UG/KG	0.893	XH2	0.809	1	17.8
11SS120002	20110426	SO	GAMMA-CHLORDANE	PEST	0.244	J	Y	CHP	UG/KG	0.244	JXH2	0.772	1	17
11SS130002	20110426	SO	GAMMA-CHLORDANE	PEST	0.859	J	Y	H	UG/KG	0.859	H2	0.792	1	18.2
11SS140002	20110426	SO	GAMMA-CHLORDANE	PEST	0.902	J	Y	HR	UG/KG	0.902	H2	0.809	1	18.8
11SS110002-D	20110426	SO	HEXACHLOROCYCLOPENTADIENE	OS	204	UJ	N	C	UG/KG	404	UX	404	1	18.8
11SS120002	20110426	SO	HEXACHLOROCYCLOPENTADIENE	OS	196	UJ	N	C	UG/KG	387	UX	387	1	17
11SS130002	20110426	SO	HEXACHLOROCYCLOPENTADIENE	OS	193	UJ	N	C	UG/KG	380	UX	380	1	18.2
11SS140002	20110426	SO	HEXACHLOROCYCLOPENTADIENE	OS	203	UJ	N	C	UG/KG	401	UX	401	1	18.8
11SS150002	20110426	SO	HEXACHLOROCYCLOPENTADIENE	OS	207	UJ	N	C	UG/KG	409	UX	409	1	19.4
11SS160002	20110426	SO	HEXACHLOROCYCLOPENTADIENE	OS	214	UJ	N	C	UG/KG	424	UX	424	1	22.6
11SS170002	20110426	SO	HEXACHLOROCYCLOPENTADIENE	OS	200	UJ	N	C	UG/KG	394	UX	394	1	16.3
11SS180002	20110426	SO	HEXACHLOROCYCLOPENTADIENE	OS	194	UJ	N	C	UG/KG	383	UX	383	1	17.8
11SS290002	20110427	SO	HEXACHLOROCYCLOPENTADIENE	OS	213	UJ	N	C	UG/KG	421	UX	421	1	22.6
11SS300002	20110427	SO	HEXACHLOROCYCLOPENTADIENE	OS	189	UJ	N	C	UG/KG	373	UX	373	1	15
11SS310002	20110426	SO	HEXACHLOROCYCLOPENTADIENE	OS	203	UJ	N	C	UG/KG	402	UX	402	1	19.5
11SS310002-D	20110427	SO	HEXACHLOROCYCLOPENTADIENE	OS	210	UJ	N	C	UG/KG	416	UX	416	1	21.7
11SS320002	20110426	SO	HEXACHLOROCYCLOPENTADIENE	OS	204	UJ	N	C	UG/KG	404	UX	404	1	20.4
11SS060002	20110426	SO	INDENO(1,2,3-CD)PYRENE	PAH	2.64	J	Y	P	UG/KG	2.64	J	7.84	1	19.2
11SS070002	20110426	SO	INDENO(1,2,3-CD)PYRENE	PAH	3.85	J	Y	P	UG/KG	3.85	J	8.27	1	21.9
11SS110002	20110426	SO	INDENO(1,2,3-CD)PYRENE	PAH	92.7	J	Y	G	UG/KG	92.7		7.7	1	17.8
11SS110002-D	20110426	SO	INDENO(1,2,3-CD)PYRENE	PAH	20.5	J	Y	G	UG/KG	20.5		8.16	1	18.8
11SS170002	20110426	SO	INDENO(1,2,3-CD)PYRENE	PAH	2.08	J	Y	P	UG/KG	2.08	J	7.97	1	16.3
11SB440607	20111116	SO	ISOPROPYLBENZENE	OV	2.45	UJ	N	C	UG/KG	4.900000	UX	4.9	1	11
11SB450204	20111116	SO	ISOPROPYLBENZENE	OV	136	UJ	N	C	UG/KG	272.000000	UX	272	50	21.1
11SB450506	20111116	SO	ISOPROPYLBENZENE	OV	1.38	J	Y	C	UG/KG	1.380000	JX	4.5	1	12
11SB470103	20111116	SO	ISOPROPYLBENZENE	OV	2.8	UJ	N	C	UG/KG	5.600000	UX	5.6	1	19.3

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB480305	20111116	SO	ISOPROPYLBENZENE	OV	2.84	UJ	N	C	UG/KG	5.680000	UX	5.68	1	20.4
11SB480506	20111116	SO	ISOPROPYLBENZENE	OV	2.45	UJ	N	C	UG/KG	4.890000	UX	4.89	1	14.9
11SB490204	20111116	SO	ISOPROPYLBENZENE	OV	2.79	UJ	N	C	UG/KG	5.580000	UX	5.58	1	20.4
11SB490405	20111116	SO	ISOPROPYLBENZENE	OV	2.41	UJ	N	C	UG/KG	4.810000	UX	4.81	1	12.7
11SB500506	20111116	SO	ISOPROPYLBENZENE	OV	2.22	UJ	N	C	UG/KG	4.440000	UX	4.44	1	11.1
11SB51-0204	20121030	SO	ISOPROPYLBENZENE	OV	3.24	J	Y	P	UG/KG	3.24	J	5.19	1	15.3
11SB51-0204-D	20121030	SO	ISOPROPYLBENZENE	OV	2.5	J	Y	P	UG/KG	2.5	J	4.77	1	12.3
11SB51-0506	20121030	SO	ISOPROPYLBENZENE	OV	2.39	U	N		UG/KG	4.79	U	4.79	1	13
11SB52-0204	20121030	SO	ISOPROPYLBENZENE	OV	2.48	U	N		UG/KG	4.95	NU	4.95	1	15.3
11SB52-0506	20121030	SO	ISOPROPYLBENZENE	OV	2.4	U	N		UG/KG	4.81	U	4.81	1	14.9
11SB53-0204	20121030	SO	ISOPROPYLBENZENE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	17.6
11SB53-0506	20121030	SO	ISOPROPYLBENZENE	OV	2.59	U	N		UG/KG	5.18	U	5.18	1	14.3
11SB54-0204	20121030	SO	ISOPROPYLBENZENE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	15.2
11SB54-0405	20121030	SO	ISOPROPYLBENZENE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	16.3
11SB55-0406	20121030	SO	ISOPROPYLBENZENE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	15.8
11SB55-0607	20121030	SO	ISOPROPYLBENZENE	OV	2.44	U	N		UG/KG	4.89	U	4.89	1	14.9
11SB56-0406	20121030	SO	ISOPROPYLBENZENE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	11.4
11SB56-0708	20121030	SO	ISOPROPYLBENZENE	OV	2.7	U	N		UG/KG	5.39	U	5.39	1	19.1
11SB57-0406	20121030	SO	ISOPROPYLBENZENE	OV	3.08	U	N		UG/KG	6.17	U	6.17	1	19.8
11SB57-0607	20121030	SO	ISOPROPYLBENZENE	OV	2.65	U	N		UG/KG	5.3	U	5.3	1	17
11SB58-0305	20121030	SO	ISOPROPYLBENZENE	OV	2.49	U	N		UG/KG	4.98	U	4.98	1	16.3
11SB58-0506	20121030	SO	ISOPROPYLBENZENE	OV	2.41	U	N		UG/KG	4.82	U	4.82	1	15.7
11SB59-0204	20121030	SO	ISOPROPYLBENZENE	OV	3.02	U	N		UG/KG	6.03	U	6.03	1	19.4
11SB60-0204	20121129	SO	ISOPROPYLBENZENE	OV	2.36	U	N		UG/KG	4.73	U	4.73	1	15.38
11SB60-0204-D	20121129	SO	ISOPROPYLBENZENE	OV	2.47	U	N		UG/KG	4.93	U	4.93	1	13.53
11SB60-0405	20121129	SO	ISOPROPYLBENZENE	OV	2.23	U	N		UG/KG	4.46	U	4.46	1	13.12
11SB61-0810	20121129	SO	ISOPROPYLBENZENE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	17.22
11SB61-1011	20121129	SO	ISOPROPYLBENZENE	OV	2.54	U	N		UG/KG	5.09	U	5.09	1	20.37
11SB62-0911	20121129	SO	ISOPROPYLBENZENE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	14.28
11SB62-1112	20121129	SO	ISOPROPYLBENZENE	OV	2.53	U	N		UG/KG	5.06	U	5.06	1	19.21
11SB63-0911	20121129	SO	ISOPROPYLBENZENE	OV	130	U	N		UG/KG	260	U	260	50	18.5
11SB63-1112	20121129	SO	ISOPROPYLBENZENE	OV	161	U	N		UG/KG	322	U	322	50	23.2
11SB64-0911	20121129	SO	ISOPROPYLBENZENE	OV	2.43	U	N		UG/KG	4.86	U	4.86	1	16.4
11SB64-1112	20121129	SO	ISOPROPYLBENZENE	OV	2.47	U	N		UG/KG	4.94	U	4.94	1	14.2
11SB65-0911	20121129	SO	ISOPROPYLBENZENE	OV	2.4	U	N		UG/KG	4.8	U	4.8	1	13.22
11SB65-1112	20121129	SO	ISOPROPYLBENZENE	OV	2.44	UJ	N	D	UG/KG	4.87	UN	4.87	1	14.32
11SB66-1315	20130123	SO	ISOPROPYLBENZENE	OV	2.46	U	N		UG/KG	4.93	UN	4.93	1	14.43
11SB66-1516	20130123	SO	ISOPROPYLBENZENE	OV	2.92	U	N		UG/KG	5.84	U	5.84	1	16.87
11SB66-1516-D	20130123	SO	ISOPROPYLBENZENE	OV	2.83	U	N		UG/KG	5.67	U	5.67	1	18.5
11SB67-1416	20130123	SO	ISOPROPYLBENZENE	OV	130	U	N		UG/KG	260	U	260	50	14.63
11SB67-1617	20130123	SO	ISOPROPYLBENZENE	OV	121	U	N		UG/KG	242	U	242	50	15.86
11SB68-1315	20130123	SO	ISOPROPYLBENZENE	OV	103	U	N		UG/KG	206	U	206	50	14.52
11SB68-1516	20130123	SO	ISOPROPYLBENZENE	OV	112	U	N		UG/KG	223	U	223	50	14.97
11SB69-1416	20130123	SO	ISOPROPYLBENZENE	OV	2.19	U	N		UG/KG	4.38	U	4.38	1	16.29
11SB69-1617	20130123	SO	ISOPROPYLBENZENE	OV	2.18	U	N		UG/KG	4.37	U	4.37	1	18.65
11SB70-1315	20130123	SO	ISOPROPYLBENZENE	OV	1.98	U	N		UG/KG	3.96	U	3.96	1	16.04
11SB70-1516	20130123	SO	ISOPROPYLBENZENE	OV	2.63	U	N		UG/KG	5.26	U	5.26	1	18.12
11SB020406	20110426	SO	LEAD	M	28.5	J	Y	K	MG/KG	28.5	D	0.981	5	24.3
11SS120002	20110426	SO	LEAD	M	5.45	J	Y	K	MG/KG	5.45	D	0.36	2	17
11SB020406	20110426	SO	MAGNESIUM	M	900	J	Y	P	MG/KG	900	JD	1630	5	24.3
11SB010002	20110426	SO	MANGANESE	M	271	J	Y	G	MG/KG	271	D	1.88	2	21.1
11SB010002-D	20110426	SO	MANGANESE	M	542	J	Y	G	MG/KG	542	D	1.84	2	21
11SS070002	20110426	SO	MANGANESE	M	187	J	Y	F	MG/KG	187	D	1.87	2	21.9
11SS080002	20110426	SO	MANGANESE	M	835	J	Y	F	MG/KG	835	D	1.8	2	16.9
11SS090002	20110426	SO	MANGANESE	M	190	J	Y	F	MG/KG	190	D	1.87	2	23.2
11SS100002	20110426	SO	MANGANESE	M	123	J	Y	F	MG/KG	123	D	1.95	2	27.3
11SS110002	20110426	SO	MANGANESE	M	380	J	Y	F	MG/KG	380	D	1.81	2	17.8
11SS110002-D	20110426	SO	MANGANESE	M	298	J	Y	F	MG/KG	298	D	1.86	2	18.8
11SS120002	20110426	SO	MANGANESE	M	251	J	Y	F	MG/KG	251	D	1.8	2	17
11SS130002	20110426	SO	MANGANESE	M	622	J	Y	F	MG/KG	622	D	1.82	2	18.2
11SS140002	20110426	SO	MANGANESE	M	486	J	Y	F	MG/KG	486	D	1.85	2	18.8
11SS150002	20110426	SO	MANGANESE	M	419	J	Y	F	MG/KG	419	D	1.84	2	19.4
11SS160002	20110426	SO	MANGANESE	M	472	J	Y	F	MG/KG	472	D	1.96	2	22.6
11SS170002	20110426	SO	MANGANESE	M	244	J	Y	F	MG/KG	244	D	1.74	2	16.3
11SS180002	20110426	SO	MANGANESE	M	213	J	Y	F	MG/KG	213	D	1.8	2	17.8
11SS290002	20110427	SO	MANGANESE	M	101	J	Y	F	MG/KG	101	D	1.92	2	22.6
11SS300002	20110427	SO	MANGANESE	M	253	J	Y	F	MG/KG	253	D	1.73	2	15
11SS310002	20110426	SO	MANGANESE	M	1070	J	Y	FG	MG/KG	1070	D	1.8	2	19.5
11SS310002-D	20110427	SO	MANGANESE	M	433	J	Y	FG	MG/KG	433	D	1.94	2	21.7
11SS320002	20110426	SO	MANGANESE	M	839	J	Y	F	MG/KG	839	D	1.79	2	20.4
11SB010002	20110426	SO	MERCURY	M	0.0512	J	Y	F	MG/KG	0.0512		0.036	1	21.1
11SB010002-D	20110426	SO	MERCURY	M	0.0173	J	Y	FP	MG/KG	0.0173	J	0.04	1	21
11SB010406	20110426	SO	MERCURY	M	0.0203	J	Y	FP	MG/KG	0.0203	J	0.033	1	17.7
11SB010406-D	20110426	SO	MERCURY	M	0.0439	UJ	N	F	MG/KG	0.0439	U	0.043	1	19.4
11SB020002	20110426	SO	MERCURY	M	0.0389	UJ	N	F	MG/KG	0.0389	U	0.038	1	20.6
11SB020406	20110426	SO	MERCURY	M	0.0353	UJ	N	F	MG/KG	0.0353	U	0.035	1	24.3
11SB030002	20110426	SO	MERCURY	M	0.0446	J	Y	F	MG/KG	0.0446		0.033	1	18.7
11SB030406	20110426	SO	MERCURY	M	0.0337	UJ	N	F	MG/KG	0.0337	U	0.033	1	13.7
11SB040002	20110426	SO	MERCURY	M	0.0235	J	Y	FP	MG/KG	0.0235	J	0.041	1	20.9
11SB040406	20110426	SO	MERCURY	M	0.025	J	Y	FP	MG/KG	0.025	J	0.034	1	12.8
11SS050002	20110426	SO	MERCURY	M	0.0407	J	Y	F	MG/KG	0.0407		0.036	1	16.6

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SS060002	20110426	SO	MERCURY	M	0.0464	J	Y	F	MG/KG	0.0464		0.04	1	19.2
11SS070002	20110426	SO	MERCURY	M	0.0478	J	Y	F	MG/KG	0.0478		0.04	1	21.9
11SS080002	20110426	SO	MERCURY	M	0.0397	UJ	N	F	MG/KG	0.0397	U	0.039	1	16.9
11SS090002	20110426	SO	MERCURY	M	0.0645	J	Y	F	MG/KG	0.0645		0.041	1	23.2
11SS100002	20110426	SO	MERCURY	M	0.0447	J	Y	F	MG/KG	0.0447		0.037	1	27.3
11SS110002	20110426	SO	MERCURY	M	0.0321	J	Y	FP	MG/KG	0.0321	J*	0.033	1	17.8
11SS110002-D	20110426	SO	MERCURY	M	0.0198	J	Y	P	MG/KG	0.0198	J	0.034	1	18.8
11SS120002	20110426	SO	MERCURY	M	0.0303	J	Y	P	MG/KG	0.0303	J	0.037	1	17
11SS140002	20110426	SO	MERCURY	M	0.0346	J	Y	P	MG/KG	0.0346	J	0.042	1	18.8
11SS290002	20110427	SO	MERCURY	M	0.0252	J	Y	P	MG/KG	0.0252	J	0.038	1	22.6
11SS310002-D	20110427	SO	MERCURY	M	0.03	J	Y	P	MG/KG	0.03	J	0.037	1	21.7
11SS320002	20110426	SO	MERCURY	M	0.0327	J	Y	P	MG/KG	0.0327	J	0.037	1	20.4
11SS050002	20110426	SO	METHOXYCHLOR	PEST	0.395	UJ	N	C	UG/KG	0.778	U	0.778	1	16.6
11SS060002	20110426	SO	METHOXYCHLOR	PEST	0.402	UJ	N	C	UG/KG	0.792	U	0.792	1	19.2
11SS070002	20110426	SO	METHOXYCHLOR	PEST	0.421	UJ	N	C	UG/KG	0.83	U	0.83	1	21.9
11SS080002	20110426	SO	METHOXYCHLOR	PEST	0.409	UJ	N	C	UG/KG	0.806	U	0.806	1	16.9
11SS090002	20110426	SO	METHOXYCHLOR	PEST	0.426	UJ	N	C	UG/KG	0.839	UX	0.839	1	23.2
11SS100002	20110426	SO	METHOXYCHLOR	PEST	0.462	UJ	N	C	UG/KG	0.909	UX	0.909	1	27.3
11SS110002	20110426	SO	METHOXYCHLOR	PEST	0.411	UJ	N	C	UG/KG	0.809	UX	0.809	1	17.8
11SS110002-D	20110426	SO	METHOXYCHLOR	PEST	0.413	UJ	N	HR	UG/KG	0.815	UH2	0.815	1	18.8
11SS120002	20110426	SO	METHOXYCHLOR	PEST	1.01	J	Y	CU	UG/KG	1.01	XP	0.772	1	17
11SS130002	20110426	SO	METHOXYCHLOR	PEST	0.402	UJ	N	C	UG/KG	0.792	UX	0.792	1	18.2
11SS140002	20110426	SO	METHOXYCHLOR	PEST	0.41	UJ	N	C	UG/KG	0.809	UX	0.809	1	18.8
11SS150002	20110426	SO	METHOXYCHLOR	PEST	0.405	UJ	N	HR	UG/KG	0.799	UH2	0.799	1	19.4
11SS160002	20110426	SO	METHOXYCHLOR	PEST	0.428	UJ	N	HR	UG/KG	0.844	UH2	0.844	1	22.6
11SS170002	20110426	SO	METHOXYCHLOR	PEST	0.383	UJ	N	H	UG/KG	0.755	UH2	0.755	1	16.3
11SS180002	20110426	SO	METHOXYCHLOR	PEST	0.414	UJ	N	H	UG/KG	0.815	UH2	0.815	1	17.8
11SS290002	20110427	SO	METHOXYCHLOR	PEST	0.431	UJ	N	H	UG/KG	0.849	UH2	0.849	1	22.6
11SS300002	20110427	SO	METHOXYCHLOR	PEST	0.387	UJ	N	HR	UG/KG	0.763	UH2	0.763	1	15
11SS310002	20110426	SO	METHOXYCHLOR	PEST	0.403	UJ	N	H	UG/KG	0.795	UH2	0.795	1	19.5
11SS310002-D	20110427	SO	METHOXYCHLOR	PEST	0.423	UJ	N	HR	UG/KG	0.833	UH2	0.833	1	21.7
11SS320002	20110426	SO	METHOXYCHLOR	PEST	0.427	UJ	N	HR	UG/KG	0.842	UH2	0.842	1	20.4
11SB51-0204	20121030	SO	METHYL ACETATE	OV	5.19	U	N		UG/KG	10.4	U	10.4	1	15.3
11SB51-0204-D	20121030	SO	METHYL ACETATE	OV	4.77	U	N		UG/KG	9.55	U	9.55	1	12.3
11SB51-0506	20121030	SO	METHYL ACETATE	OV	4.79	U	N		UG/KG	9.58	U	9.58	1	13
11SB52-0204	20121030	SO	METHYL ACETATE	OV	4.95	U	N		UG/KG	9.9	U	9.9	1	15.3
11SB52-0506	20121030	SO	METHYL ACETATE	OV	4.81	U	N		UG/KG	9.62	U	9.62	1	14.9
11SB53-0204	20121030	SO	METHYL ACETATE	OV	5.1	U	N		UG/KG	10.2	U	10.2	1	17.6
11SB53-0506	20121030	SO	METHYL ACETATE	OV	5.18	U	N		UG/KG	10.4	U	10.4	1	14.3
11SB54-0204	20121030	SO	METHYL ACETATE	OV	4.48	U	N		UG/KG	8.96	U	8.96	1	15.2
11SB54-0405	20121030	SO	METHYL ACETATE	OV	4.61	U	N		UG/KG	9.22	U	9.22	1	16.3
11SB55-0406	20121030	SO	METHYL ACETATE	OV	4.61	U	N		UG/KG	9.21	U	9.21	1	15.8
11SB55-0607	20121030	SO	METHYL ACETATE	OV	4.89	U	N		UG/KG	9.77	U	9.77	1	14.9
11SB56-0406	20121030	SO	METHYL ACETATE	OV	4.74	U	N		UG/KG	9.48	U	9.48	1	11.4
11SB56-0708	20121030	SO	METHYL ACETATE	OV	5.39	U	N		UG/KG	10.8	U	10.8	1	19.1
11SB57-0406	20121030	SO	METHYL ACETATE	OV	6.17	U	N		UG/KG	12.3	U	12.3	1	19.8
11SB57-0607	20121030	SO	METHYL ACETATE	OV	5.3	U	N		UG/KG	10.6	U	10.6	1	17
11SB58-0305	20121030	SO	METHYL ACETATE	OV	4.98	U	N		UG/KG	9.96	U	9.96	1	16.3
11SB58-0506	20121030	SO	METHYL ACETATE	OV	4.82	U	N		UG/KG	9.65	U	9.65	1	15.7
11SB59-0204	20121030	SO	METHYL ACETATE	OV	6.03	U	N		UG/KG	12.1	U	12.1	1	19.4
11SB60-0204	20121129	SO	METHYL ACETATE	OV	4.73	U	N		UG/KG	9.45	U	9.45	1	15.38
11SB60-0204-D	20121129	SO	METHYL ACETATE	OV	4.93	U	N		UG/KG	9.87	U	9.87	1	13.53
11SB60-0405	20121129	SO	METHYL ACETATE	OV	4.46	U	N		UG/KG	8.92	U	8.92	1	13.12
11SB61-0810	20121129	SO	METHYL ACETATE	OV	4.79	U	N		UG/KG	9.59	U	9.59	1	17.22
11SB61-1011	20121129	SO	METHYL ACETATE	OV	5.09	U	N		UG/KG	10.2	U	10.2	1	20.37
11SB62-0911	20121129	SO	METHYL ACETATE	OV	4.74	U	N		UG/KG	9.48	U	9.48	1	14.28
11SB62-1112	20121129	SO	METHYL ACETATE	OV	5.06	U	N		UG/KG	10.1	U	10.1	1	19.21
11SB63-0911	20121129	SO	METHYL ACETATE	OV	260	U	N		UG/KG	521	U	521	50	18.5
11SB63-1112	20121129	SO	METHYL ACETATE	OV	322	U	N		UG/KG	643	U	643	50	23.2
11SB64-0911	20121129	SO	METHYL ACETATE	OV	4.86	U	N		UG/KG	9.73	U	9.73	1	16.4
11SB64-1112	20121129	SO	METHYL ACETATE	OV	4.94	U	N		UG/KG	9.88	U	9.88	1	14.2
11SB65-0911	20121129	SO	METHYL ACETATE	OV	4.8	U	N		UG/KG	9.6	U	9.6	1	13.22
11SB65-1112	20121129	SO	METHYL ACETATE	OV	4.87	U	N		UG/KG	9.74	U	9.74	1	14.32
11SB66-1315	20130123	SO	METHYL ACETATE	OV	4.93	U	N		UG/KG	9.85	U	9.85	1	14.43
11SB66-1516	20130123	SO	METHYL ACETATE	OV	5.84	U	N		UG/KG	11.7	U	11.7	1	16.87
11SB66-1516-D	20130123	SO	METHYL ACETATE	OV	5.67	U	N		UG/KG	11.3	U	11.3	1	18.5
11SB67-1416	20130123	SO	METHYL ACETATE	OV	260	U	N		UG/KG	520	U	520	50	14.63
11SB67-1617	20130123	SO	METHYL ACETATE	OV	242	U	N		UG/KG	483	U	483	50	15.86
11SB68-1315	20130123	SO	METHYL ACETATE	OV	206	U	N		UG/KG	412	U	412	50	14.52
11SB68-1516	20130123	SO	METHYL ACETATE	OV	223	U	N		UG/KG	447	U	447	50	14.97
11SB69-1416	20130123	SO	METHYL ACETATE	OV	4.38	U	N		UG/KG	8.76	U	8.76	1	16.29
11SB69-1617	20130123	SO	METHYL ACETATE	OV	4.37	U	N		UG/KG	8.73	U	8.73	1	18.65
11SB70-1315	20130123	SO	METHYL ACETATE	OV	3.96	U	N		UG/KG	7.92	U	7.92	1	16.04
11SB70-1516	20130123	SO	METHYL ACETATE	OV	5.26	U	N		UG/KG	10.5	U	10.5	1	18.12
11SB51-0204	20121030	SO	METHYL CYCLOHEXANE	OV	2.59	U	N		UG/KG	5.19	U	5.19	1	15.3
11SB51-0204-D	20121030	SO	METHYL CYCLOHEXANE	OV	2.39	U	N		UG/KG	4.77	U	4.77	1	12.3
11SB51-0506	20121030	SO	METHYL CYCLOHEXANE	OV	2.39	U	N		UG/KG	4.79	U	4.79	1	13
11SB52-0204	20121030	SO	METHYL CYCLOHEXANE	OV	2.48	U	N		UG/KG	4.95	U	4.95	1	15.3
11SB52-0506	20121030	SO	METHYL CYCLOHEXANE	OV	2.4	U	N		UG/KG	4.81	U	4.81	1	14.9
11SB53-0204	20121030	SO	METHYL CYCLOHEXANE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	17.6
11SB53-0506	20121030	SO	METHYL CYCLOHEXANE	OV	2.59	U	N		UG/KG	5.18	U	5.18	1	14.3

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB55-0406	20121030	SO	METHYL CYCLOHEXANE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	15.8
11SB55-0607	20121030	SO	METHYL CYCLOHEXANE	OV	2.44	U	N		UG/KG	4.89	U	4.89	1	14.9
11SB56-0406	20121030	SO	METHYL CYCLOHEXANE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	11.4
11SB56-0708	20121030	SO	METHYL CYCLOHEXANE	OV	2.7	U	N		UG/KG	5.39	U	5.39	1	19.1
11SB57-0406	20121030	SO	METHYL CYCLOHEXANE	OV	3.08	U	N		UG/KG	6.17	U	6.17	1	19.8
11SB57-0607	20121030	SO	METHYL CYCLOHEXANE	OV	2.65	U	N		UG/KG	5.3	U	5.3	1	17
11SB58-0305	20121030	SO	METHYL CYCLOHEXANE	OV	2.49	U	N		UG/KG	4.98	U	4.98	1	16.3
11SB58-0506	20121030	SO	METHYL CYCLOHEXANE	OV	2.41	U	N		UG/KG	4.82	U	4.82	1	15.7
11SB59-0204	20121030	SO	METHYL CYCLOHEXANE	OV	3.02	U	N		UG/KG	6.03	U	6.03	1	19.4
11SB60-0204	20121129	SO	METHYL CYCLOHEXANE	OV	2.36	U	N		UG/KG	4.73	U	4.73	1	15.38
11SB60-0204-D	20121129	SO	METHYL CYCLOHEXANE	OV	2.47	U	N		UG/KG	4.93	U	4.93	1	13.53
11SB60-0405	20121129	SO	METHYL CYCLOHEXANE	OV	2.23	U	N		UG/KG	4.46	U	4.46	1	13.12
11SB61-0810	20121129	SO	METHYL CYCLOHEXANE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	17.22
11SB61-1011	20121129	SO	METHYL CYCLOHEXANE	OV	2.54	U	N		UG/KG	5.09	U	5.09	1	20.37
11SB62-0911	20121129	SO	METHYL CYCLOHEXANE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	14.28
11SB62-1112	20121129	SO	METHYL CYCLOHEXANE	OV	2.53	U	N		UG/KG	5.06	U	5.06	1	19.21
11SB63-0911	20121129	SO	METHYL CYCLOHEXANE	OV	130	U	N		UG/KG	260	U	260	50	18.5
11SB63-1112	20121129	SO	METHYL CYCLOHEXANE	OV	161	U	N		UG/KG	322	U	322	50	23.2
11SB64-0911	20121129	SO	METHYL CYCLOHEXANE	OV	2.43	U	N		UG/KG	4.86	U	4.86	1	16.4
11SB64-1112	20121129	SO	METHYL CYCLOHEXANE	OV	2.47	U	N		UG/KG	4.94	U	4.94	1	14.2
11SB65-1112	20121129	SO	METHYL CYCLOHEXANE	OV	2.44	U	N		UG/KG	4.87	U	4.87	1	14.32
11SB66-1315	20130123	SO	METHYL CYCLOHEXANE	OV	2.46	U	N		UG/KG	4.93	U	4.93	1	14.43
11SB66-1516	20130123	SO	METHYL CYCLOHEXANE	OV	2.92	U	N		UG/KG	5.84	U	5.84	1	16.87
11SB66-1516-D	20130123	SO	METHYL CYCLOHEXANE	OV	2.83	U	N		UG/KG	5.67	U	5.67	1	18.5
11SB67-1416	20130123	SO	METHYL CYCLOHEXANE	OV	130	U	N		UG/KG	260	U	260	50	14.63
11SB67-1617	20130123	SO	METHYL CYCLOHEXANE	OV	121	U	N		UG/KG	242	U	242	50	15.86
11SB68-1315	20130123	SO	METHYL CYCLOHEXANE	OV	103	U	N		UG/KG	206	U	206	50	14.52
11SB68-1516	20130123	SO	METHYL CYCLOHEXANE	OV	112	U	N		UG/KG	223	U	223	50	14.97
11SB69-1416	20130123	SO	METHYL CYCLOHEXANE	OV	2.19	U	N		UG/KG	4.38	U	4.38	1	16.29
11SB69-1617	20130123	SO	METHYL CYCLOHEXANE	OV	1.59	J	Y	P	UG/KG	1.59	J	4.37	1	18.65
11SB70-1315	20130123	SO	METHYL CYCLOHEXANE	OV	1.98	U	N		UG/KG	3.96	U	3.96	1	16.04
11SB70-1516	20130123	SO	METHYL CYCLOHEXANE	OV	2.63	U	N		UG/KG	5.26	U	5.26	1	18.12
11SB51-0204	20121030	SO	METHYL TERT-BUTYL ETHER	OV	2.59	U	N		UG/KG	5.19	U	5.19	1	15.3
11SB51-0204-D	20121030	SO	METHYL TERT-BUTYL ETHER	OV	2.39	U	N		UG/KG	4.77	U	4.77	1	12.3
11SB51-0506	20121030	SO	METHYL TERT-BUTYL ETHER	OV	2.39	U	N		UG/KG	4.79	U	4.79	1	13
11SB52-0204	20121030	SO	METHYL TERT-BUTYL ETHER	OV	2.48	U	N		UG/KG	4.95	U	4.95	1	15.3
11SB52-0506	20121030	SO	METHYL TERT-BUTYL ETHER	OV	2.4	U	N		UG/KG	4.81	U	4.81	1	14.9
11SB53-0204	20121030	SO	METHYL TERT-BUTYL ETHER	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	17.6
11SB53-0506	20121030	SO	METHYL TERT-BUTYL ETHER	OV	2.59	U	N		UG/KG	5.18	U	5.18	1	14.3
11SB54-0204	20121030	SO	METHYL TERT-BUTYL ETHER	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	15.2
11SB54-0405	20121030	SO	METHYL TERT-BUTYL ETHER	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	16.3
11SB55-0406	20121030	SO	METHYL TERT-BUTYL ETHER	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	15.8
11SB55-0607	20121030	SO	METHYL TERT-BUTYL ETHER	OV	2.44	U	N		UG/KG	4.89	U	4.89	1	14.9
11SB56-0406	20121030	SO	METHYL TERT-BUTYL ETHER	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	11.4
11SB56-0708	20121030	SO	METHYL TERT-BUTYL ETHER	OV	2.7	U	N		UG/KG	5.39	U	5.39	1	19.1
11SB57-0406	20121030	SO	METHYL TERT-BUTYL ETHER	OV	3.08	U	N		UG/KG	6.17	U	6.17	1	19.8
11SB57-0607	20121030	SO	METHYL TERT-BUTYL ETHER	OV	2.65	U	N		UG/KG	5.3	U	5.3	1	17
11SB58-0305	20121030	SO	METHYL TERT-BUTYL ETHER	OV	2.49	U	N		UG/KG	4.98	U	4.98	1	16.3
11SB58-0506	20121030	SO	METHYL TERT-BUTYL ETHER	OV	2.41	U	N		UG/KG	4.82	U	4.82	1	15.7
11SB59-0204	20121030	SO	METHYL TERT-BUTYL ETHER	OV	3.02	U	N		UG/KG	6.03	U	6.03	1	19.4
11SB60-0204	20121129	SO	METHYL TERT-BUTYL ETHER	OV	2.36	U	N		UG/KG	4.73	U	4.73	1	15.38
11SB60-0204-D	20121129	SO	METHYL TERT-BUTYL ETHER	OV	2.47	U	N		UG/KG	4.93	U	4.93	1	13.53
11SB60-0405	20121129	SO	METHYL TERT-BUTYL ETHER	OV	2.23	U	N		UG/KG	4.46	U	4.46	1	13.12
11SB61-0810	20121129	SO	METHYL TERT-BUTYL ETHER	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	17.22
11SB61-1011	20121129	SO	METHYL TERT-BUTYL ETHER	OV	2.54	U	N		UG/KG	5.09	U	5.09	1	20.37
11SB62-0911	20121129	SO	METHYL TERT-BUTYL ETHER	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	14.28
11SB62-1112	20121129	SO	METHYL TERT-BUTYL ETHER	OV	2.53	U	N		UG/KG	5.06	U	5.06	1	19.21
11SB63-0911	20121129	SO	METHYL TERT-BUTYL ETHER	OV	130	U	N		UG/KG	260	U	260	50	18.5
11SB63-1112	20121129	SO	METHYL TERT-BUTYL ETHER	OV	161	U	N		UG/KG	322	U	322	50	23.2
11SB64-0911	20121129	SO	METHYL TERT-BUTYL ETHER	OV	2.43	U	N		UG/KG	4.86	U	4.86	1	16.4
11SB64-1112	20121129	SO	METHYL TERT-BUTYL ETHER	OV	2.47	U	N		UG/KG	4.94	U	4.94	1	14.2
11SB65-0911	20121129	SO	METHYL TERT-BUTYL ETHER	OV	2.4	U	N		UG/KG	4.8	U	4.8	1	13.22
11SB65-1112	20121129	SO	METHYL TERT-BUTYL ETHER	OV	2.44	U	N		UG/KG	4.87	U	4.87	1	14.32
11SB66-1315	20130123	SO	METHYL TERT-BUTYL ETHER	OV	2.46	U	N		UG/KG	4.93	U	4.93	1	14.43
11SB66-1516	20130123	SO	METHYL TERT-BUTYL ETHER	OV	2.92	U	N		UG/KG	5.84	U	5.84	1	16.87
11SB66-1516-D	20130123	SO	METHYL TERT-BUTYL ETHER	OV	2.83	U	N		UG/KG	5.67	U	5.67	1	18.5
11SB67-1416	20130123	SO	METHYL TERT-BUTYL ETHER	OV	130	U	N		UG/KG	260	U	260	50	14.63
11SB67-1617	20130123	SO	METHYL TERT-BUTYL ETHER	OV	121	U	N		UG/KG	242	U	242	50	15.86
11SB68-1315	20130123	SO	METHYL TERT-BUTYL ETHER	OV	103	U	N		UG/KG	206	U	206	50	14.52
11SB68-1516	20130123	SO	METHYL TERT-BUTYL ETHER	OV	112	U	N		UG/KG	223	U	223	50	14.97
11SB69-1416	20130123	SO	METHYL TERT-BUTYL ETHER	OV	2.19	U	N		UG/KG	4.38	U	4.38	1	16.29
11SB69-1617	20130123	SO	METHYL TERT-BUTYL ETHER	OV	2.18	U	N		UG/KG	4.37	U	4.37	1	18.65
11SB70-1315	20130123	SO	METHYL TERT-BUTYL ETHER	OV	1.98	U	N		UG/KG	3.96	U	3.96	1	16.04
11SB70-1516	20130123	SO	METHYL TERT-BUTYL ETHER	OV	2.63	U	N		UG/KG	5.26	U	5.26	1	18.12
11SB260507	20110427	SO	METHYLENE CHLORIDE	OV	11.1	J	Y	P	UG/KG	11.1	JN	11.1	1	14.9
11SB400305	20111115	SO	METHYLENE CHLORIDE	OV	296	J	Y	AP	UG/KG	296.000000	JD	628	50	33.3
11SB400506	20111115	SO	METHYLENE CHLORIDE	OV	883	J	Y	AP	UG/KG	883.000000	JD	1860	100	51.6
11SB450204	20111116	SO	METHYLENE CHLORIDE	OV	272	U	N	A	UG/KG	160.000000	BJD	543	50	21.1
11SB500305	20111116	SO	METHYLENE CHLORIDE	OV	2.63	J	Y	P	UG/KG	2.630000	J	9.98	1	12.7
11SB51-0204	20121030	SO	METHYLENE CHLORIDE	OV	5.19	U	N		UG/KG	10.4	U	10.4	1	15.3
11SB51-0204-D	20121030	SO	METHYLENE CHLORIDE	OV	4.77	U	N		UG/KG	9.55	U	9.55	1	12.3

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB51-0506	20121030	SO	METHYLENE CHLORIDE	OV	4.79	U	N		UG/KG	9.58	U	9.58	1	13
11SB52-0204	20121030	SO	METHYLENE CHLORIDE	OV	4.95	U	N		UG/KG	9.9	U	9.9	1	15.3
11SB52-0506	20121030	SO	METHYLENE CHLORIDE	OV	4.81	U	N		UG/KG	9.62	U	9.62	1	14.9
11SB53-0204	20121030	SO	METHYLENE CHLORIDE	OV	5.1	U	N		UG/KG	10.2	U	10.2	1	17.6
11SB53-0506	20121030	SO	METHYLENE CHLORIDE	OV	5.18	U	N		UG/KG	10.4	U	10.4	1	14.3
11SB54-0204	20121030	SO	METHYLENE CHLORIDE	OV	4.48	U	N		UG/KG	8.96	U	8.96	1	15.2
11SB54-0405	20121030	SO	METHYLENE CHLORIDE	OV	4.61	U	N		UG/KG	9.22	U	9.22	1	16.3
11SB55-0406	20121030	SO	METHYLENE CHLORIDE	OV	4.61	U	N		UG/KG	9.21	U	9.21	1	15.8
11SB55-0607	20121030	SO	METHYLENE CHLORIDE	OV	4.89	U	N		UG/KG	9.77	U	9.77	1	14.9
11SB56-0406	20121030	SO	METHYLENE CHLORIDE	OV	4.74	U	N		UG/KG	9.48	U	9.48	1	11.4
11SB56-0708	20121030	SO	METHYLENE CHLORIDE	OV	5.39	U	N		UG/KG	10.8	U	10.8	1	19.1
11SB57-0406	20121030	SO	METHYLENE CHLORIDE	OV	6.17	U	N		UG/KG	12.3	U	12.3	1	19.8
11SB57-0607	20121030	SO	METHYLENE CHLORIDE	OV	5.3	U	N		UG/KG	10.6	U	10.6	1	17
11SB58-0305	20121030	SO	METHYLENE CHLORIDE	OV	4.98	U	N		UG/KG	9.96	U	9.96	1	16.3
11SB58-0506	20121030	SO	METHYLENE CHLORIDE	OV	4.82	U	N		UG/KG	9.65	U	9.65	1	15.7
11SB59-0204	20121030	SO	METHYLENE CHLORIDE	OV	6.03	U	N		UG/KG	12.1	U	12.1	1	19.4
11SB60-0204	20121129	SO	METHYLENE CHLORIDE	OV	4.73	U	N		UG/KG	9.45	U	9.45	1	15.38
11SB60-0204-D	20121129	SO	METHYLENE CHLORIDE	OV	4.93	U	N		UG/KG	9.87	U	9.87	1	13.53
11SB60-0405	20121129	SO	METHYLENE CHLORIDE	OV	4.46	U	N		UG/KG	8.92	U	8.92	1	13.12
11SB61-0810	20121129	SO	METHYLENE CHLORIDE	OV	4.79	U	N		UG/KG	9.59	U	9.59	1	17.22
11SB61-1011	20121129	SO	METHYLENE CHLORIDE	OV	5.09	U	N		UG/KG	10.2	U	10.2	1	20.37
11SB62-0911	20121129	SO	METHYLENE CHLORIDE	OV	4.74	U	N		UG/KG	9.48	U	9.48	1	14.28
11SB62-1112	20121129	SO	METHYLENE CHLORIDE	OV	5.06	U	N		UG/KG	10.1	U	10.1	1	19.21
11SB63-0911	20121129	SO	METHYLENE CHLORIDE	OV	205	J	Y	P	UG/KG	205	JD	521	50	18.5
11SB63-1112	20121129	SO	METHYLENE CHLORIDE	OV	250	J	Y	P	UG/KG	250	JD	643	50	23.2
11SB64-0911	20121129	SO	METHYLENE CHLORIDE	OV	4.86	U	N		UG/KG	9.73	U	9.73	1	16.4
11SB64-1112	20121129	SO	METHYLENE CHLORIDE	OV	4.94	U	N		UG/KG	9.88	U	9.88	1	14.2
11SB65-0911	20121129	SO	METHYLENE CHLORIDE	OV	4.8	U	N		UG/KG	9.6	U	9.6	1	13.22
11SB65-1112	20121129	SO	METHYLENE CHLORIDE	OV	4.87	U	N		UG/KG	9.74	U	9.74	1	14.32
11SB66-1315	20130123	SO	METHYLENE CHLORIDE	OV	4.93	U	N		UG/KG	9.85	U	9.85	1	14.43
11SB66-1516	20130123	SO	METHYLENE CHLORIDE	OV	5.84	U	N		UG/KG	11.7	U	11.7	1	16.87
11SB66-1516-D	20130123	SO	METHYLENE CHLORIDE	OV	5.67	U	N		UG/KG	11.3	U	11.3	1	18.5
11SB67-1416	20130123	SO	METHYLENE CHLORIDE	OV	260	U	N		UG/KG	520	U	520	50	14.63
11SB67-1617	20130123	SO	METHYLENE CHLORIDE	OV	242	U	N		UG/KG	483	U	483	50	15.86
11SB68-1315	20130123	SO	METHYLENE CHLORIDE	OV	206	U	N		UG/KG	412	U	412	50	14.52
11SB68-1516	20130123	SO	METHYLENE CHLORIDE	OV	223	U	N		UG/KG	447	U	447	50	14.97
11SB69-1416	20130123	SO	METHYLENE CHLORIDE	OV	4.38	U	N		UG/KG	8.76	U	8.76	1	16.29
11SB69-1617	20130123	SO	METHYLENE CHLORIDE	OV	4.37	U	N		UG/KG	8.73	U	8.73	1	18.65
11SB70-1315	20130123	SO	METHYLENE CHLORIDE	OV	3.96	U	N		UG/KG	7.92	U	7.92	1	16.04
11SB70-1516	20130123	SO	METHYLENE CHLORIDE	OV	5.26	U	N		UG/KG	10.5	U	10.5	1	18.12
11SS110002	20110426	SO	NAPHTHALENE	PAH	2.74	J	Y	P	UG/KG	2.74	J	7.7	1	17.8
11SS110002-D	20110426	SO	NAPHTHALENE	PAH	2.19	J	Y	EP	UG/KG	2.19	QJ	8.16	1	18.8
11SS130002	20110426	SO	NAPHTHALENE	PAH	14.4	J	Y	EP	UG/KG	14.4	QJD	38.4	5	18.2
11SS300002	20110427	SO	NAPHTHALENE	PAH	2.26	J	Y	EP	UG/KG	2.26	QJ	7.54	1	15
11SS310002	20110426	SO	NAPHTHALENE	PAH	3.7	J	Y	EP	UG/KG	3.7	QJ	8.12	1	19.5
11SS310002-D	20110427	SO	NAPHTHALENE	PAH	3.65	J	Y	EP	UG/KG	3.65	QJ	8.4	1	21.7
11SS320002	20110426	SO	NAPHTHALENE	PAH	4.82	J	Y	EP	UG/KG	4.82	QJ	8.16	1	20.4
11SB010002	20110426	SO	N-NITROSO-DI-N-PROPYLAMINE	OS	212	UJ	N	C	UG/KG	418	YU	418	1	21.1
11SB020406	20110426	SO	N-NITROSO-DI-N-PROPYLAMINE	OS	211	UJ	N	C	UG/KG	416	YU	416	1	24.3
11SB030002	20110426	SO	N-NITROSO-DI-N-PROPYLAMINE	OS	200	UJ	N	C	UG/KG	396	YU	396	1	18.7
11SS050002	20110426	SO	N-NITROSO-DI-N-PROPYLAMINE	OS	198	UJ	N	C	UG/KG	391	YU	391	1	16.6
11SS060002	20110426	SO	N-NITROSO-DI-N-PROPYLAMINE	OS	196	UJ	N	C	UG/KG	388	YU	388	1	19.2
11SS070002	20110426	SO	N-NITROSO-DI-N-PROPYLAMINE	OS	207	UJ	N	C	UG/KG	409	YU	409	1	21.9
11SS080002	20110426	SO	N-NITROSO-DI-N-PROPYLAMINE	OS	193	UJ	N	C	UG/KG	382	YU	382	1	16.9
11SS100002	20110426	SO	N-NITROSO-DI-N-PROPYLAMINE	OS	222	UJ	N	C	UG/KG	439	YU	439	1	27.3
11SB260507	20110427	SO	N-NITROSODIPHENYLAMINE	OS	186	UJ	N	DE	UG/KG	368	QUN	368	1	14.9
11SS110002-D	20110426	SO	N-NITROSODIPHENYLAMINE	OS	204	UJ	N	C	UG/KG	404	QUX	404	1	18.8
11SS120002	20110426	SO	N-NITROSODIPHENYLAMINE	OS	196	UJ	N	C	UG/KG	387	QUX	387	1	17
11SS130002	20110426	SO	N-NITROSODIPHENYLAMINE	OS	193	UJ	N	C	UG/KG	380	QUX	380	1	18.2
11SS140002	20110426	SO	N-NITROSODIPHENYLAMINE	OS	203	UJ	N	C	UG/KG	401	QUX	401	1	18.8
11SS150002	20110426	SO	N-NITROSODIPHENYLAMINE	OS	207	UJ	N	C	UG/KG	409	QUX	409	1	19.4
11SS160002	20110426	SO	N-NITROSODIPHENYLAMINE	OS	214	UJ	N	C	UG/KG	424	QUX	424	1	22.6
11SS170002	20110426	SO	N-NITROSODIPHENYLAMINE	OS	200	UJ	N	C	UG/KG	394	QUX	394	1	16.3
11SS180002	20110426	SO	N-NITROSODIPHENYLAMINE	OS	194	UJ	N	C	UG/KG	383	QUX	383	1	17.8
11SS290002	20110427	SO	N-NITROSODIPHENYLAMINE	OS	213	UJ	N	C	UG/KG	421	QUX	421	1	22.6
11SS300002	20110427	SO	N-NITROSODIPHENYLAMINE	OS	189	UJ	N	C	UG/KG	373	QUX	373	1	15
11SS310002	20110426	SO	N-NITROSODIPHENYLAMINE	OS	203	UJ	N	C	UG/KG	402	QUX	402	1	19.5
11SS310002-D	20110427	SO	N-NITROSODIPHENYLAMINE	OS	210	UJ	N	C	UG/KG	416	QUX	416	1	21.7
11SS320002	20110426	SO	N-NITROSODIPHENYLAMINE	OS	204	UJ	N	C	UG/KG	404	QUX	404	1	20.4
11SS110002-D	20110426	SO	PENTACHLOROPHENOL	OS	816	UJ	N	C	UG/KG	1590	UX	1590	1	18.8
11SS120002	20110426	SO	PENTACHLOROPHENOL	OS	783	UJ	N	C	UG/KG	1530	UX	1530	1	17
11SS130002	20110426	SO	PENTACHLOROPHENOL	OS	769	UJ	N	C	UG/KG	1500	UX	1500	1	18.2
11SS140002	20110426	SO	PENTACHLOROPHENOL	OS	810	UJ	N	C	UG/KG	1580	UX	1580	1	18.8
11SS150002	20110426	SO	PENTACHLOROPHENOL	OS	827	UJ	N	C	UG/KG	1610	UX	1610	1	19.4
11SS160002	20110426	SO	PENTACHLOROPHENOL	OS	857	UJ	N	C	UG/KG	1670	UX	1670	1	22.6
11SS170002	20110426	SO	PENTACHLOROPHENOL	OS	797	UJ	N	C	UG/KG	1550	UX	1550	1	16.3
11SS180002	20110426	SO	PENTACHLOROPHENOL	OS	775	UJ	N	C	UG/KG	1510	UX	1510	1	17.8
11SS290002	20110427	SO	PENTACHLOROPHENOL	OS	851	UJ	N	C	UG/KG	1660	UX	1660	1	22.6
11SS300002	20110427	SO	PENTACHLOROPHENOL	OS	754	UJ	N	C	UG/KG	1470	UX	1470	1	15
11SS310002	20110426	SO	PENTACHLOROPHENOL	OS	812	UJ	N	C	UG/KG	1580	UX	1580	1	19.5
11SS310002-D	20110427	SO	PENTACHLOROPHENOL	OS	840	UJ	N	C	UG/KG	1640	UX	1640	1	21.7

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SS320002	20110426	SO	PENTACHLOROPHENOL	OS	816	UJ	N	C	UG/KG	1590	UX	1590	1	20.4
11SB020002	20110426	SO	PHENANTHRENE	PAH	2.24	J	Y	P	UG/KG	2.24	J	8.23	1	20.6
11SS060002	20110426	SO	PHENANTHRENE	PAH	2.35	J	Y	P	UG/KG	2.35	J	7.84	1	19.2
11SS070002	20110426	SO	PHENANTHRENE	PAH	2.64	J	Y	P	UG/KG	2.64	J	8.27	1	21.9
11SS110002	20110426	SO	PHENANTHRENE	PAH	301	J	Y	G	UG/KG	301		7.7	1	17.8
11SS110002-D	20110426	SO	PHENANTHRENE	PAH	22.9	J	Y	EG	UG/KG	22.9	Q	8.16	1	18.8
11SS130002	20110426	SO	PHENANTHRENE	PAH	153	J	Y	E	UG/KG	153	QD	38.4	5	18.2
11SS140002	20110426	SO	PHENANTHRENE	PAH	8.33	J	Y	E	UG/KG	8.33	Q	8.1	1	18.8
11SS290002	20110427	SO	PHENANTHRENE	PAH	2.33	J	Y	EP	UG/KG	2.33	QJ	8.51	1	22.6
11SS300002	20110427	SO	PHENANTHRENE	PAH	72.7	J	Y	E	UG/KG	72.7	Q	7.54	1	15
11SS310002	20110426	SO	PHENANTHRENE	PAH	31.6	J	Y	EG	UG/KG	31.6	Q	8.12	1	19.5
11SS310002-D	20110427	SO	PHENANTHRENE	PAH	14.3	J	Y	EG	UG/KG	14.3	Q	8.4	1	21.7
11SS320002	20110426	SO	PHENANTHRENE	PAH	48.9	J	Y	E	UG/KG	48.9	Q	8.16	1	20.4
11SB010406-D	20110426	SO	POTASSIUM	M	510	J	Y	P	MG/KG	510	JD	623	2	19.4
11SB020002	20110426	SO	POTASSIUM	M	516	J	Y	P	MG/KG	516	JD	608	2	20.6
11SB020406	20110426	SO	POTASSIUM	M	401	J	Y	P	MG/KG	401	JD	1630	5	24.3
11SB030406	20110426	SO	POTASSIUM	M	489	J	Y	P	MG/KG	489	JD	588	2	13.7
11SB040406	20110426	SO	POTASSIUM	M	294	J	Y	P	MG/KG	294	JD	559	2	12.8
11SS070002	20110426	SO	POTASSIUM	M	667	J	Y	D	MG/KG	667	D	622	2	21.9
11SS080002	20110426	SO	POTASSIUM	M	636	J	Y	D	MG/KG	636	DN	599	2	16.9
11SS090002	20110426	SO	POTASSIUM	M	677	J	Y	D	MG/KG	677	DN	623	2	23.2
11SS100002	20110426	SO	POTASSIUM	M	577	J	Y	DP	MG/KG	577	JDN	649	2	27.3
11SS110002	20110426	SO	POTASSIUM	M	667	J	Y	D	MG/KG	667	DN	605	2	17.8
11SS110002-D	20110426	SO	POTASSIUM	M	716	J	Y	D	MG/KG	716	DN	619	2	18.8
11SS120002	20110426	SO	POTASSIUM	M	368	J	Y	DP	MG/KG	368	JDN	600	2	17
11SS130002	20110426	SO	POTASSIUM	M	602	J	Y	DP	MG/KG	602	JDN	608	2	18.2
11SS140002	20110426	SO	POTASSIUM	M	445	J	Y	DP	MG/KG	445	JDN	616	2	18.8
11SS150002	20110426	SO	POTASSIUM	M	855	J	Y	D	MG/KG	855	DN	614	2	19.4
11SS160002	20110426	SO	POTASSIUM	M	819	J	Y	D	MG/KG	819	DN	653	2	22.6
11SS170002	20110426	SO	POTASSIUM	M	278	J	Y	DP	MG/KG	278	JDN	580	2	16.3
11SS180002	20110426	SO	POTASSIUM	M	762	J	Y	D	MG/KG	762	DN	599	2	17.8
11SS290002	20110427	SO	POTASSIUM	M	481	J	Y	DP	MG/KG	481	JDN	640	2	22.6
11SS300002	20110427	SO	POTASSIUM	M	690	J	Y	D	MG/KG	690	DN	577	2	15
11SS310002	20110426	SO	POTASSIUM	M	710	J	Y	D	MG/KG	710	DN	600	2	19.5
11SS310002-D	20110427	SO	POTASSIUM	M	645	J	Y	DP	MG/KG	645	JDN	648	2	21.7
11SS320002	20110426	SO	POTASSIUM	M	686	J	Y	D	MG/KG	686	DN	596	2	20.4
11SS050002	20110426	SO	PYRENE	PAH	2.46	J	Y	P	UG/KG	2.46	J	7.9	1	16.6
11SS060002	20110426	SO	PYRENE	PAH	2.87	J	Y	P	UG/KG	2.87	J	7.84	1	19.2
11SS110002	20110426	SO	PYRENE	PAH	304	J	Y	G	UG/KG	304		7.7	1	17.8
11SS110002-D	20110426	SO	PYRENE	PAH	48.2	J	Y	EG	UG/KG	48.2	Q	8.16	1	18.8
11SS130002	20110426	SO	PYRENE	PAH	417	J	Y	E	UG/KG	417	QD	38.4	5	18.2
11SS140002	20110426	SO	PYRENE	PAH	35.5	J	Y	E	UG/KG	35.5	Q	8.1	1	18.8
11SS170002	20110426	SO	PYRENE	PAH	6.41	J	Y	EP	UG/KG	6.41	QJ	7.97	1	16.3
11SS290002	20110427	SO	PYRENE	PAH	14.4	J	Y	E	UG/KG	14.4	Q	8.51	1	22.6
11SS300002	20110427	SO	PYRENE	PAH	198	J	Y	E	UG/KG	198	Q	7.54	1	15
11SS310002	20110426	SO	PYRENE	PAH	78.4	J	Y	E	UG/KG	78.4	Q	8.12	1	19.5
11SS310002-D	20110427	SO	PYRENE	PAH	81.6	J	Y	E	UG/KG	81.6	Q	8.4	1	21.7
11SS320002	20110426	SO	PYRENE	PAH	145	J	Y	E	UG/KG	145	Q	8.16	1	20.4
11SB010002	20110426	SO	SELENIUM	M	0.652	J	Y	P	MG/KG	0.652	JD	1.25	2	21.1
11SB020002	20110426	SO	SELENIUM	M	0.406	J	Y	P	MG/KG	0.406	JD	1.22	2	20.6
11SB020406	20110426	SO	SELENIUM	M	1.26	J	Y	P	MG/KG	1.26	JD	3.27	5	24.3
11SS050002	20110426	SO	SELENIUM	M	0.67	J	Y	P	MG/KG	0.67	JD	1.19	2	16.6
11SS060002	20110426	SO	SELENIUM	M	0.565	J	Y	P	MG/KG	0.565	JD	1.23	2	19.2
11SS150002	20110426	SO	SELENIUM	M	0.517	J	Y	P	MG/KG	0.517	JD	1.23	2	19.4
11SS160002	20110426	SO	SELENIUM	M	0.542	J	Y	P	MG/KG	0.542	JD	1.31	2	22.6
11SS310002	20110426	SO	SELENIUM	M	0.516	J	Y	P	MG/KG	0.516	JD	1.2	2	19.5
11SS320002	20110426	SO	SELENIUM	M	0.472	J	Y	P	MG/KG	0.472	JD	1.19	2	20.4
11SB010002-D	20110426	SO	SODIUM	M	278	J	Y	CP	MG/KG	278	JDX	612	2	21
11SS110002	20110426	SO	SODIUM	M	139	J	Y	CDP	MG/KG	139	JDXN	605	2	17.8
11SS140002	20110426	SO	SODIUM	M	179	J	Y	CDP	MG/KG	179	JDXN	616	2	18.8
11SS150002	20110426	SO	SODIUM	M	340	J	Y	CDP	MG/KG	340	NDXJ	614	2	19.4
11SS160002	20110426	SO	SODIUM	M	342	J	Y	CDP	MG/KG	342	JDXN	653	2	22.6
11SS180002	20110426	SO	SODIUM	M	174	J	Y	CDP	MG/KG	174	JDXN	599	2	17.8
11SS300002	20110427	SO	SODIUM	M	397	J	Y	CDP	MG/KG	397	JDXN	577	2	15
11SB350305	20111116	SO	STYRENE	OV	2.88	UJ	N	C	UG/KG	5.750000	UX	5.75	1	17.6
11SB350506	20111116	SO	STYRENE	OV	2.72	UJ	N	C	UG/KG	5.440000	UX	5.44	1	17.6
11SB440607	20111116	SO	STYRENE	OV	2.45	UJ	N	C	UG/KG	4.900000	UX	4.9	1	11
11SB450204	20111116	SO	STYRENE	OV	136	UJ	N	C	UG/KG	272.000000	UX	272	50	21.1
11SB450506	20111116	SO	STYRENE	OV	2.25	UJ	N	C	UG/KG	4.500000	UX	4.5	1	12
11SB470103	20111116	SO	STYRENE	OV	2.8	UJ	N	C	UG/KG	5.600000	UX	5.6	1	19.3
11SB480305	20111116	SO	STYRENE	OV	2.84	UJ	N	C	UG/KG	5.680000	UX	5.68	1	20.4
11SB480506	20111116	SO	STYRENE	OV	2.45	UJ	N	C	UG/KG	4.890000	UX	4.89	1	14.9
11SB490204	20111116	SO	STYRENE	OV	2.79	UJ	N	C	UG/KG	5.580000	UX	5.58	1	20.4
11SB490405	20111116	SO	STYRENE	OV	2.41	UJ	N	C	UG/KG	4.810000	UX	4.81	1	12.7
11SB500506	20111116	SO	STYRENE	OV	2.22	UJ	N	C	UG/KG	4.440000	UX	4.44	1	11.1
11SB51-0204	20121030	SO	STYRENE	OV	2.59	U	N		UG/KG	5.19	U	5.19	1	15.3
11SB51-0204-D	20121030	SO	STYRENE	OV	2.39	U	N		UG/KG	4.77	U	4.77	1	12.3
11SB51-0506	20121030	SO	STYRENE	OV	2.39	U	N		UG/KG	4.79	U	4.79	1	13
11SB52-0204	20121030	SO	STYRENE	OV	2.48	UJ	N	D	UG/KG	4.95	NU	4.95	1	15.3
11SB52-0506	20121030	SO	STYRENE	OV	2.4	U	N		UG/KG	4.81	U	4.81	1	14.9
11SB53-0204	20121030	SO	STYRENE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	17.6

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB53-0506	20121030	SO	STYRENE	OV	2.59	U	N		UG/KG	5.18	U	5.18	1	14.3
11SB54-0204	20121030	SO	STYRENE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	15.2
11SB54-0405	20121030	SO	STYRENE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	16.3
11SB55-0406	20121030	SO	STYRENE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	15.8
11SB55-0607	20121030	SO	STYRENE	OV	2.44	U	N		UG/KG	4.89	U	4.89	1	14.9
11SB56-0406	20121030	SO	STYRENE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	11.4
11SB56-0708	20121030	SO	STYRENE	OV	2.7	U	N		UG/KG	5.39	U	5.39	1	19.1
11SB57-0406	20121030	SO	STYRENE	OV	3.08	U	N		UG/KG	6.17	U	6.17	1	19.8
11SB57-0607	20121030	SO	STYRENE	OV	2.65	U	N		UG/KG	5.3	U	5.3	1	17
11SB58-0305	20121030	SO	STYRENE	OV	2.49	U	N		UG/KG	4.98	U	4.98	1	16.3
11SB58-0506	20121030	SO	STYRENE	OV	2.41	U	N		UG/KG	4.82	U	4.82	1	15.7
11SB59-0204	20121030	SO	STYRENE	OV	3.02	U	N		UG/KG	6.03	U	6.03	1	19.4
11SB60-0204	20121129	SO	STYRENE	OV	2.36	U	N		UG/KG	4.73	U	4.73	1	15.38
11SB60-0204-D	20121129	SO	STYRENE	OV	2.47	U	N		UG/KG	4.93	U	4.93	1	13.53
11SB60-0405	20121129	SO	STYRENE	OV	2.23	U	N		UG/KG	4.46	U	4.46	1	13.12
11SB61-0810	20121129	SO	STYRENE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	17.22
11SB61-1011	20121129	SO	STYRENE	OV	2.54	U	N		UG/KG	5.09	U	5.09	1	20.37
11SB62-0911	20121129	SO	STYRENE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	14.28
11SB62-1112	20121129	SO	STYRENE	OV	2.53	U	N		UG/KG	5.06	U	5.06	1	19.21
11SB63-0911	20121129	SO	STYRENE	OV	130	U	N		UG/KG	260	U	260	50	18.5
11SB63-1112	20121129	SO	STYRENE	OV	161	U	N		UG/KG	322	U	322	50	23.2
11SB64-0911	20121129	SO	STYRENE	OV	2.43	U	N		UG/KG	4.86	U	4.86	1	16.4
11SB64-1112	20121129	SO	STYRENE	OV	2.47	U	N		UG/KG	4.94	U	4.94	1	14.2
11SB65-0911	20121129	SO	STYRENE	OV	2.4	U	N		UG/KG	4.8	U	4.8	1	13.22
11SB65-1112	20121129	SO	STYRENE	OV	2.44	UJ	N	D	UG/KG	4.87	UN	4.87	1	14.32
11SB66-1315	20130123	SO	STYRENE	OV	2.46	U	N		UG/KG	4.93	U	4.93	1	14.43
11SB66-1516	20130123	SO	STYRENE	OV	2.92	U	N		UG/KG	5.84	U	5.84	1	16.87
11SB66-1516-D	20130123	SO	STYRENE	OV	2.83	U	N		UG/KG	5.67	U	5.67	1	18.5
11SB67-1416	20130123	SO	STYRENE	OV	130	U	N		UG/KG	260	U	260	50	14.63
11SB67-1617	20130123	SO	STYRENE	OV	121	U	N		UG/KG	242	U	242	50	15.86
11SB68-1315	20130123	SO	STYRENE	OV	103	U	N		UG/KG	206	U	206	50	14.52
11SB68-1516	20130123	SO	STYRENE	OV	112	U	N		UG/KG	223	U	223	50	14.97
11SB69-1416	20130123	SO	STYRENE	OV	2.19	U	N		UG/KG	4.38	U	4.38	1	16.29
11SB69-1617	20130123	SO	STYRENE	OV	2.18	U	N		UG/KG	4.37	U	4.37	1	18.65
11SB70-1315	20130123	SO	STYRENE	OV	1.98	U	N		UG/KG	3.96	U	3.96	1	16.04
11SB70-1516	20130123	SO	STYRENE	OV	2.63	U	N		UG/KG	5.26	U	5.26	1	18.12
11SB010002	20110426	SO	TETRACHLOROETHENE	OV	1.36	J	Y	CP	UG/KG	1.36	JX	5.03	1	21.1
11SB010002-D	20110426	SO	TETRACHLOROETHENE	OV	2.27	J	Y	CP	UG/KG	2.27	JX	4.9	1	21
11SB010406	20110426	SO	TETRACHLOROETHENE	OV	14.2	J	Y	CG	UG/KG	14.2	X	4.75	1	17.7
11SB010406-D	20110426	SO	TETRACHLOROETHENE	OV	6.98	J	Y	CG	UG/KG	6.98	X	4.79	1	19.4
11SB030406	20110426	SO	TETRACHLOROETHENE	OV	1.57	J	Y	P	UG/KG	1.57	J	4.77	1	13.7
11SB040002	20110426	SO	TETRACHLOROETHENE	OV	2.98	UJ	N	C	UG/KG	5.97	UX	5.97	1	20.9
11SB040406	20110426	SO	TETRACHLOROETHENE	OV	2.51	UJ	N	C	UG/KG	5.03	UX	5.03	1	12.8
11SB250507	20110426	SO	TETRACHLOROETHENE	OV	2.9	UJ	N	C	UG/KG	5.79	UX	5.79	1	18.9
11SB270507	20110426	SO	TETRACHLOROETHENE	OV	2.24	UJ	N	C	UG/KG	4.48	UX	4.48	1	14.1
11SB280507	20110426	SO	TETRACHLOROETHENE	OV	3.31	UJ	N	C	UG/KG	6.62	UX	6.62	1	28.9
11SB340708	20111116	SO	TETRACHLOROETHENE	OV	2.22	J	Y	P	UG/KG	2.220000	J	4.76	1	17.6
11SB350305	20111116	SO	TETRACHLOROETHENE	OV	2.48	J	Y	P	UG/KG	2.480000	J	5.75	1	17.6
11SB430809	20111116	SO	TETRACHLOROETHENE	OV	230	J	Y	L	UG/KG	230.000000	E	5.53	1	15.7
11SB440406	20111116	SO	TETRACHLOROETHENE	OV	3.64	J	Y	P	UG/KG	3.640000	J	4.64	1	15.7
11SB54-0204	20121030	SO	TETRACHLOROETHENE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	15.2
11SB54-0405	20121030	SO	TETRACHLOROETHENE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	16.3
11SB55-0406	20121030	SO	TETRACHLOROETHENE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	15.8
11SB55-0607	20121030	SO	TETRACHLOROETHENE	OV	2.44	U	N		UG/KG	4.89	U	4.89	1	14.9
11SB56-0406	20121030	SO	TETRACHLOROETHENE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	11.4
11SB56-0708	20121030	SO	TETRACHLOROETHENE	OV	2.7	U	N		UG/KG	5.39	U	5.39	1	19.1
11SB57-0406	20121030	SO	TETRACHLOROETHENE	OV	3.08	U	N		UG/KG	6.17	U	6.17	1	19.8
11SB57-0607	20121030	SO	TETRACHLOROETHENE	OV	2.65	U	N		UG/KG	5.3	U	5.3	1	17
11SB58-0305	20121030	SO	TETRACHLOROETHENE	OV	2.49	U	N		UG/KG	4.98	U	4.98	1	16.3
11SB58-0506	20121030	SO	TETRACHLOROETHENE	OV	2.41	U	N		UG/KG	4.82	U	4.82	1	15.7
11SB59-0204	20121030	SO	TETRACHLOROETHENE	OV	3.02	U	N		UG/KG	6.03	U	6.03	1	19.4
11SB60-0204	20121129	SO	TETRACHLOROETHENE	OV	2.36	U	N		UG/KG	4.73	U	4.73	1	15.38
11SB60-0204-D	20121129	SO	TETRACHLOROETHENE	OV	2.47	U	N		UG/KG	4.93	U	4.93	1	13.53
11SB60-0405	20121129	SO	TETRACHLOROETHENE	OV	2.23	U	N		UG/KG	4.46	U	4.46	1	13.12
11SB61-0810	20121129	SO	TETRACHLOROETHENE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	17.22
11SB62-0911	20121129	SO	TETRACHLOROETHENE	OV	2.91	J	Y	P	UG/KG	2.91	J	4.74	1	14.28
11SB63-0911	20121129	SO	TETRACHLOROETHENE	OV	130	U	N		UG/KG	260	U	260	50	18.5
11SB63-1112	20121129	SO	TETRACHLOROETHENE	OV	122	J	Y	P	UG/KG	122	JD	322	50	23.2
11SB64-0911	20121129	SO	TETRACHLOROETHENE	OV	2.43	U	N		UG/KG	4.86	U	4.86	1	16.4
11SB65-0911	20121129	SO	TETRACHLOROETHENE	OV	2.4	U	N		UG/KG	4.8	U	4.8	1	13.22
11SB69-1416	20130123	SO	TETRACHLOROETHENE	OV	2.19	U	N		UG/KG	4.38	U	4.38	1	16.29
11SB70-1315	20130123	SO	TETRACHLOROETHENE	OV	1.98	U	N		UG/KG	3.96	U	3.96	1	16.04
11SB70-1516	20130123	SO	TETRACHLOROETHENE	OV	2.63	U	N		UG/KG	5.26	U	5.26	1	18.12
11SB450506	20111116	SO	TOLUENE	OV	1.28	J	Y	P	UG/KG	1.280000	J	4.5	1	12
11SB51-0204	20121030	SO	TOLUENE	OV	2.59	U	N		UG/KG	5.19	U	5.19	1	15.3
11SB51-0204-D	20121030	SO	TOLUENE	OV	2.39	U	N		UG/KG	4.77	U	4.77	1	12.3
11SB51-0506	20121030	SO	TOLUENE	OV	2.39	U	N		UG/KG	4.79	U	4.79	1	13
11SB52-0204	20121030	SO	TOLUENE	OV	2.27	J	Y	P	UG/KG	2.27	J	4.95	1	15.3
11SB53-0204	20121030	SO	TOLUENE	OV	1.77	J	Y	P	UG/KG	1.77	J	5.1	1	17.6
11SB53-0506	20121030	SO	TOLUENE	OV	2.59	U	N		UG/KG	5.18	U	5.18	1	14.3
11SB54-0204	20121030	SO	TOLUENE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	15.2

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB54-0405	20121030	SO	TOLUENE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	16.3
11SB55-0406	20121030	SO	TOLUENE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	15.8
11SB55-0607	20121030	SO	TOLUENE	OV	2.44	U	N		UG/KG	4.89	U	4.89	1	14.9
11SB56-0406	20121030	SO	TOLUENE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	11.4
11SB56-0708	20121030	SO	TOLUENE	OV	2.7	U	N		UG/KG	5.39	U	5.39	1	19.1
11SB57-0406	20121030	SO	TOLUENE	OV	3.08	U	N		UG/KG	6.17	U	6.17	1	19.8
11SB57-0607	20121030	SO	TOLUENE	OV	2.65	U	N		UG/KG	5.3	U	5.3	1	17
11SB58-0305	20121030	SO	TOLUENE	OV	2.49	U	N		UG/KG	4.98	U	4.98	1	16.3
11SB58-0506	20121030	SO	TOLUENE	OV	2.41	U	N		UG/KG	4.82	U	4.82	1	15.7
11SB59-0204	20121030	SO	TOLUENE	OV	3.02	U	N		UG/KG	6.03	U	6.03	1	19.4
11SB60-0204	20121129	SO	TOLUENE	OV	2.36	U	N		UG/KG	4.73	U	4.73	1	15.38
11SB60-0204-D	20121129	SO	TOLUENE	OV	2.47	U	N		UG/KG	4.93	U	4.93	1	13.53
11SB60-0405	20121129	SO	TOLUENE	OV	2.23	U	N		UG/KG	4.46	U	4.46	1	13.12
11SB61-0810	20121129	SO	TOLUENE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	17.22
11SB61-1011	20121129	SO	TOLUENE	OV	2.54	U	N		UG/KG	5.09	U	5.09	1	20.37
11SB62-0911	20121129	SO	TOLUENE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	14.28
11SB62-1112	20121129	SO	TOLUENE	OV	2.53	U	N		UG/KG	5.06	U	5.06	1	19.21
11SB63-0911	20121129	SO	TOLUENE	OV	130	U	N		UG/KG	260	U	260	50	18.5
11SB63-1112	20121129	SO	TOLUENE	OV	161	U	N		UG/KG	322	U	322	50	23.2
11SB64-0911	20121129	SO	TOLUENE	OV	2.9	J	Y	P	UG/KG	2.9	J	4.86	1	16.4
11SB64-1112	20121129	SO	TOLUENE	OV	2.47	U	N		UG/KG	4.94	U	4.94	1	14.2
11SB65-0911	20121129	SO	TOLUENE	OV	2.4	U	N		UG/KG	4.8	U	4.8	1	13.22
11SB65-1112	20121129	SO	TOLUENE	OV	2.44	UJ	N	D	UG/KG	4.87	UN	4.87	1	14.32
11SB66-1315	20130123	SO	TOLUENE	OV	2.46	U	N		UG/KG	4.93	U	4.93	1	14.43
11SB66-1516	20130123	SO	TOLUENE	OV	2.92	U	N		UG/KG	5.84	U	5.84	1	16.87
11SB66-1516-D	20130123	SO	TOLUENE	OV	2.83	U	N		UG/KG	5.67	U	5.67	1	18.5
11SB67-1416	20130123	SO	TOLUENE	OV	130	U	N		UG/KG	260	U	260	50	14.63
11SB67-1617	20130123	SO	TOLUENE	OV	121	U	N		UG/KG	242	U	242	50	15.86
11SB68-1315	20130123	SO	TOLUENE	OV	103	U	N		UG/KG	206	U	206	50	14.52
11SB68-1516	20130123	SO	TOLUENE	OV	112	U	N		UG/KG	223	U	223	50	14.97
11SB69-1416	20130123	SO	TOLUENE	OV	2.19	U	N		UG/KG	4.38	U	4.38	1	16.29
11SB69-1617	20130123	SO	TOLUENE	OV	2.18	U	N		UG/KG	4.37	U	4.37	1	18.65
11SB70-1315	20130123	SO	TOLUENE	OV	1.98	U	N		UG/KG	3.96	U	3.96	1	16.04
11SB70-1516	20130123	SO	TOLUENE	OV	2.63	U	N		UG/KG	5.26	U	5.26	1	18.12
11SS110002	20110426	SO	TOTAL HPCDD	DIOX	1440	J	Y	G	NG/KG	1440		4.79	1	16
11SS110002-D	20110426	SO	TOTAL HPCDD	DIOX	83.9	J	Y	G	NG/KG	83.9		4.65	1	20
11SS090002	20110426	SO	TOTAL HPCDF	DIOX	0.691	J	Y	P	NG/KG	0.691	J	4.77	1	19
11SS110002	20110426	SO	TOTAL HPCDF	DIOX	430	J	Y	G	NG/KG	430		4.79	1	16
11SS110002-D	20110426	SO	TOTAL HPCDF	DIOX	6.56	J	Y	G	NG/KG	6.56		4.65	1	20
11SS190002	20110426	SO	TOTAL HPCDF	DIOX	1.33	J	Y	P	NG/KG	1.33	J	4.76	1	18
11SS210002	20110426	SO	TOTAL HPCDF	DIOX	1.53	J	Y	P	NG/KG	1.53	J	4.81	1	19
11SS090002	20110426	SO	TOTAL HXCDD	DIOX	1.52	J	Y	P	NG/KG	1.52	J	4.77	1	19
11SS110002	20110426	SO	TOTAL HXCDD	DIOX	168	J	Y	G	NG/KG	168		4.79	1	16
11SS110002-D	20110426	SO	TOTAL HXCDD	DIOX	5.48	J	Y	G	NG/KG	5.48		4.65	1	20
11SS180002	20110426	SO	TOTAL HXCDD	DIOX	1.94	J	Y	P	NG/KG	1.94	J	4.75	1	19
11SS230002	20110426	SO	TOTAL HXCDD	DIOX	1.38	J	Y	P	NG/KG	1.38	J	4.78	1	19
11SB020002	20110426	SO	TOTAL HXCDF	DIOX	0.273	J	Y	P	NG/KG	0.273	J	4.9	1	20
11SS110002	20110426	SO	TOTAL HXCDF	DIOX	108	J	Y	G	NG/KG	108		4.79	1	16
11SS110002-D	20110426	SO	TOTAL HXCDF	DIOX	1.31	J	Y	GP	NG/KG	1.31	J	4.65	1	20
11SS190002	20110426	SO	TOTAL HXCDF	DIOX	0.255	J	Y	P	NG/KG	0.255	J	4.76	1	18
11SS210002	20110426	SO	TOTAL HXCDF	DIOX	1.25	J	Y	P	NG/KG	1.25	J	4.81	1	19
11SB020002	20110426	SO	TOTAL PECDD	DIOX	0.343	J	Y	P	NG/KG	0.343	J	4.9	1	20
11SS110002	20110426	SO	TOTAL PECDD	DIOX	18.5	J	Y	G	NG/KG	18.5		4.79	1	16
11SS110002-D	20110426	SO	TOTAL PECDD	DIOX	3.11	UJ	N	G	NG/KG	3.11	U	4.65	1	20
11SS140002	20110426	SO	TOTAL PECDD	DIOX	1.12	J	Y	P	NG/KG	1.12	J	4.66	1	20
11SS180002	20110426	SO	TOTAL PECDD	DIOX	0.332	J	Y	P	NG/KG	0.332	J	4.75	1	19
11SS190002	20110426	SO	TOTAL PECDD	DIOX	0.491	J	Y	P	NG/KG	0.491	J	4.76	1	18
11SS200002	20110426	SO	TOTAL PECDD	DIOX	1.11	J	Y	P	NG/KG	1.11	J	4.63	1	14
11SS220002	20110426	SO	TOTAL PECDD	DIOX	2.48	J	Y	P	NG/KG	2.48	J	4.78	1	13
11SS110002	20110426	SO	TOTAL PECDF	DIOX	19.2	J	Y	G	NG/KG	19.2		4.79	1	16
11SS110002-D	20110426	SO	TOTAL PECDF	DIOX	3.11	UJ	N	G	NG/KG	3.11	U	4.65	1	20
11SS200002	20110426	SO	TOTAL PECDF	DIOX	0.853	J	Y	P	NG/KG	0.853	J	4.63	1	14
11SS220002	20110426	SO	TOTAL TCDD	DIOX	0.69	J	Y	P	NG/KG	0.69	J	0.956	1	13
11SB020002	20110426	SO	TOTAL TCDF	DIOX	0.49	U	N	A	NG/KG	0.49	BJ	0.981	1	20
11SS090002	20110426	SO	TOTAL TCDF	DIOX	0.374	U	N	A	NG/KG	0.374	BJ	0.954	1	19
11SS110002	20110426	SO	TOTAL TCDF	DIOX	1.74	U	N	A	NG/KG	1.74	B	0.957	1	16
11SS140002	20110426	SO	TOTAL TCDF	DIOX	8.4	U	N	A	NG/KG	8.4	B	0.933	1	20
11SS180002	20110426	SO	TOTAL TCDF	DIOX	0.868	U	N	A	NG/KG	0.868	BJ	0.95	1	19
11SS190002	20110426	SO	TOTAL TCDF	DIOX	0.842	U	N	A	NG/KG	0.842	BJ	0.952	1	18
11SS200002	20110426	SO	TOTAL TCDF	DIOX	0.899	U	N	A	NG/KG	0.899	BJ	0.925	1	14
11SS210002-D	20110426	SO	TOTAL TCDF	DIOX	0.952	U	N	A	NG/KG	0.952	B	0.905	1	21
11SS230002	20110426	SO	TOTAL TCDF	DIOX	0.369	U	N	A	NG/KG	0.369	BJ	0.956	1	19
11SS240002	20110426	SO	TOTAL TCDF	DIOX	0.506	U	N	A	NG/KG	0.506	BJ	0.934	1	17
11SB51-0204	20121030	SO	TOTAL XYLENES	OV	7.78	U	N		UG/KG	15.6	U	15.6	1	15.3
11SB51-0204-D	20121030	SO	TOTAL XYLENES	OV	7.16	U	N		UG/KG	14.3	U	14.3	1	12.3
11SB51-0506	20121030	SO	TOTAL XYLENES	OV	7.18	U	N		UG/KG	14.4	U	14.4	1	13
11SB52-0204	20121030	SO	TOTAL XYLENES	OV	6.58	J	Y	DP	UG/KG	6.58	JN	14.9	1	15.3
11SB53-0204	20121030	SO	TOTAL XYLENES	OV	7.65	U	N		UG/KG	15.3	U	15.3	1	17.6
11SB53-0506	20121030	SO	TOTAL XYLENES	OV	4.45	J	Y	P	UG/KG	4.45	J	15.5	1	14.3
11SB54-0204	20121030	SO	TOTAL XYLENES	OV	6.72	U	N		UG/KG	13.4	U	13.4	1	15.2
11SB54-0405	20121030	SO	TOTAL XYLENES	OV	6.91	U	N		UG/KG	13.8	U	13.8	1	16.3

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB55-0406	20121030	SO	TOTAL XYLENES	OV	6.91	U	N		UG/KG	13.8	U	13.8	1	15.8
11SB55-0607	20121030	SO	TOTAL XYLENES	OV	7.33	U	N		UG/KG	14.7	U	14.7	1	14.9
11SB56-0406	20121030	SO	TOTAL XYLENES	OV	7.11	U	N		UG/KG	14.2	U	14.2	1	11.4
11SB56-0708	20121030	SO	TOTAL XYLENES	OV	8.09	U	N		UG/KG	16.2	U	16.2	1	19.1
11SB57-0406	20121030	SO	TOTAL XYLENES	OV	9.25	U	N		UG/KG	18.5	U	18.5	1	19.8
11SB57-0607	20121030	SO	TOTAL XYLENES	OV	7.96	U	N		UG/KG	15.9	U	15.9	1	17
11SB58-0305	20121030	SO	TOTAL XYLENES	OV	7.47	U	N		UG/KG	14.9	U	14.9	1	16.3
11SB58-0506	20121030	SO	TOTAL XYLENES	OV	7.23	U	N		UG/KG	14.5	U	14.5	1	15.7
11SB59-0204	20121030	SO	TOTAL XYLENES	OV	9.05	U	N		UG/KG	18.1	U	18.1	1	19.4
11SB60-0204	20121129	SO	TOTAL XYLENES	OV	7.09	U	N		UG/KG	14.2	U	14.2	1	15.38
11SB60-0204-D	20121129	SO	TOTAL XYLENES	OV	7.4	U	N		UG/KG	14.8	U	14.8	1	13.53
11SB60-0405	20121129	SO	TOTAL XYLENES	OV	6.69	U	N		UG/KG	13.4	U	13.4	1	13.12
11SB61-0810	20121129	SO	TOTAL XYLENES	OV	7.19	U	N		UG/KG	14.4	U	14.4	1	17.22
11SB61-1011	20121129	SO	TOTAL XYLENES	OV	7.63	U	N		UG/KG	15.3	U	15.3	1	20.37
11SB62-0911	20121129	SO	TOTAL XYLENES	OV	7.11	U	N		UG/KG	14.2	U	14.2	1	14.28
11SB62-1112	20121129	SO	TOTAL XYLENES	OV	7.6	U	N		UG/KG	15.2	U	15.2	1	19.21
11SB63-0911	20121129	SO	TOTAL XYLENES	OV	391	U	N		UG/KG	781	U	781	50	18.5
11SB63-1112	20121129	SO	TOTAL XYLENES	OV	482	U	N		UG/KG	965	U	965	50	23.2
11SB64-0911	20121129	SO	TOTAL XYLENES	OV	7.3	U	N		UG/KG	14.6	U	14.6	1	16.4
11SB64-1112	20121129	SO	TOTAL XYLENES	OV	7.41	U	N		UG/KG	14.8	U	14.8	1	14.2
11SB65-0911	20121129	SO	TOTAL XYLENES	OV	7.2	U	N		UG/KG	14.4	U	14.4	1	13.22
11SB65-1112	20121129	SO	TOTAL XYLENES	OV	7.31	UJ	N	D	UG/KG	14.6	UN	14.6	1	14.32
11SB66-1315	20130123	SO	TOTAL XYLENES	OV	7.39	UJ	N	D	UG/KG	14.8	UN	14.8	1	14.43
11SB66-1516	20130123	SO	TOTAL XYLENES	OV	8.76	U	N		UG/KG	17.5	U	17.5	1	16.87
11SB66-1516-D	20130123	SO	TOTAL XYLENES	OV	8.5	U	N		UG/KG	17	U	17	1	18.5
11SB67-1416	20130123	SO	TOTAL XYLENES	OV	390	U	N		UG/KG	780	U	780	50	14.63
11SB67-1617	20130123	SO	TOTAL XYLENES	OV	362	U	N		UG/KG	725	U	725	50	15.86
11SB68-1315	20130123	SO	TOTAL XYLENES	OV	309	U	N		UG/KG	619	U	619	50	14.52
11SB68-1516	20130123	SO	TOTAL XYLENES	OV	335	U	N		UG/KG	670	U	670	50	14.97
11SB69-1416	20130123	SO	TOTAL XYLENES	OV	6.57	U	N		UG/KG	13.1	U	13.1	1	16.29
11SB69-1617	20130123	SO	TOTAL XYLENES	OV	6.55	U	N		UG/KG	13.1	U	13.1	1	18.65
11SB70-1315	20130123	SO	TOTAL XYLENES	OV	5.94	U	N		UG/KG	11.9	U	11.9	1	16.04
11SB70-1516	20130123	SO	TOTAL XYLENES	OV	7.88	U	N		UG/KG	15.8	U	15.8	1	18.12
11SB010002	20110426	SO	TOXAPHENE	PEST	27	UJ	N	C	UG/KG	40.5	UX	40.5	1	21.1
11SB010002-D	20110426	SO	TOXAPHENE	PEST	27.7	UJ	N	C	UG/KG	41.5	UX	41.5	1	21
11SB010406	20110426	SO	TOXAPHENE	PEST	26	UJ	N	C	UG/KG	39	UX	39	1	17.7
11SB010406-D	20110426	SO	TOXAPHENE	PEST	26.2	UJ	N	C	UG/KG	39.4	UX	39.4	1	19.4
11SB020002	20110426	SO	TOXAPHENE	PEST	27.1	UJ	N	C	UG/KG	40.7	UX	40.7	1	20.6
11SB020406	20110426	SO	TOXAPHENE	PEST	28.3	UJ	N	C	UG/KG	42.5	UX	42.5	1	24.3
11SB030002	20110426	SO	TOXAPHENE	PEST	26.9	UJ	N	C	UG/KG	40.3	UX	40.3	1	18.7
11SB030406	20110426	SO	TOXAPHENE	PEST	25.5	UJ	N	C	UG/KG	38.2	UX	38.2	1	13.7
11SB040002	20110426	SO	TOXAPHENE	PEST	27.1	UJ	N	C	UG/KG	40.7	UX	40.7	1	20.9
11SB040406	20110426	SO	TOXAPHENE	PEST	24.4	UJ	N	C	UG/KG	36.6	UX	36.6	1	12.8
11SS050002	20110426	SO	TOXAPHENE	PEST	25.5	UJ	N	C	UG/KG	38.3	UX	38.3	1	16.6
11SS060002	20110426	SO	TOXAPHENE	PEST	26	UJ	N	C	UG/KG	39	UX	39	1	19.2
11SS070002	20110426	SO	TOXAPHENE	PEST	27.3	UJ	N	C	UG/KG	40.9	UX	40.9	1	21.9
11SS080002	20110426	SO	TOXAPHENE	PEST	26.5	UJ	N	C	UG/KG	39.7	UX	39.7	1	16.9
11SS090002	20110426	SO	TOXAPHENE	PEST	27.6	UJ	N	C	UG/KG	41.3	U	41.3	1	23.2
11SS100002	20110426	SO	TOXAPHENE	PEST	29.9	UJ	N	C	UG/KG	44.8	U	44.8	1	27.3
11SS110002	20110426	SO	TOXAPHENE	PEST	26.6	UJ	N	C	UG/KG	39.9	U	39.9	1	17.8
11SS110002-D	20110426	SO	TOXAPHENE	PEST	27.1	UJ	N	C	UG/KG	40.7	UX	40.7	1	18.8
11SS120002	20110426	SO	TOXAPHENE	PEST	25.3	UJ	N	C	UG/KG	38	U	38	1	17
11SS130002	20110426	SO	TOXAPHENE	PEST	26	UJ	N	C	UG/KG	39	U	39	1	18.2
11SS140002	20110426	SO	TOXAPHENE	PEST	26.6	UJ	N	C	UG/KG	39.8	U	39.8	1	18.8
11SS150002	20110426	SO	TOXAPHENE	PEST	26.2	UJ	N	C	UG/KG	39.3	UX	39.3	1	19.4
11SS160002	20110426	SO	TOXAPHENE	PEST	27.9	UJ	N	C	UG/KG	41.8	UX	41.8	1	22.6
11SS170002	20110426	SO	TOXAPHENE	PEST	25.4	UJ	N	C	UG/KG	38.2	UX	38.2	1	16.3
11SS180002	20110426	SO	TOXAPHENE	PEST	25.9	UJ	N	C	UG/KG	38.8	UX	38.8	1	17.8
11SS290002	20110427	SO	TOXAPHENE	PEST	27.2	UJ	N	C	UG/KG	40.8	UX	40.8	1	22.6
11SS300002	20110427	SO	TOXAPHENE	PEST	25.2	UJ	N	C	UG/KG	37.8	UX	37.8	1	15
11SS310002	20110426	SO	TOXAPHENE	PEST	26.6	UJ	N	C	UG/KG	39.9	UX	39.9	1	19.5
11SS310002-D	20110427	SO	TOXAPHENE	PEST	27	UJ	N	C	UG/KG	40.5	UX	40.5	1	21.7
11SS320002	20110426	SO	TOXAPHENE	PEST	26.8	UJ	N	C	UG/KG	40.1	UX	40.1	1	20.4
11SB020406	20110426	SO	TRANS-1,2-DICHLOROETHENE	OV	1.45	J	Y	P	UG/KG	1.45	J	5.1	1	24.3
11SB51-0204	20121030	SO	TRANS-1,2-DICHLOROETHENE	OV	2.59	U	N		UG/KG	5.19	U	5.19	1	15.3
11SB51-0204-D	20121030	SO	TRANS-1,2-DICHLOROETHENE	OV	2.39	U	N		UG/KG	4.77	U	4.77	1	12.3
11SB51-0506	20121030	SO	TRANS-1,2-DICHLOROETHENE	OV	2.39	U	N		UG/KG	4.79	U	4.79	1	13
11SB52-0506	20121030	SO	TRANS-1,2-DICHLOROETHENE	OV	2.4	U	N		UG/KG	4.81	U	4.81	1	14.9
11SB53-0506	20121030	SO	TRANS-1,2-DICHLOROETHENE	OV	2.59	U	N		UG/KG	5.18	U	5.18	1	14.3
11SB54-0204	20121030	SO	TRANS-1,2-DICHLOROETHENE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	15.2
11SB54-0405	20121030	SO	TRANS-1,2-DICHLOROETHENE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	16.3
11SB55-0406	20121030	SO	TRANS-1,2-DICHLOROETHENE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	15.8
11SB55-0607	20121030	SO	TRANS-1,2-DICHLOROETHENE	OV	2.44	U	N		UG/KG	4.89	U	4.89	1	14.9
11SB56-0406	20121030	SO	TRANS-1,2-DICHLOROETHENE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	11.4
11SB56-0708	20121030	SO	TRANS-1,2-DICHLOROETHENE	OV	2.7	U	N		UG/KG	5.39	U	5.39	1	19.1
11SB57-0406	20121030	SO	TRANS-1,2-DICHLOROETHENE	OV	3.08	U	N		UG/KG	6.17	U	6.17	1	19.8
11SB57-0607	20121030	SO	TRANS-1,2-DICHLOROETHENE	OV	2.65	U	N		UG/KG	5.3	U	5.3	1	17
11SB58-0305	20121030	SO	TRANS-1,2-DICHLOROETHENE	OV	2.49	U	N		UG/KG	4.98	U	4.98	1	16.3
11SB58-0506	20121030	SO	TRANS-1,2-DICHLOROETHENE	OV	2.41	U	N		UG/KG	4.82	U	4.82	1	15.7
11SB59-0204	20121030	SO	TRANS-1,2-DICHLOROETHENE	OV	3.02	U	N		UG/KG	6.03	U	6.03	1	19.4
11SB60-0204	20121129	SO	TRANS-1,2-DICHLOROETHENE	OV	2.36	U	N		UG/KG	4.73	U	4.73	1	15.38

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB60-0204-D	20121129	SO	TRANS-1,2-DICHLOROETHENE	OV	2.47	U	N		UG/KG	4.93	U	4.93	1	13.53
11SB60-0405	20121129	SO	TRANS-1,2-DICHLOROETHENE	OV	2.23	U	N		UG/KG	4.46	U	4.46	1	13.12
11SB61-0810	20121129	SO	TRANS-1,2-DICHLOROETHENE	OV	2.08	J	Y	P	UG/KG	2.08	J	4.79	1	17.22
11SB61-1011	20121129	SO	TRANS-1,2-DICHLOROETHENE	OV	2.54	U	N		UG/KG	5.09	U	5.09	1	20.37
11SB62-0911	20121129	SO	TRANS-1,2-DICHLOROETHENE	OV	1.66	J	Y	P	UG/KG	1.66	J	4.74	1	14.28
11SB62-1112	20121129	SO	TRANS-1,2-DICHLOROETHENE	OV	2.53	U	N		UG/KG	5.06	U	5.06	1	19.21
11SB63-0911	20121129	SO	TRANS-1,2-DICHLOROETHENE	OV	130	U	N		UG/KG	260	U	260	50	18.5
11SB63-1112	20121129	SO	TRANS-1,2-DICHLOROETHENE	OV	161	U	N		UG/KG	322	U	322	50	23.2
11SB64-1112	20121129	SO	TRANS-1,2-DICHLOROETHENE	OV	3.98	J	Y	P	UG/KG	3.98	J	4.94	1	14.2
11SB65-0911	20121129	SO	TRANS-1,2-DICHLOROETHENE	OV	3.54	J	Y	P	UG/KG	3.54	J	4.8	1	13.22
11SB65-1112	20121129	SO	TRANS-1,2-DICHLOROETHENE	OV	2.44	U	N		UG/KG	4.87	U	4.87	1	14.32
11SB66-1315	20130123	SO	TRANS-1,2-DICHLOROETHENE	OV	2.46	U	N		UG/KG	4.93	U	4.93	1	14.43
11SB66-1516	20130123	SO	TRANS-1,2-DICHLOROETHENE	OV	2.92	U	N		UG/KG	5.84	U	5.84	1	16.87
11SB66-1516-D	20130123	SO	TRANS-1,2-DICHLOROETHENE	OV	2.83	U	N		UG/KG	5.67	U	5.67	1	18.5
11SB67-1416	20130123	SO	TRANS-1,2-DICHLOROETHENE	OV	130	U	N		UG/KG	260	U	260	50	14.63
11SB67-1617	20130123	SO	TRANS-1,2-DICHLOROETHENE	OV	121	U	N		UG/KG	242	U	242	50	15.86
11SB68-1315	20130123	SO	TRANS-1,2-DICHLOROETHENE	OV	103	U	N		UG/KG	206	U	206	50	14.52
11SB68-1516	20130123	SO	TRANS-1,2-DICHLOROETHENE	OV	112	U	N		UG/KG	223	U	223	50	14.97
11SB69-1416	20130123	SO	TRANS-1,2-DICHLOROETHENE	OV	2.19	U	N		UG/KG	4.38	U	4.38	1	16.29
11SB69-1617	20130123	SO	TRANS-1,2-DICHLOROETHENE	OV	2.18	U	N		UG/KG	4.37	U	4.37	1	18.65
11SB70-1315	20130123	SO	TRANS-1,2-DICHLOROETHENE	OV	1.98	U	N		UG/KG	3.96	U	3.96	1	16.04
11SB70-1516	20130123	SO	TRANS-1,2-DICHLOROETHENE	OV	2.63	U	N		UG/KG	5.26	U	5.26	1	18.12
11SB51-0204	20121030	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.59	U	N		UG/KG	5.19	U	5.19	1	15.3
11SB51-0204-D	20121030	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.39	U	N		UG/KG	4.77	U	4.77	1	12.3
11SB51-0506	20121030	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.39	U	N		UG/KG	4.79	U	4.79	1	13
11SB52-0204	20121030	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.48	U	N		UG/KG	4.95	U	4.95	1	15.3
11SB52-0506	20121030	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.4	U	N		UG/KG	4.81	U	4.81	1	14.9
11SB53-0204	20121030	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.55	U	N		UG/KG	5.1	U	5.1	1	17.6
11SB53-0506	20121030	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.59	U	N		UG/KG	5.18	U	5.18	1	14.3
11SB54-0204	20121030	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.24	U	N		UG/KG	4.48	U	4.48	1	15.2
11SB54-0405	20121030	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	16.3
11SB55-0406	20121030	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	15.8
11SB55-0607	20121030	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.44	U	N		UG/KG	4.89	U	4.89	1	14.9
11SB56-0406	20121030	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	11.4
11SB56-0708	20121030	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.7	U	N		UG/KG	5.39	U	5.39	1	19.1
11SB57-0406	20121030	SO	TRANS-1,3-DICHLOROPROPENE	OV	3.08	U	N		UG/KG	6.17	U	6.17	1	19.8
11SB57-0607	20121030	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.65	U	N		UG/KG	5.3	U	5.3	1	17
11SB58-0305	20121030	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.49	U	N		UG/KG	4.98	U	4.98	1	16.3
11SB58-0506	20121030	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.41	U	N		UG/KG	4.82	U	4.82	1	15.7
11SB59-0204	20121030	SO	TRANS-1,3-DICHLOROPROPENE	OV	3.02	U	N		UG/KG	6.03	U	6.03	1	19.4
11SB60-0204	20121129	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.36	U	N		UG/KG	4.73	U	4.73	1	15.38
11SB60-0204-D	20121129	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.47	U	N		UG/KG	4.93	U	4.93	1	13.53
11SB60-0405	20121129	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.23	U	N		UG/KG	4.46	U	4.46	1	13.12
11SB61-0810	20121129	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	17.22
11SB61-1011	20121129	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.54	U	N		UG/KG	5.09	U	5.09	1	20.37
11SB62-0911	20121129	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	14.28
11SB62-1112	20121129	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.53	U	N		UG/KG	5.06	U	5.06	1	19.21
11SB63-0911	20121129	SO	TRANS-1,3-DICHLOROPROPENE	OV	130	U	N		UG/KG	260	U	260	50	18.5
11SB63-1112	20121129	SO	TRANS-1,3-DICHLOROPROPENE	OV	161	U	N		UG/KG	322	U	322	50	23.2
11SB64-0911	20121129	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.43	U	N		UG/KG	4.86	U	4.86	1	16.4
11SB64-1112	20121129	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.47	U	N		UG/KG	4.94	U	4.94	1	14.2
11SB65-0911	20121129	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.4	U	N		UG/KG	4.8	U	4.8	1	13.22
11SB65-1112	20121129	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.44	U	N		UG/KG	4.87	U	4.87	1	14.32
11SB66-1315	20130123	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.46	U	N		UG/KG	4.93	U	4.93	1	14.43
11SB66-1516	20130123	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.92	U	N		UG/KG	5.84	U	5.84	1	16.87
11SB66-1516-D	20130123	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.83	U	N		UG/KG	5.67	U	5.67	1	18.5
11SB67-1416	20130123	SO	TRANS-1,3-DICHLOROPROPENE	OV	130	U	N		UG/KG	260	U	260	50	14.63
11SB67-1617	20130123	SO	TRANS-1,3-DICHLOROPROPENE	OV	121	U	N		UG/KG	242	U	242	50	15.86
11SB68-1315	20130123	SO	TRANS-1,3-DICHLOROPROPENE	OV	103	U	N		UG/KG	206	U	206	50	14.52
11SB68-1516	20130123	SO	TRANS-1,3-DICHLOROPROPENE	OV	112	U	N		UG/KG	223	U	223	50	14.97
11SB69-1416	20130123	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.19	U	N		UG/KG	4.38	U	4.38	1	16.29
11SB69-1617	20130123	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.18	U	N		UG/KG	4.37	U	4.37	1	18.65
11SB70-1315	20130123	SO	TRANS-1,3-DICHLOROPROPENE	OV	1.98	U	N		UG/KG	3.96	U	3.96	1	16.04
11SB70-1516	20130123	SO	TRANS-1,3-DICHLOROPROPENE	OV	2.63	U	N		UG/KG	5.26	U	5.26	1	18.12
11SB010406	20110426	SO	TRICHLOROETHENE	OV	159	J	Y	G	UG/KG	159		4.75	1	17.7
11SB010406-D	20110426	SO	TRICHLOROETHENE	OV	65.6	J	Y	G	UG/KG	65.6		4.79	1	19.4
11SB020406	20110426	SO	TRICHLOROETHENE	OV	243	J	Y	P	UG/KG	243	JD	295	50	24.3
11SB330406	20111116	SO	TRICHLOROETHENE	OV	4.11	J	Y	P	UG/KG	4.110000	J	4.62	1	14.9
11SB340708	20111116	SO	TRICHLOROETHENE	OV	2.06	J	Y	P	UG/KG	2.060000	J	4.76	1	17.6
11SB350506	20111116	SO	TRICHLOROETHENE	OV	1.81	J	Y	P	UG/KG	1.810000	J	5.44	1	17.6
11SB400305	20111115	SO	TRICHLOROETHENE	OV	210	J	Y	P	UG/KG	210.000000	JD	314	50	33.3
11SB400506	20111115	SO	TRICHLOROETHENE	OV	879	J	Y	P	UG/KG	879.000000	JD	929	100	51.6
11SB410204	20111117	SO	TRICHLOROETHENE	OV	62.7	J	Y	P	UG/KG	62.700000	JD	228	50	15.5
11SB440406	20111116	SO	TRICHLOROETHENE	OV	1.95	J	Y	P	UG/KG	1.950000	J	4.64	1	15.7
11SB460506	20111117	SO	TRICHLOROETHENE	OV	71.6	J	Y	P	UG/KG	71.600000	JD	215	50	8.5
11SB54-0204	20121030	SO	TRICHLOROETHENE	OV	1.5	J	Y	P	UG/KG	1.5	J	4.48	1	15.2
11SB54-0405	20121030	SO	TRICHLOROETHENE	OV	2.1	J	Y	P	UG/KG	2.1	J	4.61	1	16.3
11SB55-0406	20121030	SO	TRICHLOROETHENE	OV	2.3	U	N		UG/KG	4.61	U	4.61	1	15.8
11SB55-0607	20121030	SO	TRICHLOROETHENE	OV	2.44	U	N		UG/KG	4.89	U	4.89	1	14.9
11SB56-0406	20121030	SO	TRICHLOROETHENE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	11.4
11SB56-0708	20121030	SO	TRICHLOROETHENE	OV	2.7	U	N		UG/KG	5.39	U	5.39	1	19.1

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB57-0406	20121030	SO	TRICHLOROETHENE	OV	3.08	U	N		UG/KG	6.17	U	6.17	1	19.8
11SB57-0607	20121030	SO	TRICHLOROETHENE	OV	2.65	U	N		UG/KG	5.3	U	5.3	1	17
11SB58-0305	20121030	SO	TRICHLOROETHENE	OV	2.49	U	N		UG/KG	4.98	U	4.98	1	16.3
11SB58-0506	20121030	SO	TRICHLOROETHENE	OV	2.41	U	N		UG/KG	4.82	U	4.82	1	15.7
11SB59-0204	20121030	SO	TRICHLOROETHENE	OV	3.02	U	N		UG/KG	6.03	U	6.03	1	19.4
11SB60-0204	20121129	SO	TRICHLOROETHENE	OV	2.36	U	N		UG/KG	4.73	U	4.73	1	15.38
11SB60-0204-D	20121129	SO	TRICHLOROETHENE	OV	2.47	U	N		UG/KG	4.93	U	4.93	1	13.53
11SB60-0405	20121129	SO	TRICHLOROETHENE	OV	2.23	U	N		UG/KG	4.46	U	4.46	1	13.12
11SB63-0911	20121129	SO	TRICHLOROETHENE	OV	172	J	Y	P	UG/KG	172	JD	260	50	18.5
11SB63-1112	20121129	SO	TRICHLOROETHENE	OV	152	J	Y	P	UG/KG	152	JD	322	50	23.2
11SB65-0911	20121129	SO	TRICHLOROETHENE	OV	3.99	J	Y	P	UG/KG	3.99	J	4.8	1	13.22
11SB69-1416	20130123	SO	TRICHLOROETHENE	OV	1.59	J	Y	P	UG/KG	1.59	J	4.38	1	16.29
11SB70-1315	20130123	SO	TRICHLOROETHENE	OV	1.98	U	N		UG/KG	3.96	U	3.96	1	16.04
11SB70-1516	20130123	SO	TRICHLOROETHENE	OV	2.63	U	N		UG/KG	5.26	U	5.26	1	18.12
11SB51-0204	20121030	SO	TRICHLOROFLUOROMETHANE	OV	5.19	U	N		UG/KG	10.4	U	10.4	1	15.3
11SB51-0204-D	20121030	SO	TRICHLOROFLUOROMETHANE	OV	4.77	U	N		UG/KG	9.55	U	9.55	1	12.3
11SB51-0506	20121030	SO	TRICHLOROFLUOROMETHANE	OV	4.79	U	N		UG/KG	9.58	U	9.58	1	13
11SB52-0204	20121030	SO	TRICHLOROFLUOROMETHANE	OV	4.95	U	N		UG/KG	9.9	U	9.9	1	15.3
11SB52-0506	20121030	SO	TRICHLOROFLUOROMETHANE	OV	4.81	U	N		UG/KG	9.62	U	9.62	1	14.9
11SB53-0204	20121030	SO	TRICHLOROFLUOROMETHANE	OV	5.1	U	N		UG/KG	10.2	U	10.2	1	17.6
11SB53-0506	20121030	SO	TRICHLOROFLUOROMETHANE	OV	5.18	U	N		UG/KG	10.4	U	10.4	1	14.3
11SB54-0204	20121030	SO	TRICHLOROFLUOROMETHANE	OV	4.48	U	N		UG/KG	8.96	U	8.96	1	15.2
11SB54-0405	20121030	SO	TRICHLOROFLUOROMETHANE	OV	4.61	U	N		UG/KG	9.22	U	9.22	1	16.3
11SB55-0406	20121030	SO	TRICHLOROFLUOROMETHANE	OV	4.61	U	N		UG/KG	9.21	U	9.21	1	15.8
11SB55-0607	20121030	SO	TRICHLOROFLUOROMETHANE	OV	4.89	U	N		UG/KG	9.77	U	9.77	1	14.9
11SB56-0406	20121030	SO	TRICHLOROFLUOROMETHANE	OV	4.74	U	N		UG/KG	9.48	U	9.48	1	11.4
11SB56-0708	20121030	SO	TRICHLOROFLUOROMETHANE	OV	5.39	U	N		UG/KG	10.8	U	10.8	1	19.1
11SB57-0406	20121030	SO	TRICHLOROFLUOROMETHANE	OV	6.17	U	N		UG/KG	12.3	U	12.3	1	19.8
11SB57-0607	20121030	SO	TRICHLOROFLUOROMETHANE	OV	5.3	U	N		UG/KG	10.6	U	10.6	1	17
11SB58-0305	20121030	SO	TRICHLOROFLUOROMETHANE	OV	4.98	U	N		UG/KG	9.96	U	9.96	1	16.3
11SB58-0506	20121030	SO	TRICHLOROFLUOROMETHANE	OV	4.82	U	N		UG/KG	9.65	U	9.65	1	15.7
11SB59-0204	20121030	SO	TRICHLOROFLUOROMETHANE	OV	6.03	U	N		UG/KG	12.1	U	12.1	1	19.4
11SB60-0204	20121129	SO	TRICHLOROFLUOROMETHANE	OV	4.73	U	N		UG/KG	9.45	U	9.45	1	15.38
11SB60-0204-D	20121129	SO	TRICHLOROFLUOROMETHANE	OV	4.93	U	N		UG/KG	9.87	U	9.87	1	13.53
11SB60-0405	20121129	SO	TRICHLOROFLUOROMETHANE	OV	4.46	U	N		UG/KG	8.92	U	8.92	1	13.12
11SB61-0810	20121129	SO	TRICHLOROFLUOROMETHANE	OV	4.79	U	N		UG/KG	9.59	U	9.59	1	17.22
11SB61-1011	20121129	SO	TRICHLOROFLUOROMETHANE	OV	5.09	U	N		UG/KG	10.2	U	10.2	1	20.37
11SB62-0911	20121129	SO	TRICHLOROFLUOROMETHANE	OV	4.74	U	N		UG/KG	9.48	U	9.48	1	14.28
11SB62-1112	20121129	SO	TRICHLOROFLUOROMETHANE	OV	5.06	U	N		UG/KG	10.1	U	10.1	1	19.21
11SB63-0911	20121129	SO	TRICHLOROFLUOROMETHANE	OV	260	U	N		UG/KG	521	U	521	50	18.5
11SB63-1112	20121129	SO	TRICHLOROFLUOROMETHANE	OV	322	U	N		UG/KG	643	U	643	50	23.2
11SB64-0911	20121129	SO	TRICHLOROFLUOROMETHANE	OV	4.86	U	N		UG/KG	9.73	U	9.73	1	16.4
11SB64-1112	20121129	SO	TRICHLOROFLUOROMETHANE	OV	4.94	U	N		UG/KG	9.88	U	9.88	1	14.2
11SB65-0911	20121129	SO	TRICHLOROFLUOROMETHANE	OV	4.8	U	N		UG/KG	9.6	U	9.6	1	13.22
11SB65-1112	20121129	SO	TRICHLOROFLUOROMETHANE	OV	4.87	U	N		UG/KG	9.74	U	9.74	1	14.32
11SB66-1315	20130123	SO	TRICHLOROFLUOROMETHANE	OV	4.93	U	N		UG/KG	9.85	U	9.85	1	14.43
11SB66-1516	20130123	SO	TRICHLOROFLUOROMETHANE	OV	5.84	U	N		UG/KG	11.7	U	11.7	1	16.87
11SB66-1516-D	20130123	SO	TRICHLOROFLUOROMETHANE	OV	5.67	U	N		UG/KG	11.3	U	11.3	1	18.5
11SB67-1416	20130123	SO	TRICHLOROFLUOROMETHANE	OV	260	U	N		UG/KG	520	U	520	50	14.63
11SB67-1617	20130123	SO	TRICHLOROFLUOROMETHANE	OV	242	U	N		UG/KG	483	U	483	50	15.86
11SB68-1315	20130123	SO	TRICHLOROFLUOROMETHANE	OV	206	U	N		UG/KG	412	U	412	50	14.52
11SB68-1516	20130123	SO	TRICHLOROFLUOROMETHANE	OV	223	U	N		UG/KG	447	U	447	50	14.97
11SB69-1416	20130123	SO	TRICHLOROFLUOROMETHANE	OV	4.38	U	N		UG/KG	8.76	U	8.76	1	16.29
11SB69-1617	20130123	SO	TRICHLOROFLUOROMETHANE	OV	4.37	U	N		UG/KG	8.73	U	8.73	1	18.65
11SB70-1315	20130123	SO	TRICHLOROFLUOROMETHANE	OV	3.96	U	N		UG/KG	7.92	U	7.92	1	16.04
11SB70-1516	20130123	SO	TRICHLOROFLUOROMETHANE	OV	5.26	U	N		UG/KG	10.5	U	10.5	1	18.12
11SS070002	20110426	SO	VANADIUM	M	29.4	J	Y	F	MG/KG	29.4	D	1.55	2	21.9
11SS080002	20110426	SO	VANADIUM	M	30.5	J	Y	F	MG/KG	30.5	D	1.5	2	16.9
11SS090002	20110426	SO	VANADIUM	M	32.1	J	Y	F	MG/KG	32.1	D	1.56	2	23.2
11SS100002	20110426	SO	VANADIUM	M	26.4	J	Y	F	MG/KG	26.4	D	1.62	2	27.3
11SS110002	20110426	SO	VANADIUM	M	29.1	J	Y	F	MG/KG	29.1	D	1.51	2	17.8
11SS110002-D	20110426	SO	VANADIUM	M	30.5	J	Y	F	MG/KG	30.5	D	1.55	2	18.8
11SS120002	20110426	SO	VANADIUM	M	19	J	Y	F	MG/KG	19	D	1.5	2	17
11SS130002	20110426	SO	VANADIUM	M	27.2	J	Y	F	MG/KG	27.2	D	1.52	2	18.2
11SS140002	20110426	SO	VANADIUM	M	17.6	J	Y	F	MG/KG	17.6	D	1.54	2	18.8
11SS150002	20110426	SO	VANADIUM	M	34.3	J	Y	F	MG/KG	34.3	D	1.53	2	19.4
11SS160002	20110426	SO	VANADIUM	M	35.5	J	Y	F	MG/KG	35.5	D	1.63	2	22.6
11SS170002	20110426	SO	VANADIUM	M	25	J	Y	F	MG/KG	25	D	1.45	2	16.3
11SS180002	20110426	SO	VANADIUM	M	32	J	Y	F	MG/KG	32	D	1.5	2	17.8
11SS290002	20110427	SO	VANADIUM	M	18.6	J	Y	F	MG/KG	18.6	D	1.6	2	22.6
11SS300002	20110427	SO	VANADIUM	M	18.3	J	Y	F	MG/KG	18.3	D	1.44	2	15
11SS310002	20110426	SO	VANADIUM	M	27	J	Y	F	MG/KG	27	D	1.5	2	19.5
11SS310002-D	20110427	SO	VANADIUM	M	30.5	J	Y	F	MG/KG	30.5	D	1.62	2	21.7
11SS320002	20110426	SO	VANADIUM	M	36	J	Y	F	MG/KG	36	D	1.49	2	20.4
11SB340406	20111116	SO	VINYL CHLORIDE	OV	122	UJ	N	C	UG/KG	487.000000	UQX	487	50	17.6
11SB340708	20111116	SO	VINYL CHLORIDE	OV	60.4	J	Y	CE	UG/KG	60.400000	QX	9.53	1	17.6
11SB360204	20111117	SO	VINYL CHLORIDE	OV	117	UJ	N	C	UG/KG	466.000000	UQX	466	50	15.5
11SB360405	20111117	SO	VINYL CHLORIDE	OV	113	UJ	N	C	UG/KG	453.000000	UQX	453	50	15.5
11SB360405-D	20111117	SO	VINYL CHLORIDE	OV	109	UJ	N	C	UG/KG	437.000000	UQX	437	50	13.3
11SB370103	20111116	SO	VINYL CHLORIDE	OV	2.62	UJ	N	C	UG/KG	10.500000	UQX	10.5	1	15.5
11SB370304	20111116	SO	VINYL CHLORIDE	OV	2.32	UJ	N	C	UG/KG	9.260000	UQX	9.26	1	13.4

Table E-4
Qualified Data and Associated Qualifier Codes
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NSA Crane, Crane, Indiana

sample_id	sample_date	matrix	parameter	fraction	val_res	val_qual	detect	qual_code	units	lab_result	lab_qua	rl	dil_fact	pct_moisture
11SB410204	20111117	SO	VINYL CHLORIDE	OV	114	UJ	N	C	UG/KG	456.000000	UQX	456	50	15.5
11SB410405	20111117	SO	VINYL CHLORIDE	OV	133	UJ	N	C	UG/KG	532.000000	UQX	532	50	15.5
11SB420102	20111116	SO	VINYL CHLORIDE	OV	2.29	UJ	N	C	UG/KG	9.160000	UQX	9.16	1	17.6
11SB420203	20111116	SO	VINYL CHLORIDE	OV	2.33	UJ	N	C	UG/KG	9.300000	UQX	9.3	1	14.4
11SB440406	20111116	SO	VINYL CHLORIDE	OV	2.32	UJ	N	C	UG/KG	9.280000	UQX	9.28	1	15.7
11SB450506	20111116	SO	VINYL CHLORIDE	OV	1.71	J	Y	EP	UG/KG	1.710000	JQ	8.99	1	12
11SB460305	20111117	SO	VINYL CHLORIDE	OV	2.28	UJ	N	C	UG/KG	9.100000	UNQX	9.1	1	15.5
11SB460506	20111117	SO	VINYL CHLORIDE	OV	108	UJ	N	C	UG/KG	430.000000	UQX	430	50	8.5
11SB470304	20111116	SO	VINYL CHLORIDE	OV	2.45	UJ	N	C	UG/KG	9.810000	UQX	9.81	1	17.8
11SB500305	20111116	SO	VINYL CHLORIDE	OV	2.5	UJ	N	C	UG/KG	9.980000	UQX	9.98	1	12.7
11SB51-0204	20121030	SO	VINYL CHLORIDE	OV	3.61	J	Y	P	UG/KG	3.61	J	10.4	1	15.3
11SB51-0204-D	20121030	SO	VINYL CHLORIDE	OV	3.73	J	Y	P	UG/KG	3.73	J	9.55	1	12.3
11SB51-0506	20121030	SO	VINYL CHLORIDE	OV	2.5	J	Y	P	UG/KG	2.5	J	9.58	1	13
11SB52-0204	20121030	SO	VINYL CHLORIDE	OV	85	J	Y	D	UG/KG	85	N	9.9	1	15.3
11SB53-0204	20121030	SO	VINYL CHLORIDE	OV	5.43	J	Y	P	UG/KG	5.43	J	10.2	1	17.6
11SB53-0506	20121030	SO	VINYL CHLORIDE	OV	2.56	J	Y	P	UG/KG	2.56	J	10.4	1	14.3
11SB54-0204	20121030	SO	VINYL CHLORIDE	OV	3.76	J	Y	P	UG/KG	3.76	J	8.96	1	15.2
11SB54-0405	20121030	SO	VINYL CHLORIDE	OV	5.81	J	Y	P	UG/KG	5.81	J	9.22	1	16.3
11SB55-0406	20121030	SO	VINYL CHLORIDE	OV	2.3	U	N		UG/KG	9.21	U	9.21	1	15.8
11SB55-0607	20121030	SO	VINYL CHLORIDE	OV	2.44	U	N		UG/KG	9.77	U	9.77	1	14.9
11SB56-0406	20121030	SO	VINYL CHLORIDE	OV	2.37	U	N		UG/KG	9.48	U	9.48	1	11.4
11SB56-0708	20121030	SO	VINYL CHLORIDE	OV	2.7	U	N		UG/KG	10.8	U	10.8	1	19.1
11SB57-0406	20121030	SO	VINYL CHLORIDE	OV	3.08	U	N		UG/KG	12.3	U	12.3	1	19.8
11SB57-0607	20121030	SO	VINYL CHLORIDE	OV	2.65	U	N		UG/KG	10.6	U	10.6	1	17
11SB58-0305	20121030	SO	VINYL CHLORIDE	OV	2.49	U	N		UG/KG	9.96	U	9.96	1	16.3
11SB58-0506	20121030	SO	VINYL CHLORIDE	OV	2.41	U	N		UG/KG	9.65	U	9.65	1	15.7
11SB59-0204	20121030	SO	VINYL CHLORIDE	OV	3.02	U	N		UG/KG	12.1	U	12.1	1	19.4
11SB60-0204	20121129	SO	VINYL CHLORIDE	OV	2.36	U	N		UG/KG	4.73	U	4.73	1	15.38
11SB60-0204-D	20121129	SO	VINYL CHLORIDE	OV	2.47	U	N		UG/KG	4.93	U	4.93	1	13.53
11SB60-0405	20121129	SO	VINYL CHLORIDE	OV	2.23	U	N		UG/KG	4.46	U	4.46	1	13.12
11SB61-0810	20121129	SO	VINYL CHLORIDE	OV	2.4	U	N		UG/KG	4.79	U	4.79	1	17.22
11SB61-1011	20121129	SO	VINYL CHLORIDE	OV	1.58	J	Y	P	UG/KG	1.58	J	5.09	1	20.37
11SB62-0911	20121129	SO	VINYL CHLORIDE	OV	2.37	U	N		UG/KG	4.74	U	4.74	1	14.28
11SB62-1112	20121129	SO	VINYL CHLORIDE	OV	2.48	J	Y	P	UG/KG	2.48	J	5.06	1	19.21
11SB63-0911	20121129	SO	VINYL CHLORIDE	OV	130	U	N		UG/KG	260	U	260	50	18.5
11SB63-1112	20121129	SO	VINYL CHLORIDE	OV	161	U	N		UG/KG	322	U	322	50	23.2
11SB64-0911	20121129	SO	VINYL CHLORIDE	OV	3.54	J	Y	P	UG/KG	3.54	J	4.86	1	16.4
11SB64-1112	20121129	SO	VINYL CHLORIDE	OV	4.34	J	Y	P	UG/KG	4.34	J	9.88	1	14.2
11SB65-1112	20121129	SO	VINYL CHLORIDE	OV	2.42	J	Y	P	UG/KG	2.42	J	4.87	1	14.32
11SB66-1315	20130123	SO	VINYL CHLORIDE	OV	4.34	J	Y	P	UG/KG	4.34	JN	9.85	1	14.43
11SB66-1516	20130123	SO	VINYL CHLORIDE	OV	5.21	J	Y	P	UG/KG	5.21	J	11.7	1	16.87
11SB66-1516-D	20130123	SO	VINYL CHLORIDE	OV	4.25	J	Y	P	UG/KG	4.25	J	11.3	1	18.5
11SB67-1416	20130123	SO	VINYL CHLORIDE	OV	124	J	Y	P	UG/KG	124	JD	520	50	14.63
11SB67-1617	20130123	SO	VINYL CHLORIDE	OV	116	J	Y	P	UG/KG	116	JD	483	50	15.86
11SB68-1315	20130123	SO	VINYL CHLORIDE	OV	103	U	N		UG/KG	412	U	412	50	14.52
11SB68-1516	20130123	SO	VINYL CHLORIDE	OV	112	U	N		UG/KG	447	U	447	50	14.97
11SB69-1416	20130123	SO	VINYL CHLORIDE	OV	4.59	J	Y	P	UG/KG	4.59	J	8.76	1	16.29
11SB69-1617	20130123	SO	VINYL CHLORIDE	OV	4.54	J	Y	P	UG/KG	4.54	J	8.73	1	18.65
11SB70-1315	20130123	SO	VINYL CHLORIDE	OV	1.98	U	N		UG/KG	7.92	U	7.92	1	16.04
11SB70-1516	20130123	SO	VINYL CHLORIDE	OV	2.63	U	N		UG/KG	10.5	U	10.5	1	18.12
11SB020406	20110426	SO	ZINC	M	19.9	J	Y	K	MG/KG	19.9	D	6.54	5	24.3

Total Counts for Qual Codes:

Lab Blanks	A	30
Field Blanks	B	2
CCV %R	C	756
MS/MSD	D	102
LCS/LCSD	E	43
Lab Dup	F	77
Field Dup	G	132
Hold Times	H	130
Serial Diln	I	0
ICS %R	K	7
ICAL Exceeded	L	4
Preservation	M	0
IS %R	N	0
Det Limit	P	451
Surr %R	R	85
Confirmation	U	13
D/F EMDLs	W	4
Total Number of Data Points		10,455

Table E-5
Comparison of Original and Duplicate Samples
SWMU 11 RFI Report
NSA Crane, Crane, Indiana

sample_id	parameter	val_res	val_qual	qual_code	detect	dup_val_res	dup_val_qual	dup_qual_code	dup_detect	no_match
11MWT0201	1,1,1-TRICHLOROETHANE	0.5	U		N	0.5	U		N	
11MWT0201	1,1,2,2-TETRACHLOROETHANE	0.5	U		N	0.5	U		N	
11MWT0201	1,1,2-TRICHLOROETHANE	0.5	U		N	0.5	U		N	
11MWT0201	1,1,2-TRICHLOROTRIFLUOROETHANE	1	U		N	1	U		N	
11MWT0201	1,1-DICHLOROETHANE	0.5	U		N	0.5	U		N	
11MWT0201	1,1-DICHLOROETHENE	0.5	U		N	0.5	U		N	
11MWT0201	1,2,3-TRICHLOROBENZENE	0.5	U		N	0.5	U		N	
11MWT0201	1,2,4-TRICHLOROBENZENE	0.5	U		N	0.5	U		N	
11MWT0201	1,2-DIBROMO-3-CHLOROPROPANE	1	U		N	1	U		N	
11MWT0201	1,2-DIBROMOETHANE	0.5	U		N	0.5	U		N	
11MWT0201	1,2-DICHLOROBENZENE	0.5	U		N	0.5	U		N	
11MWT0201	1,2-DICHLOROETHANE	0.5	U		N	0.5	U		N	
11MWT0201	1,2-DICHLOROPROPANE	0.5	U		N	0.5	U		N	
11MWT0201	1,3-DICHLOROBENZENE	0.5	U		N	0.5	U		N	
11MWT0201	1,4-DICHLOROBENZENE	0.5	U		N	0.5	U		N	
11MWT0201	2-BUTANONE	5	U		N	5	U		N	
11MWT0201	2-HEXANONE	2.5	U		N	2.5	U		N	
11MWT0201	4-METHYL-2-PENTANONE	2.5	U		N	2.5	U		N	
11MWT0201	ACETONE	3.4	J	P	Y	5	U		N	X
11MWT0201	BENZENE	3.23			Y	1.33			Y	
11MWT0201	BROMOCHLOROMETHANE	0.5	U		N	0.5	U		N	
11MWT0201	BROMODICHLOROMETHANE	0.5	U		N	0.5	U		N	
11MWT0201	BROMOFORM	0.5	U		N	0.5	U		N	
11MWT0201	BROMOMETHANE	1	U		N	1	U		N	
11MWT0201	CARBON DISULFIDE	0.5	U		N	0.5	U		N	
11MWT0201	CARBON TETRACHLORIDE	0.5	U		N	0.5	U		N	
11MWT0201	CHLOROBENZENE	0.5	U		N	0.5	U		N	
11MWT0201	CHLORODIBROMOMETHANE	0.5	U		N	0.5	U		N	
11MWT0201	CHLOROETHANE	1	U		N	1	U		N	
11MWT0201	CHLOROFORM	0.936	J	P	Y	0.981	J	P	Y	
11MWT0201	CHLOROMETHANE	0.5	UJ	C	N	0.5	UJ	C	N	
11MWT0201	CIS-1,2-DICHLOROETHENE	27.6			Y	28.7			Y	
11MWT0201	CIS-1,3-DICHLOROPROPENE	0.5	U		N	0.5	U		N	
11MWT0201	CYCLOHEXANE	0.5	U		N	0.5	U		N	
11MWT0201	DICHLORODIFLUOROMETHANE	1	U		N	1	U		N	
11MWT0201	ETHYLBENZENE	0.43	J	P	Y	0.5	U		N	X
11MWT0201	ISOPROPYLBENZENE	0.5	U		N	0.5	U		N	
11MWT0201	METHYL ACETATE	1	U		N	1	U		N	
11MWT0201	METHYL CYCLOHEXANE	0.5	U		N	0.5	U		N	
11MWT0201	METHYL TERT-BUTYL ETHER	0.5	U		N	0.5	U		N	
11MWT0201	METHYLENE CHLORIDE	1	U		N	1	U		N	
11MWT0201	STYRENE	0.5	U		N	0.5	U		N	
11MWT0201	TETRACHLOROETHENE	25.5			Y	25.6			Y	
11MWT0201	TOLUENE	3.87	J	G	Y	0.654	J	GP	Y	
11MWT0201	TOTAL XYLENES	0.884	J	P	Y	0.5	U		N	X
11MWT0201	TRANS-1,2-DICHLOROETHENE	0.361	J	P	Y	0.369	J	P	Y	
11MWT0201	TRANS-1,3-DICHLOROPROPENE	0.5	U		N	0.5	U		N	
11MWT0201	TRICHLOROETHENE	115			Y	118			Y	
11MWT0201	TRICHLOROFLUOROMETHANE	1	U		N	1	U		N	
11MWT0201	VINYL CHLORIDE	0.503	J	P	Y	0.492	J	P	Y	
11MWT0501	1,1,1-TRICHLOROETHANE	0.5	U		N	0.5	U		N	
11MWT0501	1,1,2,2-TETRACHLOROETHANE	0.5	U		N	0.5	U		N	
11MWT0501	1,1,2-TRICHLOROETHANE	0.5	U		N	0.5	U		N	
11MWT0501	1,1,2-TRICHLOROTRIFLUOROETHANE	1	U		N	1	U		N	
11MWT0501	1,1-DICHLOROETHANE	0.5	U		N	0.5	U		N	
11MWT0501	1,1-DICHLOROETHENE	0.5	U		N	0.5	U		N	
11MWT0501	1,2,3-TRICHLOROBENZENE	0.5	U		N	0.5	U		N	
11MWT0501	1,2,4-TRICHLOROBENZENE	0.5	U		N	0.5	U		N	
11MWT0501	1,2-DIBROMO-3-CHLOROPROPANE	1	U		N	1	U		N	
11MWT0501	1,2-DIBROMOETHANE	0.5	U		N	0.5	U		N	
11MWT0501	1,2-DICHLOROBENZENE	0.99	J	P	Y	1			Y	
11MWT0501	1,2-DICHLOROETHANE	0.5	U		N	0.5	U		N	
11MWT0501	1,2-DICHLOROPROPANE	0.5	U		N	0.5	U		N	
11MWT0501	1,3-DICHLOROBENZENE	0.5	U		N	0.5	U		N	
11MWT0501	1,4-DICHLOROBENZENE	0.5	U		N	0.5	U		N	
11MWT0501	2-BUTANONE	5	U		N	5	U		N	
11MWT0501	2-HEXANONE	2.5	U		N	2.5	U		N	
11MWT0501	4-METHYL-2-PENTANONE	2.5	U		N	2.5	U		N	
11MWT0501	ACETONE	2.74	J	P	Y	5	U		N	X
11MWT0501	BENZENE	0.5	U		N	0.26	J	P	Y	X
11MWT0501	BROMOCHLOROMETHANE	0.5	U		N	0.5	U		N	
11MWT0501	BROMODICHLOROMETHANE	0.5	U		N	0.5	U		N	
11MWT0501	BROMOFORM	0.5	U		N	0.5	U		N	
11MWT0501	BROMOMETHANE	1	U		N	1	U		N	
11MWT0501	CARBON DISULFIDE	1.32			Y	1.49			Y	
11MWT0501	CARBON TETRACHLORIDE	0.5	U		N	0.5	U		N	

Table E-5
Comparison of Original and Duplicate Samples
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sample_id	parameter	val_res	val_qual	qual_code	detect	dup_val_res	dup_val_qual	dup_qual_code	dup_detect	no_match
11MWT0501	CHLOROBENZENE	0.5	U		N	0.5	U		N	
11MWT0501	CHLORODIBROMOMETHANE	0.5	U		N	0.5	U		N	
11MWT0501	CHLOROETHANE	1	U		N	1	U		N	
11MWT0501	CHLOROFORM	0.5	U		N	0.5	U		N	
11MWT0501	CHLOROMETHANE	0.5	U		N	0.5	U		N	
11MWT0501	CIS-1,2-DICHLOROETHENE	3.05			Y	3.2			Y	
11MWT0501	CIS-1,3-DICHLOROPROPENE	0.5	U		N	0.5	U		N	
11MWT0501	CYCLOHEXANE	0.5	U		N	0.5	U		N	
11MWT0501	DICHLORODIFLUOROMETHANE	1	UJ	C	N	1	UJ	C	N	
11MWT0501	ETHYLBENZENE	0.5	U		N	0.5	U		N	
11MWT0501	ISOPROPYLBENZENE	0.5	U		N	0.5	U		N	
11MWT0501	METHYL ACETATE	1	U		N	1	U		N	
11MWT0501	METHYL CYCLOHEXANE	0.5	U		N	0.5	U		N	
11MWT0501	METHYL TERT-BUTYL ETHER	0.5	U		N	0.5	U		N	
11MWT0501	METHYLENE CHLORIDE	1	U		N	1	U		N	
11MWT0501	STYRENE	0.5	U		N	0.5	U		N	
11MWT0501	TETRACHLOROETHENE	5.54			Y	5.93			Y	
11MWT0501	TOLUENE	0.42	J	P	Y	0.46	J	P	Y	
11MWT0501	TOTAL XYLENES	0.5	U		N	0.5	U		N	
11MWT0501	TRANS-1,2-DICHLOROETHENE	0.5	U		N	0.5	U		N	
11MWT0501	TRANS-1,3-DICHLOROPROPENE	0.5	U		N	0.5	U		N	
11MWT0501	TRICHLOROETHENE	3.35			Y	3.63			Y	
11MWT0501	TRICHLOROFLUOROMETHANE	1	U		N	1	U		N	
11MWT0501	VINYL CHLORIDE	0.5	U		N	0.5	U		N	
11SB010002	1,1,1-TRICHLOROETHANE	2.51	UJ	C	N	2.45	UJ	C	N	
11SB010406	1,1,1-TRICHLOROETHANE	2.38	UJ	C	N	2.4	UJ	C	N	
11SB010002	1,1,2,2-TETRACHLOROETHANE	2.51	U		N	2.45	U		N	
11SB010406	1,1,2,2-TETRACHLOROETHANE	2.38	U		N	2.4	U		N	
11SB010002	1,1,2-TRICHLOROETHANE	2.51	U		N	2.45	U		N	
11SB010406	1,1,2-TRICHLOROETHANE	2.38	U		N	2.4	U		N	
11SB010002	1,1,2-TRICHLOROTRIFLUOROETHANE	5.03	U		N	4.9	U		N	
11SB010406	1,1,2-TRICHLOROTRIFLUOROETHANE	4.75	U		N	4.79	U		N	
11SB010002	1,1-BIPHENYL	212	U		N	206	U		N	
11SB010406	1,1-BIPHENYL	193	U		N	197	U		N	
11SB010002	1,1-DICHLOROETHANE	2.51	U		N	2.45	U		N	
11SB010406	1,1-DICHLOROETHANE	2.38	U		N	2.4	U		N	
11SB010002	1,1-DICHLOROETHENE	2.51	U		N	2.45	U		N	
11SB010406	1,1-DICHLOROETHENE	2.38	U		N	2.4	U		N	
11SB010002	1,2,4-TRICHLOROBENZENE	2.51	UJ	C	N	2.45	UJ	C	N	
11SB010406	1,2,4-TRICHLOROBENZENE	2.38	UJ	C	N	2.4	UJ	C	N	
11SB010002	1,2-DIBROMO-3-CHLOROPROPANE	5.03	UJ	C	N	4.9	UJ	C	N	
11SB010406	1,2-DIBROMO-3-CHLOROPROPANE	4.75	UJ	C	N	4.79	UJ	C	N	
11SB010002	1,2-DIBROMOETHANE	2.51	U		N	2.45	U		N	
11SB010406	1,2-DIBROMOETHANE	2.38	U		N	2.4	U		N	
11SB010002	1,2-DICHLOROBENZENE	2.51	U		N	2.45	U		N	
11SB010406	1,2-DICHLOROBENZENE	2.38	U		N	2.4	U		N	
11SB010002	1,2-DICHLOROETHANE	2.51	UJ	C	N	2.45	UJ	C	N	
11SB010406	1,2-DICHLOROETHANE	2.38	UJ	C	N	2.4	UJ	C	N	
11SB010002	1,2-DICHLOROPROPANE	2.51	UJ	C	N	2.45	UJ	C	N	
11SB010406	1,2-DICHLOROPROPANE	2.38	UJ	C	N	2.4	UJ	C	N	
11SB010002	1,3-DICHLOROBENZENE	2.51	U		N	2.45	U		N	
11SB010406	1,3-DICHLOROBENZENE	2.38	U		N	2.4	U		N	
11SB010002	1,4-DICHLOROBENZENE	2.51	U		N	2.45	U		N	
11SB010406	1,4-DICHLOROBENZENE	2.38	U		N	2.4	U		N	
11SB010002	2,2'-OXYBIS(1-CHLOROPROPANE)	212	UJ	C	N	206	UJ	C	N	
11SB010406	2,2'-OXYBIS(1-CHLOROPROPANE)	193	UJ	C	N	197	UJ	C	N	
11SB010002	2,4,5-TRICHLOROPHENOL	212	U		N	206	U		N	
11SB010406	2,4,5-TRICHLOROPHENOL	193	U		N	197	U		N	
11SB010002	2,4,6-TRICHLOROPHENOL	212	U		N	206	U		N	
11SB010406	2,4,6-TRICHLOROPHENOL	193	U		N	197	U		N	
11SB010002	2,4-DICHLOROPHENOL	212	U		N	206	U		N	
11SB010406	2,4-DICHLOROPHENOL	193	U		N	197	U		N	
11SB010002	2,4-DIMETHYLPHENOL	845	U		N	823	U		N	
11SB010406	2,4-DIMETHYLPHENOL	769	U		N	786	U		N	
11SB010002	2,4-DINITROPHENOL	2120	U		N	2060	U		N	
11SB010406	2,4-DINITROPHENOL	1930	U		N	1970	U		N	
11SB010002	2,4-DINITROTOLUENE	212	U		N	206	U		N	
11SB010406	2,4-DINITROTOLUENE	193	U		N	197	U		N	
11SB010002	2,6-DINITROTOLUENE	212	U		N	206	U		N	
11SB010406	2,6-DINITROTOLUENE	193	U		N	197	U		N	
11SB010002	2-BUTANONE	5.03	U		N	4.9	U		N	
11SB010406	2-BUTANONE	4.75	U		N	4.79	U		N	
11SB010002	2-CHLORONAPHTHALENE	212	UJ	C	N	206	U		N	
11SB010406	2-CHLORONAPHTHALENE	193	U		N	197	U		N	
11SB010002	2-CHLOROPHENOL	212	U		N	206	U		N	
11SB010406	2-CHLOROPHENOL	193	U		N	197	U		N	

sample_id	parameter	val_res	val_qual	qual_code	detect	dup_val_res	dup_val_qual	dup_qual_code	dup_detect	no_match
11SB010002	2-HEXANONE	2.51	U		N	2.45	U		N	
11SB010406	2-HEXANONE	2.38	U		N	2.4	U		N	
11SB010002	2-METHYLNAPHTHALENE	4.22	U		N	4.11	U		N	
11SB010406	2-METHYLNAPHTHALENE	3.84	U		N	3.92	U		N	
11SB010002	2-METHYLPHENOL	212	U		N	206	U		N	
11SB010406	2-METHYLPHENOL	193	U		N	197	U		N	
11SB010002	2-NITROANILINE	845	U		N	823	U		N	
11SB010406	2-NITROANILINE	769	U		N	786	U		N	
11SB010002	2-NITROPHENOL	212	U		N	206	U		N	
11SB010406	2-NITROPHENOL	193	U		N	197	U		N	
11SB010002	3,3'-DICHLOROBENZIDINE	212	UJ	C	N	206	UJ	C	N	
11SB010406	3,3'-DICHLOROBENZIDINE	193	UJ	C	N	197	UJ	C	N	
11SB010002	3-NITROANILINE	845	U		N	823	U		N	
11SB010406	3-NITROANILINE	769	U		N	786	U		N	
11SB010002	4,4'-DDD	0.417	U		N	0.428	U		N	
11SB010406	4,4'-DDD	0.402	U		N	0.406	U		N	
11SB010002	4,4'-DDE	0.417	U		N	0.428	U		N	
11SB010406	4,4'-DDE	0.402	U		N	0.406	U		N	
11SB010002	4,4'-DDT	0.417	U		N	0.428	U		N	
11SB010406	4,4'-DDT	0.402	U		N	0.406	U		N	
11SB010002	4,6-DINITRO-2-METHYLPHENOL	2120	U		N	2060	UJ	C	N	
11SB010406	4,6-DINITRO-2-METHYLPHENOL	1930	UJ	C	N	1970	UJ	C	N	
11SB010002	4-BROMOPHENYL PHENYL ETHER	212	U		N	206	U		N	
11SB010406	4-BROMOPHENYL PHENYL ETHER	193	U		N	197	U		N	
11SB010002	4-CHLORO-3-METHYLPHENOL	212	U		N	206	U		N	
11SB010406	4-CHLORO-3-METHYLPHENOL	193	U		N	197	U		N	
11SB010002	4-CHLOROANILINE	212	U		N	206	U		N	
11SB010406	4-CHLOROANILINE	193	U		N	197	U		N	
11SB010002	4-CHLOROPHENYL PHENYL ETHER	212	U		N	206	U		N	
11SB010406	4-CHLOROPHENYL PHENYL ETHER	193	U		N	197	U		N	
11SB010002	4-METHYL-2-PENTANONE	2.51	UJ	C	N	2.45	UJ	C	N	
11SB010406	4-METHYL-2-PENTANONE	2.38	UJ	C	N	2.4	UJ	C	N	
11SB010002	4-METHYLPHENOL	212	U		N	206	U		N	
11SB010406	4-METHYLPHENOL	193	U		N	197	U		N	
11SB010002	4-NITROANILINE	845	U		N	823	U		N	
11SB010406	4-NITROANILINE	769	U		N	786	U		N	
11SB010002	4-NITROPHENOL	845	U		N	823	U		N	
11SB010406	4-NITROPHENOL	769	U		N	786	U		N	
11SB010002	ACENAPHTHENE	4.22	U		N	4.11	U		N	
11SB010406	ACENAPHTHENE	3.84	U		N	3.92	U		N	
11SB010002	ACENAPHTHYLENE	4.22	U		N	4.11	U		N	
11SB010406	ACENAPHTHYLENE	3.84	U		N	3.92	U		N	
11SB010002	ACETONE	10.1	U		N	9.8	U		N	
11SB010406	ACETONE	9.5	U		N	9.59	U		N	
11SB010002	ACETOPHENONE	212	U		N	206	U		N	
11SB010406	ACETOPHENONE	193	U		N	197	U		N	
11SB010002	ALDRIN	0.417	U		N	0.428	U		N	
11SB010406	ALDRIN	0.402	U		N	0.406	U		N	
11SB010002	ALPHA-BHC	0.417	U		N	0.428	U		N	
11SB010406	ALPHA-BHC	0.402	U		N	0.406	U		N	
11SB010002	ALPHA-CHLORDANE	0.417	U		N	0.428	U		N	
11SB010406	ALPHA-CHLORDANE	0.402	U		N	0.406	U		N	
11SB010002	ALUMINUM	19900			Y	15800			Y	
11SB010406	ALUMINUM	14000			Y	12100			Y	
11SB010002	ANTHRACENE	4.22	U		N	4.11	U		N	
11SB010406	ANTHRACENE	3.84	U		N	3.92	U		N	
11SB010002	ANTIMONY	1	U		N	0.979	U		N	
11SB010406	ANTIMONY	0.943	U		N	0.998	U		N	
11SB010002	AROCLOR-1016	10.2	UJ	C	N	10.5	UJ	C	N	
11SB010406	AROCLOR-1016	9.85	UJ	C	N	9.94	U		N	
11SB010002	AROCLOR-1221	10.2	U		N	10.5	U		N	
11SB010406	AROCLOR-1221	9.85	U		N	9.94	U		N	
11SB010002	AROCLOR-1232	10.2	U		N	10.5	U		N	
11SB010406	AROCLOR-1232	9.85	U		N	9.94	U		N	
11SB010002	AROCLOR-1242	10.2	U		N	10.5	U		N	
11SB010406	AROCLOR-1242	9.85	U		N	9.94	U		N	
11SB010002	AROCLOR-1248	10.2	U		N	10.5	U		N	
11SB010406	AROCLOR-1248	9.85	U		N	9.94	U		N	
11SB010002	AROCLOR-1254	10.2	U		N	10.5	U		N	
11SB010406	AROCLOR-1254	9.85	U		N	9.94	U		N	
11SB010002	AROCLOR-1260	10.2	U		N	10.5	U		N	
11SB010406	AROCLOR-1260	9.85	U		N	9.94	U		N	
11SB010002	ARSENIC	12			Y	8.36			Y	
11SB010406	ARSENIC	6.41			Y	4.24			Y	
11SB010002	ATRAZINE	212	U		N	206	U		N	
11SB010406	ATRAZINE	193	U		N	197	U		N	

sample_id	parameter	val_res	val_qual	qual_code	detect	dup_val_res	dup_val_qual	dup_qual_code	dup_detect	no_match
11SB010002	BARIUM	67.3			Y	61.4			Y	
11SB010406	BARIUM	53	J	G	Y	124	J	G	Y	
11SB010002	BENZALDEHYDE	212	UJ	C	N	206	U		N	
11SB010406	BENZALDEHYDE	193	U		N	197	U		N	
11SB010002	BENZENE	2.51	U		N	2.45	U		N	
11SB010406	BENZENE	2.38	U		N	2.4	U		N	
11SB010002	BENZO(A)ANTHRACENE	4.22	U		N	4.11	U		N	
11SB010406	BENZO(A)ANTHRACENE	3.84	U		N	3.92	U		N	
11SB010002	BENZO(A)PYRENE	4.22	U		N	4.11	U		N	
11SB010406	BENZO(A)PYRENE	3.84	U		N	3.92	U		N	
11SB010002	BENZO(B)FLUORANTHENE	4.22	U		N	4.11	U		N	
11SB010406	BENZO(B)FLUORANTHENE	3.84	U		N	3.92	U		N	
11SB010002	BENZO(G,H,I)PERYLENE	4.22	U		N	4.11	U		N	
11SB010406	BENZO(G,H,I)PERYLENE	3.84	U		N	3.92	U		N	
11SB010002	BENZO(K)FLUORANTHENE	4.22	U		N	4.11	U		N	
11SB010406	BENZO(K)FLUORANTHENE	3.84	U		N	3.92	U		N	
11SB010002	BERYLLIUM	0.833			Y	0.708			Y	
11SB010406	BERYLLIUM	0.554	J	P	Y	0.493	J	P	Y	
11SB010002	BETA-BHC	0.417	U		N	0.428	U		N	
11SB010406	BETA-BHC	0.402	U		N	0.406	U		N	
11SB010002	BIS(2-CHLOROETHOXY)METHANE	212	U		N	206	U		N	
11SB010406	BIS(2-CHLOROETHOXY)METHANE	193	U		N	197	U		N	
11SB010002	BIS(2-CHLOROETHYL)ETHER	212	U		N	206	U		N	
11SB010406	BIS(2-CHLOROETHYL)ETHER	193	U		N	197	U		N	
11SB010002	BIS(2-ETHYLHEXYL)PHTHALATE	212	U		N	206	U		N	
11SB010406	BIS(2-ETHYLHEXYL)PHTHALATE	193	U		N	197	U		N	
11SB010002	BROMODICHLOROMETHANE	2.51	UJ	C	N	2.45	UJ	C	N	
11SB010406	BROMODICHLOROMETHANE	2.38	UJ	C	N	2.4	UJ	C	N	
11SB010002	BROMOFORM	2.51	UJ	C	N	2.45	UJ	C	N	
11SB010406	BROMOFORM	2.38	UJ	C	N	2.4	UJ	C	N	
11SB010002	BROMOMETHANE	5.03	UJ	C	N	4.9	UJ	C	N	
11SB010406	BROMOMETHANE	4.75	UJ	C	N	4.79	UJ	C	N	
11SB010002	BUTYL BENZYL PHTHALATE	212	U		N	206	U		N	
11SB010406	BUTYL BENZYL PHTHALATE	193	U		N	197	U		N	
11SB010002	CADMIUM	0.251	U		N	0.245	U		N	
11SB010406	CADMIUM	0.236	U		N	0.249	U		N	
11SB010002	CALCIUM	560	J	GP	Y	8080	J	G	Y	
11SB010406	CALCIUM	310	J	P	Y	420	J	P	Y	
11SB010002	CAPROLACTAM	212	U		N	206	U		N	
11SB010406	CAPROLACTAM	193	U		N	197	U		N	
11SB010002	CARBAZOLE	212	U		N	206	U		N	
11SB010406	CARBAZOLE	193	U		N	197	U		N	
11SB010002	CARBON DISULFIDE	2.51	U		N	2.45	U		N	
11SB010406	CARBON DISULFIDE	2.38	U		N	2.4	U		N	
11SB010002	CARBON TETRACHLORIDE	2.51	UJ	C	N	2.45	UJ	C	N	
11SB010406	CARBON TETRACHLORIDE	2.38	UJ	C	N	2.4	UJ	C	N	
11SB010002	CHLOROBENZENE	2.51	U		N	2.45	U		N	
11SB010406	CHLOROBENZENE	2.38	U		N	2.4	U		N	
11SB010002	CHLORODIBROMOMETHANE	2.51	U		N	2.45	U		N	
11SB010406	CHLORODIBROMOMETHANE	2.38	U		N	2.4	U		N	
11SB010002	CHLOROETHANE	5.03	UJ	C	N	4.9	UJ	C	N	
11SB010406	CHLOROETHANE	4.75	UJ	C	N	4.79	UJ	C	N	
11SB010002	CHLOROFORM	2.51	U		N	2.45	U		N	
11SB010406	CHLOROFORM	2.38	U		N	2.4	U		N	
11SB010002	CHLOROMETHANE	5.03	U		N	4.9	U		N	
11SB010406	CHLOROMETHANE	4.75	U		N	4.79	U		N	
11SB010002	CHROMIUM	21			Y	22.7			Y	
11SB010406	CHROMIUM	27.4	J	G	Y	14.6	J	G	Y	
11SB010002	CHRYSENE	4.22	U		N	4.11	U		N	
11SB010406	CHRYSENE	3.84	U		N	3.92	U		N	
11SB010002	CIS-1,2-DICHLOROETHENE	2.19	J	GP	Y	10.4	J	G	Y	
11SB010406	CIS-1,2-DICHLOROETHENE	61.6	J	G	Y	24.7	J	G	Y	
11SB010002	CIS-1,3-DICHLOROPROPENE	2.51	U		N	2.45	U		N	
11SB010406	CIS-1,3-DICHLOROPROPENE	2.38	U		N	2.4	U		N	
11SB010002	COBALT	6.36	J	G	Y	12.7	J	G	Y	
11SB010406	COBALT	3.13			Y	3.42			Y	
11SB010002	COPPER	18.3			Y	13.3			Y	
11SB010406	COPPER	12.7			Y	12.7			Y	
11SB010002	CYANIDE	0.317	U		N	0.313	U		N	
11SB010406	CYANIDE	0.298	U		N	0.293	U		N	
11SB010002	CYCLOHEXANE	2.51	UJ	C	N	2.45	UJ	C	N	
11SB010406	CYCLOHEXANE	2.38	UJ	C	N	2.4	UJ	C	N	
11SB010002	DELTA-BHC	0.417	UJ	C	N	0.428	UJ	C	N	
11SB010406	DELTA-BHC	0.402	UJ	C	N	0.406	UJ	C	N	
11SB010002	DIBENZO(A,H)ANTHRACENE	4.22	U		N	4.11	U		N	
11SB010406	DIBENZO(A,H)ANTHRACENE	3.84	U		N	3.92	U		N	

Table E-5
Comparison of Original and Duplicate Samples
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NSA Crane, Crane, Indiana

sample_id	parameter	val_res	val_qual	qual_code	detect	dup_val_res	dup_val_qual	dup_qual_code	dup_detect	no_match
11SB010002	DIBENZOFURAN	212	U		N	206	U		N	
11SB010406	DIBENZOFURAN	193	U		N	197	U		N	
11SB010002	DICHLORODIFLUOROMETHANE	5.03	UJ	C	N	4.9	UJ	C	N	
11SB010406	DICHLORODIFLUOROMETHANE	4.75	UJ	C	N	4.79	UJ	C	N	
11SB010002	DIELDRIN	0.417	U		N	0.428	U		N	
11SB010406	DIELDRIN	0.402	U		N	0.406	U		N	
11SB010002	DIETHYL PHTHALATE	212	U		N	206	U		N	
11SB010406	DIETHYL PHTHALATE	300	J	P	Y	197	U		N	X
11SB010002	DIMETHYL PHTHALATE	212	U		N	206	U		N	
11SB010406	DIMETHYL PHTHALATE	193	U		N	197	U		N	
11SB010002	DI-N-BUTYL PHTHALATE	212	U		N	206	U		N	
11SB010406	DI-N-BUTYL PHTHALATE	193	U		N	197	U		N	
11SB010002	DI-N-OCTYL PHTHALATE	212	U		N	206	U		N	
11SB010406	DI-N-OCTYL PHTHALATE	193	U		N	197	U		N	
11SB010002	ENDOSULFAN I	0.417	U		N	0.428	U		N	
11SB010406	ENDOSULFAN I	0.402	U		N	0.406	U		N	
11SB010002	ENDOSULFAN II	0.417	U		N	0.428	U		N	
11SB010406	ENDOSULFAN II	0.402	U		N	0.406	U		N	
11SB010002	ENDOSULFAN SULFATE	0.417	U		N	0.428	U		N	
11SB010406	ENDOSULFAN SULFATE	0.402	U		N	0.406	U		N	
11SB010002	ENDRIN	0.417	U		N	0.428	U		N	
11SB010406	ENDRIN	0.402	U		N	0.406	U		N	
11SB010002	ENDRIN ALDEHYDE	0.417	U		N	0.428	U		N	
11SB010406	ENDRIN ALDEHYDE	0.402	U		N	0.406	U		N	
11SB010002	ENDRIN KETONE	0.417	U		N	0.428	U		N	
11SB010406	ENDRIN KETONE	0.402	U		N	0.406	U		N	
11SB010002	ETHYLBENZENE	2.51	U		N	2.45	U		N	
11SB010406	ETHYLBENZENE	2.38	U		N	2.4	U		N	
11SB010002	FLUORANTHENE	4.22	U		N	4.11	U		N	
11SB010406	FLUORANTHENE	3.84	U		N	3.92	U		N	
11SB010002	FLUORENE	4.22	U		N	4.11	U		N	
11SB010406	FLUORENE	3.84	U		N	3.92	U		N	
11SB010002	GAMMA-BHC (LINDANE)	0.417	U		N	0.428	U		N	
11SB010406	GAMMA-BHC (LINDANE)	0.402	U		N	0.406	U		N	
11SB010002	GAMMA-CHLORDANE	0.417	U		N	0.428	UJ	H	N	
11SB010406	GAMMA-CHLORDANE	0.402	UJ	H	N	0.406	UJ	H	N	
11SB010002	HEPTACHLOR	0.417	U		N	0.428	U		N	
11SB010406	HEPTACHLOR	0.402	U		N	0.406	U		N	
11SB010002	HEPTACHLOR EPOXIDE	0.417	U		N	0.428	U		N	
11SB010406	HEPTACHLOR EPOXIDE	0.402	U		N	0.406	U		N	
11SB010002	HEXACHLOROBENZENE	212	U		N	206	U		N	
11SB010406	HEXACHLOROBENZENE	193	U		N	197	U		N	
11SB010002	HEXACHLOROBUTADIENE	212	U		N	206	U		N	
11SB010406	HEXACHLOROBUTADIENE	193	U		N	197	U		N	
11SB010002	HEXACHLOROCYCLOPENTADIENE	212	U		N	206	U		N	
11SB010406	HEXACHLOROCYCLOPENTADIENE	193	U		N	197	U		N	
11SB010002	HEXACHLOROETHANE	212	U		N	206	U		N	
11SB010406	HEXACHLOROETHANE	193	U		N	197	U		N	
11SB010002	INDENO(1,2,3-CD)PYRENE	4.22	U		N	4.11	U		N	
11SB010406	INDENO(1,2,3-CD)PYRENE	3.84	U		N	3.92	U		N	
11SB010002	IRON	27200			Y	20500			Y	
11SB010406	IRON	20800			Y	16800			Y	
11SB010002	ISOPHORONE	212	U		N	206	U		N	
11SB010406	ISOPHORONE	193	U		N	197	U		N	
11SB010002	ISOPROPYLBENZENE	2.51	U		N	2.45	U		N	
11SB010406	ISOPROPYLBENZENE	2.38	U		N	2.4	U		N	
11SB010002	LEAD	14			Y	12.9			Y	
11SB010406	LEAD	10.2			Y	7.79			Y	
11SB010002	MAGNESIUM	2550			Y	2800			Y	
11SB010406	MAGNESIUM	1460			Y	1550			Y	
11SB010002	MANGANESE	271	J	G	Y	542	J	G	Y	
11SB010406	MANGANESE	66.8			Y	49.2			Y	
11SB010002	MERCURY	0.0512	J	F	Y	0.0173	J	FP	Y	
11SB010406	MERCURY	0.0203	J	FP	Y	0.0439	UJ	F	N	X
11SB010002	METHOXYCHLOR	0.417	U		N	0.428	U		N	
11SB010406	METHOXYCHLOR	0.402	U		N	0.406	U		N	
11SB010002	METHYL ACETATE	5.03	U		N	4.9	U		N	
11SB010406	METHYL ACETATE	4.75	U		N	4.79	U		N	
11SB010002	METHYL CYCLOHEXANE	2.51	U		N	2.45	U		N	
11SB010406	METHYL CYCLOHEXANE	2.38	U		N	2.4	U		N	
11SB010002	METHYL TERT-BUTYL ETHER	2.51	U		N	2.45	U		N	
11SB010406	METHYL TERT-BUTYL ETHER	2.38	U		N	2.4	U		N	
11SB010002	METHYLENE CHLORIDE	5.03	U		N	4.9	U		N	
11SB010406	METHYLENE CHLORIDE	4.75	U		N	4.79	U		N	
11SB010002	NAPHTHALENE	4.22	U		N	4.11	U		N	
11SB010406	NAPHTHALENE	3.84	U		N	3.92	U		N	

sample_id	parameter	val_res	val_qual	qual_code	detect	dup_val_res	dup_val_qual	dup_qual_code	dup_detect	no_match
11SB010002	NICKEL	15.4			Y	12.8			Y	
11SB010406	NICKEL	9.53			Y	9.89			Y	
11SB010002	NITROBENZENE	212	U		N	206	U		N	
11SB010406	NITROBENZENE	193	U		N	197	U		N	
11SB010002	N-NITROSO-DI-N-PROPYLAMINE	212	UJ	C	N	206	U		N	
11SB010406	N-NITROSO-DI-N-PROPYLAMINE	193	U		N	197	U		N	
11SB010002	N-NITROSODIPHENYLAMINE	212	U		N	206	U		N	
11SB010406	N-NITROSODIPHENYLAMINE	193	U		N	197	U		N	
11SB010002	PENTACHLOROPHENOL	845	U		N	823	U		N	
11SB010406	PENTACHLOROPHENOL	769	U		N	786	U		N	
11SB010002	PHENANTHRENE	4.22	U		N	4.11	U		N	
11SB010406	PHENANTHRENE	3.84	U		N	3.92	U		N	
11SB010002	PHENOL	212	U		N	206	U		N	
11SB010406	PHENOL	193	U		N	197	U		N	
11SB010002	POTASSIUM	1040			Y	857			Y	
11SB010406	POTASSIUM	643			Y	510	J	P	Y	
11SB010002	PYRENE	4.22	U		N	4.11	U		N	
11SB010406	PYRENE	3.84	U		N	3.92	U		N	
11SB010002	SELENIUM	0.652	J	P	Y	0.612	U		N	X
11SB010406	SELENIUM	0.59	U		N	0.623	U		N	
11SB010002	SILVER	0.251	U		N	0.245	U		N	
11SB010406	SILVER	0.236	U		N	0.249	U		N	
11SB010002	SODIUM	376	U		N	278	J	CP	Y	X
11SB010406	SODIUM	354	U		N	374	U		N	
11SB010002	STYRENE	2.51	U		N	2.45	U		N	
11SB010406	STYRENE	2.38	U		N	2.4	U		N	
11SB010002	TETRACHLOROETHENE	1.36	J	CP	Y	2.27	J	CP	Y	
11SB010406	TETRACHLOROETHENE	14.2	J	CG	Y	6.98	J	CG	Y	
11SB010002	THALLIUM	0.502	U		N	0.489	U		N	
11SB010406	THALLIUM	0.472	U		N	0.499	U		N	
11SB010002	TOLUENE	2.51	U		N	2.45	U		N	
11SB010406	TOLUENE	2.38	U		N	2.4	U		N	
11SB010002	TOTAL XYLENES	7.54	U		N	7.35	U		N	
11SB010406	TOTAL XYLENES	7.13	U		N	7.19	U		N	
11SB010002	TOXAPHENE	27	UJ	C	N	27.7	UJ	C	N	
11SB010406	TOXAPHENE	26	UJ	C	N	26.2	UJ	C	N	
11SB010002	TRANS-1,2-DICHLOROETHENE	2.51	U		N	2.45	U		N	
11SB010406	TRANS-1,2-DICHLOROETHENE	2.38	U		N	2.4	U		N	
11SB010002	TRANS-1,3-DICHLOROPROPENE	2.51	U		N	2.45	U		N	
11SB010406	TRANS-1,3-DICHLOROPROPENE	2.38	U		N	2.4	U		N	
11SB010002	TRICHLOROETHENE	2.51	U		N	5.75			Y	X
11SB010406	TRICHLOROETHENE	159	J	G	Y	65.6	J	G	Y	
11SB010002	TRICHLOROFLUOROMETHANE	5.03	U		N	4.9	U		N	
11SB010406	TRICHLOROFLUOROMETHANE	4.75	U		N	4.79	U		N	
11SB010002	VANADIUM	41			Y	32.9			Y	
11SB010406	VANADIUM	32.4			Y	21.9			Y	
11SB010002	VINYL CHLORIDE	2.51	U		N	2.45	U		N	
11SB010406	VINYL CHLORIDE	2.38	U		N	2.4	U		N	
11SB010002	ZINC	52.5			Y	35.6			Y	
11SB010406	ZINC	27.1			Y	24.2			Y	
11SS110002	1,1-BIPHENYL	193	U		N	204	U		N	
11SS110002	1,2,3,4,6,7,8,9-OCDD	6220	J	GL	Y	1660	J	G	Y	
11SS110002	1,2,3,4,6,7,8,9-OCDF	583	J	G	Y	9.74	J	G	Y	
11SS110002	1,2,3,4,6,7,8-HPCDD	772	J	G	Y	42.6	J	G	Y	
11SS110002	1,2,3,4,6,7,8-HPCDF	102	J	G	Y	1.68	J	GP	Y	
11SS110002	1,2,3,4,7,8,9-HPCDF	7.82			Y	3.11	U		N	X
11SS110002	1,2,3,4,7,8-HXCDD	8.54			Y	3.11	U		N	X
11SS110002	1,2,3,4,7,8-HXCDF	3.91	J	P	Y	3.11	U		N	X
11SS110002	1,2,3,6,7,8-HXCDD	24.7	J	G	Y	0.694	J	GP	Y	
11SS110002	1,2,3,6,7,8-HXCDF	4.61	J	P	Y	3.11	U		N	X
11SS110002	1,2,3,7,8,9-HXCDD	13.7	J	G	Y	0.536	J	GP	Y	
11SS110002	1,2,3,7,8,9-HXCDF	1.56	J	P	Y	3.11	U		N	X
11SS110002	1,2,3,7,8-PECDD	2.45	J	P	Y	3.11	U		N	X
11SS110002	1,2,3,7,8-PECDF	2.14	J	P	Y	3.11	U		N	X
11SS110002	2,2'-OXYBIS(1-CHLOROPROPANE)	193	U		N	204	U		N	
11SS110002	2,3,4,6,7,8-HXCDF	4.51	J	P	Y	3.11	U		N	X
11SS110002	2,3,4,7,8-PECDF	1.04	J	P	Y	3.11	U		N	X
11SS110002	2,3,7,8-TCDD	0.637	U		N	0.62	U		N	
11SS110002	2,3,7,8-TCDF	0.637	U		N	0.62	U		N	
11SS110002	2,4,5-TRICHLOROPHENOL	193	U		N	204	U		N	
11SS110002	2,4,6-TRICHLOROPHENOL	193	U		N	204	U		N	
11SS110002	2,4-DICHLOROPHENOL	193	U		N	204	U		N	
11SS110002	2,4-DIMETHYLPHENOL	770	U		N	816	U		N	
11SS110002	2,4-DINITROPHENOL	1930	U		N	2040	UJ	C	N	
11SS110002	2,4-DINITROTOLUENE	193	U		N	204	U		N	
11SS110002	2,6-DINITROTOLUENE	193	U		N	204	U		N	

sample_id	parameter	val_res	val_qual	qual_code	detect	dup_val_res	dup_val_qual	dup_qual_code	dup_detect	no_match
11SS110002	2-CHLORONAPHTHALENE	193	U		N	204	UJ	C	N	
11SS110002	2-CHLOROPHENOL	193	U		N	204	U		N	
11SS110002	2-METHYLNAPHTHALENE	3.84	U		N	4.08	U		N	
11SS110002	2-METHYLPHENOL	193	U		N	204	U		N	
11SS110002	2-NITROANILINE	770	U		N	816	U		N	
11SS110002	2-NITROPHENOL	193	U		N	204	U		N	
11SS110002	3,3'-DICHLOROBENZIDINE	193	U		N	204	U		N	
11SS110002	3-NITROANILINE	770	U		N	816	U		N	
11SS110002	4,4'-DDD	0.411	U		N	0.419	U		N	
11SS110002	4,4'-DDE	0.411	U		N	0.419	U		N	
11SS110002	4,4'-DDT	0.411	U		N	0.419	U		N	
11SS110002	4,6-DINITRO-2-METHYLPHENOL	1930	U		N	2040	UJ	C	N	
11SS110002	4-BROMOPHENYL PHENYL ETHER	193	U		N	204	U		N	
11SS110002	4-CHLORO-3-METHYLPHENOL	193	U		N	204	U		N	
11SS110002	4-CHLOROANILINE	193	U		N	204	U		N	
11SS110002	4-CHLOROPHENYL PHENYL ETHER	193	U		N	204	UJ	C	N	
11SS110002	4-METHYLPHENOL	193	U		N	204	U		N	
11SS110002	4-NITROANILINE	770	U		N	816	UJ	C	N	
11SS110002	4-NITROPHENOL	770	UJ	C	N	816	U		N	
11SS110002	ACENAPHTHENE	17.2	J	G	Y	4.08	UJ	G	N	X
11SS110002	ACENAPHTHYLENE	3.57	J	P	Y	5.84	J	P	Y	
11SS110002	ACETOPHENONE	193	U		N	204	U		N	
11SS110002	ALDRIN	0.411	U		N	0.419	U		N	
11SS110002	ALPHA-BHC	0.411	U		N	0.419	U		N	
11SS110002	ALPHA-CHLORDANE	0.411	U		N	0.419	U		N	
11SS110002	ALUMINUM	14000			Y	14600			Y	
11SS110002	ANTHRACENE	28.6	J	G	Y	5.14	J	GP	Y	
11SS110002	ANTIMONY	0.968	UJ	D	N	0.991	UJ	D	N	
11SS110002	AROCLOR-1016	10.1	U		N	10.3	U		N	
11SS110002	AROCLOR-1221	10.1	U		N	10.3	U		N	
11SS110002	AROCLOR-1232	10.1	U		N	10.3	U		N	
11SS110002	AROCLOR-1242	10.1	U		N	10.3	U		N	
11SS110002	AROCLOR-1248	10.1	U		N	10.3	U		N	
11SS110002	AROCLOR-1254	10.1	U		N	10.3	U		N	
11SS110002	AROCLOR-1260	10.1	U		N	10.3	U		N	
11SS110002	ARSENIC	8.81			Y	8.18			Y	
11SS110002	ATRAZINE	193	U		N	204	U		N	
11SS110002	BARIUM	78.1			Y	71.8			Y	
11SS110002	BENZALDEHYDE	193	UJ	C	N	204	UJ	C	N	
11SS110002	BENZO(A)ANTHRACENE	130	J	G	Y	20.8	J	G	Y	
11SS110002	BENZO(A)PYRENE	136	J	G	Y	27.8	J	G	Y	
11SS110002	BENZO(B)FLUORANTHENE	183	J	G	Y	48.9	J	G	Y	
11SS110002	BENZO(G,H,I)PERYLENE	117	J	G	Y	26.1	J	G	Y	
11SS110002	BENZO(K)FLUORANTHENE	83.1	J	G	Y	17.3	J	G	Y	
11SS110002	BERYLLIUM	0.737			Y	0.658			Y	
11SS110002	BETA-BHC	0.411	U		N	0.419	U		N	
11SS110002	BIS(2-CHLOROETHOXY)METHANE	193	U		N	204	U		N	
11SS110002	BIS(2-CHLOROETHYL)ETHER	193	U		N	204	U		N	
11SS110002	BIS(2-ETHYLHEXYL)PHTHALATE	193	U		N	204	U		N	
11SS110002	BUTYL BENZYL PHTHALATE	193	U		N	204	U		N	
11SS110002	CADMIUM	0.242	UJ	F	N	0.248	UJ	F	N	
11SS110002	CALCIUM	13700	J	G	Y	5030	J	G	Y	
11SS110002	CAPROLACTAM	193	U		N	204	U		N	
11SS110002	CARBAZOLE	193	U		N	204	U		N	
11SS110002	CHROMIUM	17.8			Y	18.4			Y	
11SS110002	CHRYSENE	157	J	G	Y	38.5	J	G	Y	
11SS110002	COBALT	7.71			Y	6.03			Y	
11SS110002	COPPER	15.2			Y	14.9			Y	
11SS110002	CYANIDE	0.307	UJ	D	N	0.318	UJ	D	N	
11SS110002	DELTA-BHC	0.411	UJ	C	N	0.419	UJ	C	N	
11SS110002	DIBENZO(A,H)ANTHRACENE	25	J	G	Y	7.04	J	GP	Y	
11SS110002	DIBENZOFURAN	193	U		N	204	U		N	
11SS110002	DIELDRIN	0.411	U		N	0.413	UJ	HR	N	
11SS110002	DIETHYL PHTHALATE	193	U		N	204	U		N	
11SS110002	DIMETHYL PHTHALATE	193	U		N	204	U		N	
11SS110002	DI-N-BUTYL PHTHALATE	193	U		N	204	U		N	
11SS110002	DI-N-OCTYL PHTHALATE	193	U		N	204	U		N	
11SS110002	ENDOSULFAN I	0.411	U		N	0.413	UJ	HR	N	
11SS110002	ENDOSULFAN II	0.411	U		N	0.413	UJ	HR	N	
11SS110002	ENDOSULFAN SULFATE	0.411	U		N	0.419	U		N	
11SS110002	ENDRIN	0.411	U		N	0.413	UJ	HR	N	
11SS110002	ENDRIN ALDEHYDE	0.411	U		N	0.413	UJ	HR	N	
11SS110002	ENDRIN KETONE	0.411	U		N	0.419	U		N	
11SS110002	FLUORANTHENE	403	J	G	Y	51.5	J	G	Y	
11SS110002	FLUORENE	12.4	J	E	Y	4.08	U		N	X
11SS110002	GAMMA-BHC (LINDANE)	0.411	U		N	0.419	U		N	

sample_id	parameter	val_res	val_qual	qual_code	detect	dup_val_res	dup_val_qual	dup_qual_code	dup_detect	no_match
11SS110002	GAMMA-CHLORDANE	0.893	J	CH	Y	0.419	U		N	X
11SS110002	HEPTACHLOR	0.411	U		N	0.419	U		N	
11SS110002	HEPTACHLOR EPOXIDE	0.411	U		N	0.419	U		N	
11SS110002	HEXACHLOROBENZENE	193	U		N	204	U		N	
11SS110002	HEXACHLOROBUTADIENE	193	U		N	204	U		N	
11SS110002	HEXACHLOROCYCLOPENTADIENE	193	U		N	204	UJ	C	N	
11SS110002	HEXACHLOROETHANE	193	U		N	204	U		N	
11SS110002	INDENO(1,2,3-CD)PYRENE	92.7	J	G	Y	20.5	J	G	Y	
11SS110002	IRON	22000			Y	20900			Y	
11SS110002	ISOPHORONE	193	U		N	204	U		N	
11SS110002	LEAD	16.7			Y	10.7			Y	
11SS110002	MAGNESIUM	2440			Y	2180			Y	
11SS110002	MANGANESE	380	J	F	Y	298	J	F	Y	
11SS110002	MERCURY	0.0321	J	FP	Y	0.0198	J	P	Y	
11SS110002	METHOXYCHLOR	0.411	UJ	C	N	0.413	UJ	HR	N	
11SS110002	NAPHTHALENE	2.74	J	P	Y	2.19	J	EP	Y	
11SS110002	NICKEL	13.1			Y	12.1			Y	
11SS110002	NITROBENZENE	193	U		N	204	U		N	
11SS110002	N-NITROSO-DI-N-PROPYLAMINE	193	U		N	204	U		N	
11SS110002	N-NITROSODIPHENYLAMINE	193	U		N	204	UJ	C	N	
11SS110002	PENTACHLOROPHENOL	770	U		N	816	UJ	C	N	
11SS110002	PHENANTHRENE	301	J	G	Y	22.9	J	EG	Y	
11SS110002	PHENOL	193	U		N	204	U		N	
11SS110002	POTASSIUM	667	J	D	Y	716	J	D	Y	
11SS110002	PYRENE	304	J	G	Y	48.2	J	EG	Y	
11SS110002	SELENIUM	0.605	U		N	0.619	U		N	
11SS110002	SILVER	0.242	U		N	0.248	U		N	
11SS110002	SODIUM	139	J	CDP	Y	371	U		N	X
11SS110002	TEQ BIRD	9.7575			Y	0.286914			Y	
11SS110002	TEQ BIRD HALFND	10.3945			Y	4.887714			Y	
11SS110002	TEQ WHO-2005	19.8			Y	1.07			Y	
11SS110002	TEQ WHO-2005 - HALFND	19.9			Y	1.37			Y	
11SS110002	THALLIUM	0.484	U		N	0.495	U		N	
11SS110002	TOTAL HPCDD	1440	J	G	Y	83.9	J	G	Y	
11SS110002	TOTAL HPCDF	430	J	G	Y	6.56	J	G	Y	
11SS110002	TOTAL HXCDD	168	J	G	Y	5.48	J	G	Y	
11SS110002	TOTAL HXCDF	108	J	G	Y	1.31	J	GP	Y	
11SS110002	TOTAL PECDD	18.5	J	G	Y	3.11	UJ	G	N	X
11SS110002	TOTAL PECDF	19.2	J	G	Y	3.11	UJ	G	N	X
11SS110002	TOTAL TCDD	1.17			Y	0.62	U		N	X
11SS110002	TOTAL TCDF	1.74	U	A	N	0.62	U		N	
11SS110002	TOXAPHENE	26.6	UJ	C	N	27.1	UJ	C	N	
11SS110002	VANADIUM	29.1	J	F	Y	30.5	J	F	Y	
11SS110002	ZINC	43.7			Y	41			Y	
11SS210002	1,2,3,4,6,7,8,9-OCDD	2310			Y	2260			Y	
11SS210002	1,2,3,4,6,7,8,9-OCDF	1.36	J	P	Y	6.03	U		N	X
11SS210002	1,2,3,4,6,7,8-HPCDD	39.6			Y	47			Y	
11SS210002	1,2,3,4,6,7,8-HPCDF	0.839	J	P	Y	3.02	U		N	X
11SS210002	1,2,3,4,7,8,9-HPCDF	3.21	U		N	3.02	U		N	
11SS210002	1,2,3,4,7,8-HXCDD	3.21	U		N	3.02	U		N	
11SS210002	1,2,3,4,7,8-HXCDF	0.321	J	P	Y	3.02	U		N	X
11SS210002	1,2,3,6,7,8-HXCDD	0.642	J	PW	Y	0.592	J	P	Y	
11SS210002	1,2,3,6,7,8-HXCDF	3.21	U		N	3.02	U		N	
11SS210002	1,2,3,7,8,9-HXCDD	0.671	J	P	Y	0.985	J	P	Y	
11SS210002	1,2,3,7,8,9-HXCDF	3.21	U		N	3.02	U		N	
11SS210002	1,2,3,7,8-PECDD	3.21	U		N	3.02	U		N	
11SS210002	1,2,3,7,8-PECDF	3.21	U		N	3.02	U		N	
11SS210002	2,3,4,6,7,8-HXCDF	3.21	U		N	3.02	U		N	
11SS210002	2,3,4,7,8-PECDF	3.21	U		N	3.02	U		N	
11SS210002	2,3,7,8-TCDD	0.641	U		N	0.603	U		N	
11SS210002	2,3,7,8-TCDF	0.369	U	A	N	0.507	U	A	N	
11SS210002	TEQ BIRD	0.384746			Y	0.37742			Y	
11SS210002	TEQ BIRD HALFND	4.838046			Y	4.8134215			Y	
11SS210002	TEQ WHO-2005	1.24			Y	1.36			Y	
11SS210002	TEQ WHO-2005 - HALFND	1.55			Y	1.64			Y	
11SS210002	TOTAL HPCDD	82.9			Y	90.1			Y	
11SS210002	TOTAL HPCDF	1.53	J	P	Y	3.02	U		N	X
11SS210002	TOTAL HXCDD	5.5			Y	6.35			Y	
11SS210002	TOTAL HXCDF	1.25	J	P	Y	3.02	U		N	X
11SS210002	TOTAL PECDD	3.21	U		N	3.02	U		N	
11SS210002	TOTAL PECDF	3.21	U		N	3.02	U		N	
11SS210002	TOTAL TCDD	0.641	U		N	0.603	U		N	
11SS210002	TOTAL TCDF	0.641	U		N	0.952	U	A	N	
11SS310002	1,1-BIPHENYL	203	U		N	210	U		N	
11SS310002	2,2'-OXYBIS(1-CHLOROPROPANE)	203	U		N	210	U		N	
11SS310002	2,4,5-TRICHLOROPHENOL	203	U		N	210	U		N	

sample_id	parameter	val_res	val_qual	qual_code	detect	dup_val_res	dup_val_qual	dup_qual_code	dup_detect	no_match
11SS310002	2,4,6-TRICHLOROPHENOL	203	U		N	210	U		N	
11SS310002	2,4-DICHLOROPHENOL	203	U		N	210	U		N	
11SS310002	2,4-DIMETHYLPHENOL	812	U		N	840	U		N	
11SS310002	2,4-DINITROPHENOL	2030	UJ	C	N	2100	UJ	C	N	
11SS310002	2,4-DINITROTOLUENE	203	U		N	210	U		N	
11SS310002	2,6-DINITROTOLUENE	203	U		N	210	U		N	
11SS310002	2-CHLORONAPHTHALENE	203	UJ	C	N	210	UJ	C	N	
11SS310002	2-CHLOROPHENOL	203	U		N	210	U		N	
11SS310002	2-METHYLNAPHTHALENE	2.52	J	EP	Y	4.19	U		N	X
11SS310002	2-METHYLPHENOL	203	U		N	210	U		N	
11SS310002	2-NITROANILINE	812	U		N	840	U		N	
11SS310002	2-NITROPHENOL	203	U		N	210	U		N	
11SS310002	3,3'-DICHLOROBENZIDINE	203	U		N	210	U		N	
11SS310002	3-NITROANILINE	812	U		N	840	U		N	
11SS310002	4,4'-DDD	0.411	U		N	0.417	U		N	
11SS310002	4,4'-DDE	0.411	U		N	0.417	U		N	
11SS310002	4,4'-DDT	0.411	U		N	0.417	U		N	
11SS310002	4,6-DINITRO-2-METHYLPHENOL	2030	UJ	C	N	2100	UJ	C	N	
11SS310002	4-BROMOPHENYL PHENYL ETHER	203	U		N	210	U		N	
11SS310002	4-CHLORO-3-METHYLPHENOL	203	U		N	210	U		N	
11SS310002	4-CHLOROANILINE	203	U		N	210	U		N	
11SS310002	4-CHLOROPHENYL PHENYL ETHER	203	UJ	C	N	210	UJ	C	N	
11SS310002	4-METHYLPHENOL	203	U		N	210	U		N	
11SS310002	4-NITROANILINE	812	UJ	C	N	840	UJ	C	N	
11SS310002	4-NITROPHENOL	812	U		N	840	U		N	
11SS310002	ACENAPHTHENE	4.05	U		N	4.19	U		N	
11SS310002	ACENAPHTHYLENE	19			Y	26.2			Y	
11SS310002	ACETOPHENONE	203	U		N	210	U		N	
11SS310002	ALDRIN	0.411	U		N	0.417	U		N	
11SS310002	ALPHA-BHC	0.411	U		N	0.417	U		N	
11SS310002	ALPHA-CHLORDANE	0.411	U		N	0.417	U		N	
11SS310002	ALUMINUM	13400			Y	13300			Y	
11SS310002	ANTHRACENE	9.88			Y	11.8			Y	
11SS310002	ANTIMONY	0.96	UJ	D	N	1.04	UJ	D	N	
11SS310002	AROCLOR-1016	10.1	U		N	10.2	U		N	
11SS310002	AROCLOR-1221	10.1	U		N	10.2	U		N	
11SS310002	AROCLOR-1232	10.1	U		N	10.2	U		N	
11SS310002	AROCLOR-1242	10.1	U		N	10.2	U		N	
11SS310002	AROCLOR-1248	10.1	U		N	10.2	U		N	
11SS310002	AROCLOR-1254	10.1	U		N	10.2	U		N	
11SS310002	AROCLOR-1260	10.1	U		N	10.2	U		N	
11SS310002	ARSENIC	7.85			Y	7.86			Y	
11SS310002	ATRAZINE	203	U		N	210	U		N	
11SS310002	BARIUM	142			Y	88.6			Y	
11SS310002	BENZALDEHYDE	203	UJ	C	N	210	UJ	C	N	
11SS310002	BENZO(A)ANTHRACENE	37			Y	53.1			Y	
11SS310002	BENZO(A)PYRENE	60.2			Y	78.6			Y	
11SS310002	BENZO(B)FLUORANTHENE	81			Y	118			Y	
11SS310002	BENZO(G,H,I)PERYLENE	55.8			Y	84.6			Y	
11SS310002	BENZO(K)FLUORANTHENE	36			Y	40.3			Y	
11SS310002	BERYLLIUM	0.925			Y	0.869			Y	
11SS310002	BETA-BHC	0.411	U		N	0.417	U		N	
11SS310002	BIS(2-CHLOROETHOXY)METHANE	203	U		N	210	U		N	
11SS310002	BIS(2-CHLOROETHYL)ETHER	203	U		N	210	U		N	
11SS310002	BIS(2-ETHYLHEXYL)PHTHALATE	203	U		N	210	U		N	
11SS310002	BUTYL BENZYL PHTHALATE	203	U		N	210	U		N	
11SS310002	CADMIUM	0.139	J	CDFKP	Y	0.259	UJ	F	N	X
11SS310002	CALCIUM	1950			Y	2190			Y	
11SS310002	CAPROLACTAM	203	U		N	210	U		N	
11SS310002	CARBAZOLE	203	U		N	210	U		N	
11SS310002	CHROMIUM	13.6			Y	19.8			Y	
11SS310002	CHRYSENE	66.8			Y	82.3			Y	
11SS310002	COBALT	13.2			Y	9.01			Y	
11SS310002	COPPER	12.6			Y	12.7			Y	
11SS310002	CYANIDE	0.323	UJ	D	N	0.332	UJ	D	N	
11SS310002	DELTA-BHC	0.411	UJ	C	N	0.417	UJ	C	N	
11SS310002	DIBENZO(A,H)ANTHRACENE	15.7			Y	20.4			Y	
11SS310002	DIBENZOFURAN	203	U		N	210	U		N	
11SS310002	DIELDRIN	0.403	UJ	H	N	0.423	UJ	HR	N	
11SS310002	DIETHYL PHTHALATE	203	U		N	210	U		N	
11SS310002	DIMETHYL PHTHALATE	203	U		N	210	U		N	
11SS310002	DI-N-BUTYL PHTHALATE	203	U		N	210	U		N	
11SS310002	DI-N-OCTYL PHTHALATE	203	U		N	210	U		N	
11SS310002	ENDOSULFAN I	0.403	UJ	H	N	0.423	UJ	HR	N	
11SS310002	ENDOSULFAN II	0.403	UJ	H	N	0.423	UJ	HR	N	
11SS310002	ENDOSULFAN SULFATE	0.411	U		N	0.417	U		N	

Table E-5
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sample_id	parameter	val_res	val_qual	qual_code	detect	dup_val_res	dup_val_qual	dup_qual_code	dup_detect	no_match
11SS310002	ENDRIN	0.403	UJ	H	N	0.423	UJ	HR	N	
11SS310002	ENDRIN ALDEHYDE	0.403	UJ	H	N	0.423	UJ	HR	N	
11SS310002	ENDRIN KETONE	0.411	U		N	0.417	U		N	
11SS310002	FLUORANTHENE	73.4			Y	61.5			Y	
11SS310002	FLUORENE	4.05	U		N	4.19	U		N	
11SS310002	GAMMA-BHC (LINDANE)	0.411	U		N	0.417	U		N	
11SS310002	GAMMA-CHLORDANE	0.411	U		N	0.417	U		N	
11SS310002	HEPTACHLOR	0.411	U		N	0.417	U		N	
11SS310002	HEPTACHLOR EPOXIDE	0.411	U		N	0.417	U		N	
11SS310002	HEXACHLOROBENZENE	203	U		N	210	U		N	
11SS310002	HEXACHLOROBUTADIENE	203	U		N	210	U		N	
11SS310002	HEXACHLOROCYCLOPENTADIENE	203	UJ	C	N	210	UJ	C	N	
11SS310002	HEXACHLOROETHANE	203	U		N	210	U		N	
11SS310002	INDENO(1,2,3-CD)PYRENE	41.4			Y	61.2			Y	
11SS310002	IRON	18300			Y	24300			Y	
11SS310002	ISOPHORONE	203	U		N	210	U		N	
11SS310002	LEAD	17.1			Y	18.6			Y	
11SS310002	MAGNESIUM	1390			Y	1230			Y	
11SS310002	MANGANESE	1070	J	FG	Y	433	J	FG	Y	
11SS310002	MERCURY	0.0448			Y	0.03	J	P	Y	
11SS310002	METHOXYCHLOR	0.403	UJ	H	N	0.423	UJ	HR	N	
11SS310002	NAPHTHALENE	3.7	J	EP	Y	3.65	J	EP	Y	
11SS310002	NICKEL	14.3			Y	12.7			Y	
11SS310002	NITROBENZENE	203	U		N	210	U		N	
11SS310002	N-NITROSO-DI-N-PROPYLAMINE	203	U		N	210	U		N	
11SS310002	N-NITROSODIPHENYLAMINE	203	UJ	C	N	210	UJ	C	N	
11SS310002	PENTACHLOROPHENOL	812	UJ	C	N	840	UJ	C	N	
11SS310002	PHENANTHRENE	31.6	J	EG	Y	14.3	J	EG	Y	
11SS310002	PHENOL	203	U		N	210	U		N	
11SS310002	POTASSIUM	710	J	D	Y	645	J	DP	Y	
11SS310002	PYRENE	78.4	J	E	Y	81.6	J	E	Y	
11SS310002	SELENIUM	0.516	J	P	Y	0.648	U		N	X
11SS310002	SILVER	0.24	U		N	0.259	U		N	
11SS310002	SODIUM	360	U		N	389	U		N	
11SS310002	THALLIUM	0.48	U		N	0.518	U		N	
11SS310002	TOXAPHENE	26.6	UJ	C	N	27	UJ	C	N	
11SS310002	VANADIUM	27	J	F	Y	30.5	J	F	Y	
11SS310002	ZINC	44			Y	57.5			Y	
11SB360405	1,1,1-TRICHLOROETHANE	113	U		N	109	U		N	
11SB360405	1,1,2,2-TETRACHLOROETHANE	113	U		N	109	U		N	
11SB360405	1,1,2-TRICHLOROETHANE	113	U		N	109	U		N	
11SB360405	1,1,2-TRICHLOROTRIFLUOROETHANE	226	U		N	219	U		N	
11SB360405	1,1-DICHLOROETHANE	113	U		N	109	U		N	
11SB360405	1,1-DICHLOROETHENE	113	U		N	109	U		N	
11SB360405	1,2,3-TRICHLOROBENZENE	113	U		N	109	UJ	C	N	
11SB360405	1,2,4-TRICHLOROBENZENE	113	UJ	C	N	109	UJ	C	N	
11SB360405	1,2-DIBROMO-3-CHLOROPROPANE	226	U		N	219	U		N	
11SB360405	1,2-DIBROMOETHANE	113	U		N	109	U		N	
11SB360405	1,2-DICHLOROBENZENE	779	J	G	Y	425	J	G	Y	
11SB360405	1,2-DICHLOROETHANE	113	U		N	109	U		N	
11SB360405	1,2-DICHLOROPROPANE	113	U		N	109	U		N	
11SB360405	1,3-DICHLOROBENZENE	113	U		N	109	U		N	
11SB360405	1,4-DICHLOROBENZENE	71.2	J	P	Y	109	U		N	X
11SB360405	2-BUTANONE	226	UJ	C	N	219	UJ	C	N	
11SB360405	2-HEXANONE	113	U		N	109	UJ	C	N	
11SB360405	4-METHYL-2-PENTANONE	113	U		N	109	U		N	
11SB360405	ACETONE	453	UJ	C	N	437	UJ	C	N	
11SB360405	BENZENE	146	J	P	Y	109	U		N	X
11SB360405	BROMOCHLOROMETHANE	113	U		N	109	U		N	
11SB360405	BROMODICHLOROMETHANE	113	U		N	109	U		N	
11SB360405	BROMOFORM	113	U		N	109	U		N	
11SB360405	BROMOMETHANE	226	U		N	219	U		N	
11SB360405	CARBON DISULFIDE	113	U		N	109	U		N	
11SB360405	CARBON TETRACHLORIDE	113	U		N	109	U		N	
11SB360405	CHLOROBENZENE	1670	J	G	Y	724	J	G	Y	
11SB360405	CHLORODIBROMOMETHANE	113	U		N	109	U		N	
11SB360405	CHLOROETHANE	226	U		N	219	U		N	
11SB360405	CHLOROFORM	113	U		N	109	U		N	
11SB360405	CHLOROMETHANE	226	U		N	219	U		N	
11SB360405	CIS-1,2-DICHLOROETHENE	113	U		N	109	U		N	
11SB360405	CIS-1,3-DICHLOROPROPENE	113	U		N	109	U		N	
11SB360405	CYCLOHEXANE	113	U		N	109	U		N	
11SB360405	DICHLORODIFLUOROMETHANE	226	U		N	219	U		N	
11SB360405	ETHYLBENZENE	113	U		N	109	U		N	
11SB360405	ISOPROPYLBENZENE	113	U		N	109	U		N	
11SB360405	METHYL ACETATE	226	U		N	219	U		N	

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Comparison of Original and Duplicate Samples
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sample_id	parameter	val_res	val_qual	qual_code	detect	dup_val_res	dup_val_qual	dup_qual_code	dup_detect	no_match
11SB360405	METHYL CYCLOHEXANE	113	U		N	109	U		N	
11SB360405	METHYL TERT-BUTYL ETHER	113	U		N	109	U		N	
11SB360405	METHYLENE CHLORIDE	226	U		N	219	U		N	
11SB360405	STYRENE	113	U		N	109	U		N	
11SB360405	TETRACHLOROETHENE	113	U		N	109	U		N	
11SB360405	TOLUENE	113	U		N	109	U		N	
11SB360405	TOTAL XYLENES	340	U		N	328	U		N	
11SB360405	TRANS-1,2-DICHLOROETHENE	113	U		N	109	U		N	
11SB360405	TRANS-1,3-DICHLOROPROPENE	113	U		N	109	U		N	
11SB360405	TRICHLOROETHENE	113	U		N	109	U		N	
11SB360405	TRICHLOROFLUOROMETHANE	226	U		N	219	U		N	
11SB360405	VINYL CHLORIDE	113	UJ	C	N	109	UJ	C	N	
11SB51-0204	1,1,1-TRICHLOROETHANE	2.59	U		N	2.39	U		N	
11SB51-0204	1,1,2,2-TETRACHLOROETHANE	2.59	U		N	2.39	U		N	
11SB51-0204	1,1,2-TRICHLOROETHANE	2.59	U		N	2.39	U		N	
11SB51-0204	1,1,2-TRICHLOROTRIFLUOROETHANE	5.19	U		N	4.77	U		N	
11SB51-0204	1,1-DICHLOROETHANE	2.59	U		N	2.39	U		N	
11SB51-0204	1,1-DICHLOROETHENE	2.59	U		N	2.39	U		N	
11SB51-0204	1,2,3-TRICHLOROBENZENE	2.59	U		N	2.39	U		N	
11SB51-0204	1,2,4-TRICHLOROBENZENE	2.59	U		N	2.39	U		N	
11SB51-0204	1,2-DIBROMO-3-CHLOROPROPANE	5.19	U		N	4.77	U		N	
11SB51-0204	1,2-DIBROMOETHANE	2.59	U		N	2.39	U		N	
11SB51-0204	1,2-DICHLOROBENZENE	48.3			Y	33.4			Y	
11SB51-0204	1,2-DICHLOROETHANE	2.59	U		N	2.39	U		N	
11SB51-0204	1,2-DICHLOROPROPANE	2.59	U		N	2.39	U		N	
11SB51-0204	1,3-DICHLOROBENZENE	2.59	U		N	2.39	U		N	
11SB51-0204	1,4-DICHLOROBENZENE	2.59	U		N	2.39	U		N	
11SB51-0204	2-BUTANONE	5.19	U		N	4.77	U		N	
11SB51-0204	2-HEXANONE	2.59	U		N	2.39	U		N	
11SB51-0204	4-METHYL-2-PENTANONE	2.59	U		N	2.39	U		N	
11SB51-0204	ACETONE	14	J	CP	Y	11.9	J	CP	Y	
11SB51-0204	BENZENE	2.59	U		N	2.39	U		N	
11SB51-0204	BROMOCHLOROMETHANE	2.59	U		N	2.39	U		N	
11SB51-0204	BROMODICHLOROMETHANE	2.59	U		N	2.39	U		N	
11SB51-0204	BROMOFORM	2.59	U		N	2.39	U		N	
11SB51-0204	BROMOMETHANE	5.19	UJ	C	N	4.77	UJ	C	N	
11SB51-0204	CARBON DISULFIDE	2.59	U		N	2.39	U		N	
11SB51-0204	CARBON TETRACHLORIDE	2.59	U		N	2.39	U		N	
11SB51-0204	CHLOROBENZENE	2.59	U		N	2.39	U		N	
11SB51-0204	CHLORODIBROMOMETHANE	2.59	U		N	2.39	U		N	
11SB51-0204	CHLOROETHANE	5.19	U		N	4.77	U		N	
11SB51-0204	CHLOROFORM	2.59	U		N	2.39	U		N	
11SB51-0204	CHLOROMETHANE	5.19	U		N	4.77	U		N	
11SB51-0204	CIS-1,2-DICHLOROETHENE	16.5			Y	16.8			Y	
11SB51-0204	CIS-1,3-DICHLOROPROPENE	2.59	U		N	2.39	U		N	
11SB51-0204	CYCLOHEXANE	2.59	U		N	2.39	U		N	
11SB51-0204	DICHLORODIFLUOROMETHANE	5.19	UJ	C	N	4.77	UJ	C	N	
11SB51-0204	ETHYLBENZENE	2.59	U		N	2.39	U		N	
11SB51-0204	ISOPROPYLBENZENE	3.24	J	P	Y	2.5	J	P	Y	
11SB51-0204	METHYL ACETATE	5.19	U		N	4.77	U		N	
11SB51-0204	METHYL CYCLOHEXANE	2.59	U		N	2.39	U		N	
11SB51-0204	METHYL TERT-BUTYL ETHER	2.59	U		N	2.39	U		N	
11SB51-0204	METHYLENE CHLORIDE	5.19	U		N	4.77	U		N	
11SB51-0204	STYRENE	2.59	U		N	2.39	U		N	
11SB51-0204	TETRACHLOROETHENE	74.9			Y	64.2			Y	
11SB51-0204	TOLUENE	2.59	U		N	2.39	U		N	
11SB51-0204	TOTAL XYLENES	7.78	U		N	7.16	U		N	
11SB51-0204	TRANS-1,2-DICHLOROETHENE	2.59	U		N	2.39	U		N	
11SB51-0204	TRANS-1,3-DICHLOROPROPENE	2.59	U		N	2.39	U		N	
11SB51-0204	TRICHLOROETHENE	32.8			Y	30.3			Y	
11SB51-0204	TRICHLOROFLUOROMETHANE	5.19	U		N	4.77	U		N	
11SB51-0204	VINYL CHLORIDE	3.61	J	P	Y	3.73	J	P	Y	
11SB60-0204	1,1,1-TRICHLOROETHANE	2.36	U		N	2.47	U		N	
11SB60-0204	1,1,2,2-TETRACHLOROETHANE	2.36	U		N	2.47	U		N	
11SB60-0204	1,1,2-TRICHLOROETHANE	2.36	U		N	2.47	U		N	
11SB60-0204	1,1,2-TRICHLOROTRIFLUOROETHANE	4.73	U		N	4.93	U		N	
11SB60-0204	1,1-DICHLOROETHANE	2.36	U		N	2.47	U		N	
11SB60-0204	1,1-DICHLOROETHENE	2.36	U		N	2.47	U		N	
11SB60-0204	1,2,3-TRICHLOROBENZENE	2.36	U		N	2.47	U		N	
11SB60-0204	1,2,4-TRICHLOROBENZENE	2.36	U		N	2.47	U		N	
11SB60-0204	1,2-DIBROMO-3-CHLOROPROPANE	4.73	U		N	4.93	U		N	
11SB60-0204	1,2-DIBROMOETHANE	2.36	U		N	2.47	U		N	
11SB60-0204	1,2-DICHLOROBENZENE	2.36	U		N	2.47	U		N	
11SB60-0204	1,2-DICHLOROETHANE	2.36	U		N	2.47	U		N	
11SB60-0204	1,2-DICHLOROPROPANE	2.36	U		N	2.47	U		N	
11SB60-0204	1,3-DICHLOROBENZENE	2.36	U		N	2.47	U		N	

Table E-5
Comparison of Original and Duplicate Samples
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sample_id	parameter	val_res	val_qual	qual_code	detect	dup_val_res	dup_val_qual	dup_qual_code	dup_detect	no_match
11SB60-0204	1,4-DICHLOROBENZENE	2.36	U		N	2.47	U		N	
11SB60-0204	2-BUTANONE	4.73	U		N	4.93	U		N	
11SB60-0204	2-HEXANONE	4.73	UJ	C	N	4.93	UJ	C	N	
11SB60-0204	4-METHYL-2-PENTANONE	4.73	UJ	C	N	4.93	UJ	C	N	
11SB60-0204	ACETONE	9.45	U		N	9.87	U		N	
11SB60-0204	BENZENE	2.36	U		N	2.47	U		N	
11SB60-0204	BROMOCHLOROMETHANE	2.36	U		N	2.47	U		N	
11SB60-0204	BROMODICHLOROMETHANE	2.36	U		N	2.47	U		N	
11SB60-0204	BROMOFORM	2.36	U		N	2.47	U		N	
11SB60-0204	BROMOMETHANE	4.73	U		N	4.93	U		N	
11SB60-0204	CARBON DISULFIDE	2.36	U		N	2.47	U		N	
11SB60-0204	CARBON TETRACHLORIDE	2.36	U		N	2.47	U		N	
11SB60-0204	CHLOROBENZENE	2.36	U		N	2.47	U		N	
11SB60-0204	CHLORODIBROMOMETHANE	2.36	U		N	2.47	U		N	
11SB60-0204	CHLOROETHANE	4.73	U		N	4.93	U		N	
11SB60-0204	CHLOROFORM	2.36	U		N	2.47	U		N	
11SB60-0204	CHLOROMETHANE	4.73	U		N	4.93	U		N	
11SB60-0204	CIS-1,2-DICHLOROETHENE	2.36	U		N	2.47	U		N	
11SB60-0204	CIS-1,3-DICHLOROPROPENE	2.36	U		N	2.47	U		N	
11SB60-0204	CYCLOHEXANE	2.36	U		N	2.47	U		N	
11SB60-0204	DICHLORODIFLUOROMETHANE	4.73	U		N	4.93	U		N	
11SB60-0204	ETHYLBENZENE	2.36	U		N	2.47	U		N	
11SB60-0204	ISOPROPYLBENZENE	2.36	U		N	2.47	U		N	
11SB60-0204	METHYL ACETATE	4.73	U		N	4.93	U		N	
11SB60-0204	METHYL CYCLOHEXANE	2.36	U		N	2.47	U		N	
11SB60-0204	METHYL TERT-BUTYL ETHER	2.36	U		N	2.47	U		N	
11SB60-0204	METHYLENE CHLORIDE	4.73	U		N	4.93	U		N	
11SB60-0204	STYRENE	2.36	U		N	2.47	U		N	
11SB60-0204	TETRACHLOROETHENE	2.36	U		N	2.47	U		N	
11SB60-0204	TOLUENE	2.36	U		N	2.47	U		N	
11SB60-0204	TOTAL XYLENES	7.09	U		N	7.4	U		N	
11SB60-0204	TRANS-1,2-DICHLOROETHENE	2.36	U		N	2.47	U		N	
11SB60-0204	TRANS-1,3-DICHLOROPROPENE	2.36	U		N	2.47	U		N	
11SB60-0204	TRICHLOROETHENE	2.36	U		N	2.47	U		N	
11SB60-0204	TRICHLOROFLUOROMETHANE	4.73	U		N	4.93	U		N	
11SB60-0204	VINYL CHLORIDE	2.36	U		N	2.47	U		N	
11SB66-1516	1,1,1-TRICHLOROETHANE	2.92	U		N	2.83	U		N	
11SB66-1516	1,1,2,2-TETRACHLOROETHANE	2.92	U		N	2.83	U		N	
11SB66-1516	1,1,2-TRICHLOROETHANE	2.92	U		N	2.83	U		N	
11SB66-1516	1,1,2-TRICHLOROTRIFLUOROETHANE	5.84	U		N	5.67	U		N	
11SB66-1516	1,1-DICHLOROETHANE	2.92	U		N	2.83	U		N	
11SB66-1516	1,1-DICHLOROETHENE	2.92	U		N	2.83	U		N	
11SB66-1516	1,2,3-TRICHLOROBENZENE	2.92	U		N	2.83	U		N	
11SB66-1516	1,2,4-TRICHLOROBENZENE	2.92	U		N	2.83	U		N	
11SB66-1516	1,2-DIBROMO-3-CHLOROPROPANE	5.84	U		N	5.67	U		N	
11SB66-1516	1,2-DIBROMOETHANE	2.92	U		N	2.83	U		N	
11SB66-1516	1,2-DICHLOROBENZENE	8.55			Y	11.5			Y	
11SB66-1516	1,2-DICHLOROETHANE	2.92	U		N	2.83	U		N	
11SB66-1516	1,2-DICHLOROPROPANE	2.92	U		N	2.83	U		N	
11SB66-1516	1,3-DICHLOROBENZENE	2.92	U		N	2.83	U		N	
11SB66-1516	1,4-DICHLOROBENZENE	2.92	U		N	2.83	U		N	
11SB66-1516	2-BUTANONE	5.84	U		N	5.67	U		N	
11SB66-1516	2-HEXANONE	5.84	U		N	5.67	U		N	
11SB66-1516	4-METHYL-2-PENTANONE	5.84	U		N	5.67	U		N	
11SB66-1516	ACETONE	11.7	UJ	C	N	11.3	UJ	C	N	
11SB66-1516	BENZENE	2.92	U		N	2.83	U		N	
11SB66-1516	BROMOCHLOROMETHANE	2.92	U		N	2.83	U		N	
11SB66-1516	BROMODICHLOROMETHANE	2.92	U		N	2.83	U		N	
11SB66-1516	BROMOFORM	2.92	U		N	2.83	U		N	
11SB66-1516	BROMOMETHANE	5.84	U		N	5.67	U		N	
11SB66-1516	CARBON DISULFIDE	2.92	U		N	2.83	U		N	
11SB66-1516	CARBON TETRACHLORIDE	2.92	U		N	2.83	U		N	
11SB66-1516	CHLOROBENZENE	2.92	U		N	2.83	U		N	
11SB66-1516	CHLORODIBROMOMETHANE	2.92	U		N	2.83	U		N	
11SB66-1516	CHLOROETHANE	5.84	U		N	5.67	U		N	
11SB66-1516	CHLOROFORM	2.92	U		N	2.83	U		N	
11SB66-1516	CHLOROMETHANE	5.84	U		N	5.67	U		N	
11SB66-1516	CIS-1,2-DICHLOROETHENE	25.1			Y	20			Y	
11SB66-1516	CIS-1,3-DICHLOROPROPENE	2.92	U		N	2.83	U		N	
11SB66-1516	CYCLOHEXANE	2.92	U		N	2.83	U		N	
11SB66-1516	DICHLORODIFLUOROMETHANE	5.84	U		N	5.67	U		N	
11SB66-1516	ETHYLBENZENE	2.92	U		N	2.83	U		N	
11SB66-1516	ISOPROPYLBENZENE	2.92	U		N	2.83	U		N	
11SB66-1516	METHYL ACETATE	5.84	U		N	5.67	U		N	
11SB66-1516	METHYL CYCLOHEXANE	2.92	U		N	2.83	U		N	
11SB66-1516	METHYL TERT-BUTYL ETHER	2.92	U		N	2.83	U		N	

sample_id	parameter	val_res	val_qual	qual_code	detect	dup_val_res	dup_val_qual	dup_qual_code	dup_detect	no_match
11SB66-1516	METHYLENE CHLORIDE	5.84	U		N	5.67	U		N	
11SB66-1516	STYRENE	2.92	U		N	2.83	U		N	
11SB66-1516	TETRACHLOROETHENE	33.9			Y	26.4			Y	
11SB66-1516	TOLUENE	2.92	U		N	2.83	U		N	
11SB66-1516	TOTAL XYLENES	8.76	U		N	8.5	U		N	
11SB66-1516	TRANS-1,2-DICHLOROETHENE	2.92	U		N	2.83	U		N	
11SB66-1516	TRANS-1,3-DICHLOROPROPENE	2.92	U		N	2.83	U		N	
11SB66-1516	TRICHLOROETHENE	16.3			Y	13.7			Y	
11SB66-1516	TRICHLOROFLUOROMETHANE	5.84	U		N	5.67	U		N	
11SB66-1516	VINYL CHLORIDE	5.21	J	P	Y	4.25	J	P	Y	
11SD020006	1,1-BIPHENYL	208	U		N	204	U		N	
11SD020006	1,2,3,4,6,7,8,9-OCDD	2240			Y	1500			Y	
11SD020006	1,2,3,4,6,7,8,9-OCDF	192	J	G	Y	106	J	G	Y	
11SD020006	1,2,3,4,6,7,8-HPCDD	243	J	G	Y	134	J	G	Y	
11SD020006	1,2,3,4,6,7,8-HPCDF	35.3	J	G	Y	19.4	J	G	Y	
11SD020006	1,2,3,4,7,8,9-HPCDF	2.15	J	P	Y	3.26	U		N	X
11SD020006	1,2,3,4,7,8-HXCDD	4.87			Y	1.92	J	P	Y	
11SD020006	1,2,3,4,7,8-HXCDF	1.09	J	P	Y	3.26	U		N	X
11SD020006	1,2,3,6,7,8-HXCDD	7.26			Y	4.58	J	P	Y	
11SD020006	1,2,3,6,7,8-HXCDF	1.01	J	P	Y	0.778	J	P	Y	
11SD020006	1,2,3,7,8,9-HXCDD	4.47	J	P	Y	2.88	J	P	Y	
11SD020006	1,2,3,7,8,9-HXCDF	3.04	U		N	3.26	U		N	
11SD020006	1,2,3,7,8-PECDD	1.38	J	PW	Y	0.833	J	P	Y	
11SD020006	1,2,3,7,8-PECDF	1.02	J	P	Y	0.78	J	P	Y	
11SD020006	2,2'-OXYBIS(1-CHLOROPROPANE)	208	U		N	204	UJ	C	N	
11SD020006	2,3,4,6,7,8-HXCDF	1.36	J	P	Y	0.948	J	P	Y	
11SD020006	2,3,4,7,8-PECDF	0.559	J	P	Y	3.26	U		N	X
11SD020006	2,3,7,8-TCDD	0.494	J	P	Y	0.651	U		N	X
11SD020006	2,3,7,8-TCDF	0.689	U	A	N	0.754	U	A	N	
11SD020006	2,4,5-TRICHLOROPHENOL	208	U		N	204	U		N	
11SD020006	2,4,6-TRICHLOROPHENOL	208	U		N	204	U		N	
11SD020006	2,4-DICHLOROPHENOL	208	U		N	204	U		N	
11SD020006	2,4-DIMETHYLPHENOL	832	U		N	814	U		N	
11SD020006	2,4-DINITROPHENOL	2080	UJ	C	N	2040	U		N	
11SD020006	2,4-DINITROTOLUENE	208	U		N	204	U		N	
11SD020006	2,6-DINITROTOLUENE	208	U		N	204	U		N	
11SD020006	2-CHLORONAPHTHALENE	208	UJ	C	N	204	UJ	C	N	
11SD020006	2-CHLOROPHENOL	208	U		N	204	U		N	
11SD020006	2-METHYLNAPHTHALENE	4.16	U		N	4.07	U		N	
11SD020006	2-METHYLPHENOL	208	U		N	204	U		N	
11SD020006	2-NITROANILINE	832	U		N	814	U		N	
11SD020006	2-NITROPHENOL	208	U		N	204	U		N	
11SD020006	3,3'-DICHLOROBENZIDINE	208	U		N	204	UJ	C	N	
11SD020006	3-NITROANILINE	832	U		N	814	U		N	
11SD020006	4,4'-DDD	0.422	U		N	0.404	U		N	
11SD020006	4,4'-DDE	0.422	U		N	0.404	U		N	
11SD020006	4,4'-DDT	0.422	U		N	0.404	U		N	
11SD020006	4,6-DINITRO-2-METHYLPHENOL	2080	UJ	C	N	2040	U		N	
11SD020006	4-BROMOPHENYL PHENYL ETHER	208	U		N	204	U		N	
11SD020006	4-CHLORO-3-METHYLPHENOL	208	U		N	204	U		N	
11SD020006	4-CHLOROANILINE	208	U		N	204	U		N	
11SD020006	4-CHLOROPHENYL PHENYL ETHER	208	UJ	C	N	204	U		N	
11SD020006	4-METHYLPHENOL	208	U		N	204	U		N	
11SD020006	4-NITROANILINE	832	UJ	C	N	814	U		N	
11SD020006	4-NITROPHENOL	832	U		N	814	U		N	
11SD020006	ACENAPHTHENE	4.16	U		N	4.07	U		N	
11SD020006	ACENAPHTHYLENE	7.96	J	P	Y	2.6	J	P	Y	
11SD020006	ACETOPHENONE	208	U		N	204	U		N	
11SD020006	ALDRIN	0.422	U		N	0.404	U		N	
11SD020006	ALPHA-BHC	0.422	U		N	2.47			Y	X
11SD020006	ALPHA-CHLORDANE	0.422	U		N	0.404	U		N	
11SD020006	ALUMINUM	6800	J	G	Y	11400	J	G	Y	
11SD020006	ANTHRACENE	8.52			Y	2.68	J	P	Y	
11SD020006	ANTIMONY	1.04	U		N	1.01	U		N	
11SD020006	AROCLOR-1016	10.3	U		N	9.91	U		N	
11SD020006	AROCLOR-1221	10.3	U		N	9.91	U		N	
11SD020006	AROCLOR-1232	10.3	U		N	9.91	U		N	
11SD020006	AROCLOR-1242	10.3	U		N	9.91	U		N	
11SD020006	AROCLOR-1248	10.3	U		N	9.91	U		N	
11SD020006	AROCLOR-1254	10.3	U		N	9.91	U		N	
11SD020006	AROCLOR-1260	12.7	J	P	Y	7.17	J	P	Y	
11SD020006	ARSENIC	20.6			Y	20.9			Y	
11SD020006	ATRAZINE	208	U		N	204	U		N	
11SD020006	BARIUM	129			Y	89.6			Y	
11SD020006	BENZALDEHYDE	208	UJ	C	N	204	UJ	C	N	
11SD020006	BENZO(A)ANTHRACENE	18.7			Y	7.22	J	P	Y	

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sample_id	parameter	val_res	val_qual	qual_code	detect	dup_val_res	dup_val_qual	dup_qual_code	dup_detect	no_match
11SD020006	BENZO(A)PYRENE	32.6	J	G	Y	9.44	J	G	Y	
11SD020006	BENZO(B)FLUORANTHENE	84.8	J	G	Y	14.4	J	G	Y	
11SD020006	BENZO(G,H,I)PERYLENE	45.7	J	G	Y	12.6	J	G	Y	
11SD020006	BENZO(K)FLUORANTHENE	27.2	J	G	Y	7.04	J	GP	Y	
11SD020006	BERYLLIUM	0.804			Y	1.19			Y	
11SD020006	BETA-BHC	0.422	U		N	0.404	U		N	
11SD020006	BIS(2-CHLOROETHOXY)METHANE	208	U		N	204	U		N	
11SD020006	BIS(2-CHLOROETHYL)ETHER	208	U		N	204	U		N	
11SD020006	BIS(2-ETHYLHEXYL)PHTHALATE	208	U		N	204	U		N	
11SD020006	BUTYL BENZYL PHTHALATE	208	U		N	204	U		N	
11SD020006	CADMIUM	0.95	J	K	Y	0.401	J	P	Y	
11SD020006	CALCIUM	46000	J	G	Y	1640	J	G	Y	
11SD020006	CAPROLACTAM	208	U		N	204	U		N	
11SD020006	CARBAZOLE	208	U		N	204	U		N	
11SD020006	CHROMIUM	67.4			Y	52			Y	
11SD020006	CHRYSENE	64.5	J	G	Y	11.1	J	G	Y	
11SD020006	COBALT	17.6			Y	13.9			Y	
11SD020006	COPPER	12			Y	12.4			Y	
11SD020006	CYANIDE	0.395	J	P	Y	0.179	J	P	Y	
11SD020006	DELTA-BHC	0.422	UJ	C	N	0.404	UJ	C	N	
11SD020006	DIBENZO(A,H)ANTHRACENE	14.6			Y	7.39	J	P	Y	
11SD020006	DIBENZOFURAN	208	U		N	204	U		N	
11SD020006	DIELDRIN	0.411	UJ	HR	N	0.399	UJ	HR	N	
11SD020006	DIETHYL PHTHALATE	208	U		N	204	U		N	
11SD020006	DIMETHYL PHTHALATE	208	U		N	204	U		N	
11SD020006	DI-N-BUTYL PHTHALATE	208	U		N	204	U		N	
11SD020006	DI-N-OCTYL PHTHALATE	208	U		N	204	U		N	
11SD020006	ENDOSULFAN I	0.411	UJ	HR	N	0.399	UJ	HR	N	
11SD020006	ENDOSULFAN II	0.411	UJ	HR	N	0.399	UJ	HR	N	
11SD020006	ENDOSULFAN SULFATE	0.422	U		N	0.404	U		N	
11SD020006	ENDRIN	0.411	UJ	HR	N	0.399	UJ	HR	N	
11SD020006	ENDRIN ALDEHYDE	0.411	UJ	HR	N	0.399	UJ	HR	N	
11SD020006	ENDRIN KETONE	0.422	U		N	0.404	U		N	
11SD020006	FLUORANTHENE	52.8	J	G	Y	14.8	J	G	Y	
11SD020006	FLUORENE	4.16	U		N	4.07	U		N	
11SD020006	GAMMA-BHC (LINDANE)	0.422	U		N	0.404	U		N	
11SD020006	GAMMA-CHLORDANE	0.623	J	P	Y	0.822			Y	
11SD020006	HEPTACHLOR	0.422	U		N	0.404	U		N	
11SD020006	HEPTACHLOR EPOXIDE	0.422	U		N	0.404	U		N	
11SD020006	HEXACHLOROBENZENE	208	U		N	204	U		N	
11SD020006	HEXACHLOROBUTADIENE	208	U		N	204	U		N	
11SD020006	HEXACHLOROCYCLOPENTADIENE	208	UJ	C	N	204	U		N	
11SD020006	HEXACHLOROETHANE	208	U		N	204	U		N	
11SD020006	INDENO(1,2,3-CD)PYRENE	39.3	J	G	Y	8.81	J	G	Y	
11SD020006	IRON	22200	J	G	Y	48700	J	G	Y	
11SD020006	ISOPHORONE	208	U		N	204	U		N	
11SD020006	LEAD	79.6	J	G	Y	35.6	J	G	Y	
11SD020006	MAGNESIUM	1580	J	G	Y	813	J	G	Y	
11SD020006	MANGANESE	2190	J	G	Y	685	J	G	Y	
11SD020006	MERCURY	0.056			Y	0.0395			Y	
11SD020006	METHOXYCHLOR	0.411	UJ	CHR	N	0.399	UJ	CHR	N	
11SD020006	NAPHTHALENE	3.01	J	EP	Y	4.07	U		N	X
11SD020006	NICKEL	11.7			Y	15.4			Y	
11SD020006	NITROBENZENE	208	U		N	204	U		N	
11SD020006	N-NITROSO-DI-N-PROPYLAMINE	208	U		N	204	UJ	C	N	
11SD020006	N-NITROSODIPHENYLAMINE	208	UJ	C	N	204	U		N	
11SD020006	PENTACHLOROPHENOL	832	UJ	C	N	814	U		N	
11SD020006	PHENANTHRENE	24.5	J	EG	Y	7.5	J	GP	Y	
11SD020006	PHENOL	208	U		N	204	U		N	
11SD020006	POTASSIUM	338	J	P	Y	377	J	P	Y	
11SD020006	PYRENE	46.2	J	G	Y	14.5	J	G	Y	
11SD020006	SELENIUM	0.447	J	P	Y	0.63	U		N	X
11SD020006	SILVER	0.26	U		N	0.252	U		N	
11SD020006	SODIUM	390	U		N	378	U		N	
11SD020006	TEQ FISH	5.9635		P	Y	2.5678			Y	
11SD020006	TEQ FISH HALFND	6.132725		P	Y	4.06945			Y	
11SD020006	TEQ WHO-2005	6.3			Y	4.06			Y	
11SD020006	TEQ WHO-2005 - HALFND	6.47			Y	4.15			Y	
11SD020006	THALLIUM	0.742	J	P	Y	0.504	U		N	X
11SD020006	TOTAL HPCDD	487	J	G	Y	255	J	G	Y	
11SD020006	TOTAL HPCDF	147	J	G	Y	74.7	J	G	Y	
11SD020006	TOTAL HXCDD	71.6	J	G	Y	35.8	J	G	Y	
11SD020006	TOTAL HXCDF	31.8	J	G	Y	19.5	J	G	Y	
11SD020006	TOTAL ORGANIC CARBON	11000			Y	10600			Y	
11SD020006	TOTAL PECDD	9.64	J	G	Y	5.13	J	G	Y	
11SD020006	TOTAL PECDF	9.89	J	G	Y	3.31	J	GP	Y	

Table E-5
Comparison of Original and Duplicate Samples
SWMU 11 RFI Report
NSA Crane, Crane, Indiana

sample_id	parameter	val_res	val_qual	qual_code	detect	dup_val_res	dup_val_qual	dup_qual_code	dup_detect	no_match
11SD020006	TOTAL TCDD	0.607	U		N	0.651	U		N	
11SD020006	TOTAL TCDF	2.1	U	A	N	0.754	U	A	N	
11SD020006	TOXAPHENE	27.3	U		N	26.2	U		N	
11SD020006	VANADIUM	25.8	J	G	Y	45.6	J	G	Y	
11SD020006	ZINC	220	J	G	Y	95.5	J	G	Y	
11SD050006	1,2,3,4,6,7,8,9-OCDD	480			Y	386			Y	
11SD050006	1,2,3,4,6,7,8,9-OCDF	39.4			Y	32.7			Y	
11SD050006	1,2,3,4,6,7,8-HPCDD	56.5			Y	46.7			Y	
11SD050006	1,2,3,4,6,7,8-HPCDF	8.87			Y	7.41			Y	
11SD050006	1,2,3,4,7,8,9-HPCDF	3.26	U		N	3.32	U		N	
11SD050006	1,2,3,4,7,8-HXCDD	3.26	U		N	3.32	U		N	
11SD050006	1,2,3,4,7,8-HXCDF	3.26	U		N	3.32	U		N	
11SD050006	1,2,3,6,7,8-HXCDD	2.08	J	P	Y	1.78	J	P	Y	
11SD050006	1,2,3,6,7,8-HXCDF	3.26	U		N	3.32	U		N	
11SD050006	1,2,3,7,8,9-HXCDD	3.26	U		N	3.32	U		N	
11SD050006	1,2,3,7,8,9-HXCDF	3.26	U		N	3.32	U		N	
11SD050006	1,2,3,7,8-PECDD	3.26	U		N	3.32	U		N	
11SD050006	1,2,3,7,8-PECDF	3.26	U		N	3.32	U		N	
11SD050006	2,3,4,6,7,8-HXCDF	3.26	U		N	3.32	U		N	
11SD050006	2,3,4,7,8-PECDF	3.26	U		N	3.32	U		N	
11SD050006	2,3,7,8-TCDD	0.65	U		N	0.663	U		N	
11SD050006	2,3,7,8-TCDF	0.65	U		N	0.663	U		N	
11SD050006	TEQ FISH	0.21794			Y	0.18047			Y	
11SD050006	TEQ FISH HALFND	4.58529			Y	4.628745			Y	
11SD050006	TEQ WHO-2005	1.01752			Y	0.84471			Y	
11SD050006	TEQ WHO-2005 - HALFND	4.53722			Y	4.42976			Y	
11SD050006	TOTAL HPCDD	111			Y	91.1			Y	
11SD050006	TOTAL HPCDF	33			Y	29			Y	
11SD050006	TOTAL HXCDD	13.8			Y	9.14			Y	
11SD050006	TOTAL HXCDF	7.09			Y	6.51			Y	
11SD050006	TOTAL PECDD	3.26	U		N	3.32	U		N	
11SD050006	TOTAL PECDF	3.26	U		N	3.32	U		N	
11SD050006	TOTAL TCDD	0.65	U		N	0.663	U		N	
11SD050006	TOTAL TCDF	0.346	J	P	Y	0.663	U		N	X

APPENDIX F

ANALYTICAL RESULTS

TABLE F-1
ANALYTICAL RESULTS FOR SOIL
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION	11SB01				11SB02		11SB03	
SAMPLE ID	11SB010002	11SB010002-D	11SB010406	11SB010406-D	11SB020002	11SB020406	11SB030002	11SB030406
SAMPLE DATE	20110426	20110426	20110426	20110426	20110426	20110426	20110426	20110426
TOP DEPTH	0	0	4	4	0	4	0	4
BOTTOM DEPTH	2	2	6	6	2	6	2	6
DIOXINS/FURANS (NG/KG)								
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	2830	NA	NA	NA
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	2.96 J	NA	NA	NA
1,2,3,4,6,7,8-HPCDD	NA	NA	NA	NA	66.4	NA	NA	NA
1,2,3,4,6,7,8-HPCDF	NA	NA	NA	NA	0.622 J	NA	NA	NA
1,2,3,4,7,8,9-HPCDF	NA	NA	NA	NA	3.28 U	NA	NA	NA
1,2,3,4,7,8-HXCDD	NA	NA	NA	NA	0.655 J	NA	NA	NA
1,2,3,4,7,8-HXCDF	NA	NA	NA	NA	3.28 U	NA	NA	NA
1,2,3,6,7,8-HXCDD	NA	NA	NA	NA	0.767 J	NA	NA	NA
1,2,3,6,7,8-HXCDF	NA	NA	NA	NA	3.28 U	NA	NA	NA
1,2,3,7,8,9-HXCDD	NA	NA	NA	NA	1.31 J	NA	NA	NA
1,2,3,7,8,9-HXCDF	NA	NA	NA	NA	3.28 U	NA	NA	NA
1,2,3,7,8-PECDD	NA	NA	NA	NA	3.28 U	NA	NA	NA
1,2,3,7,8-PECDF	NA	NA	NA	NA	3.28 U	NA	NA	NA
2,3,4,6,7,8-HXCDF	NA	NA	NA	NA	3.28 U	NA	NA	NA
2,3,4,7,8-PECDF	NA	NA	NA	NA	3.28 U	NA	NA	NA
2,3,7,8-TCDD	NA	NA	NA	NA	0.653 U	NA	NA	NA
2,3,7,8-TCDF	NA	NA	NA	NA	0.49 U	NA	NA	NA
TEQ BIRD	NA	NA	NA	NA	0.527336	NA	NA	NA
TEQ BIRD HALFND	NA	NA	NA	NA	5.215236	NA	NA	NA
TEQ EQUIVALENTS	NA	NA	NA	NA	1.793308	NA	NA	NA
TEQ EQUIVALENTS- HALFND	NA	NA	NA	NA	4.997908	NA	NA	NA
TOTAL HPCDD	NA	NA	NA	NA	119	NA	NA	NA
TOTAL HPCDF	NA	NA	NA	NA	3.28 U	NA	NA	NA
TOTAL HXCDD	NA	NA	NA	NA	8.91	NA	NA	NA
TOTAL HXCDF	NA	NA	NA	NA	0.273 J	NA	NA	NA
TOTAL PECDD	NA	NA	NA	NA	0.343 J	NA	NA	NA
TOTAL PECDF	NA	NA	NA	NA	3.28 U	NA	NA	NA
TOTAL TCDD	NA	NA	NA	NA	0.653 U	NA	NA	NA
TOTAL TCDF	NA	NA	NA	NA	0.49 U	NA	NA	NA
METALS (MG/KG)								
ALUMINUM	19900	15800	14000	12100	12700	15400	16800	12300
ANTIMONY	1 U	0.979 U	0.943 U	0.998 U	0.973 U	2.62 U	0.98 U	0.941 U
ARSENIC	12	8.36	6.41	4.24	7.18	20.4	3.57	2.49
BARIUM	67.3	61.4	53 J	124 J	40.4	53.8	61.7	60.9
BERYLLIUM	0.833	0.708	0.554 J	0.493 J	0.532 J	0.827 J	0.481 J	0.392 J
CADMIUM	0.251 U	0.245 U	0.236 U	0.249 U	0.243 U	0.654 U	0.245 U	0.235 U
CALCIUM	560 J	8080 J	310 J	420 J	278 J	418 J	544 J	688
CHROMIUM	21	22.7	27.4 J	14.6 J	20.9	74.9	17.8	13.8
COBALT	6.36 J	12.7 J	3.13	3.42	3.48	2.56 J	3.61	1.88
COPPER	18.3	13.3	12.7	12.7	10.6	10.1	15	6.05
IRON	27200	20500	20800	16800	23800	75600	14300	11400
LEAD	14	12.9	10.2	7.79	11.4	28.5 J	8.71	6.76
MAGNESIUM	2550	2800	1460	1550	1370	900 J	1890	1030
MANGANESE	271 J	542 J	66.8	49.2	231	109	111	12.5
MERCURY	0.0512 J	0.0173 J	0.0203 J	0.0439 UJ	0.0389 UJ	0.0353 UJ	0.0446 J	0.0337 UJ
NICKEL	15.4	12.8	9.53	9.89	8.9	9.71	9.85	6.59
POTASSIUM	1040	857	643	510 J	516 J	401 J	839	489 J
SELENIUM	0.652 J	0.612 U	0.59 U	0.623 U	0.406 J	1.26 J	0.612 U	0.588 U
SILVER	0.251 U	0.245 U	0.236 U	0.249 U	0.243 U	0.654 U	0.245 U	0.235 U
SODIUM	376 U	278 J	354 U	374 U	365 U	981 U	367 U	353 U
THALLIUM	0.502 U	0.489 U	0.472 U	0.499 U	0.486 U	1.31 U	0.49 U	0.471 U
VANADIUM	41	32.9	32.4	21.9	35.2	86.2	22.9	17.6

TABLE F-1
ANALYTICAL RESULTS FOR SOIL
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION	11SB01				11SB02		11SB03	
SAMPLE ID	11SB010002	11SB010002-D	11SB010406	11SB010406-D	11SB020002	11SB020406	11SB030002	11SB030406
SAMPLE DATE	20110426	20110426	20110426	20110426	20110426	20110426	20110426	20110426
TOP DEPTH	0	0	4	4	0	4	0	4
BOTTOM DEPTH	2	2	6	6	2	6	2	6
ZINC	52.5	35.6	27.1	24.2	21.6	19.9 J	33.1	11.1
MISCELLANEOUS PARAMETERS (MG/KG)								
CYANIDE	0.317 U	0.313 U	0.298 U	0.293 U	0.315 U	0.309 U	0.299 U	0.287 U
PCBS (UG/KG)								
AROCLOR-1016	10.2 UJ	10.5 UJ	9.85 UJ	9.94 U	10.3 UJ	10.7 UJ	10.2 UJ	9.65 UJ
AROCLOR-1221	10.2 U	10.5 U	9.85 U	9.94 U	10.3 U	10.7 U	10.2 U	9.65 U
AROCLOR-1232	10.2 U	10.5 U	9.85 U	9.94 U	10.3 U	10.7 U	10.2 U	9.65 U
AROCLOR-1242	10.2 U	10.5 U	9.85 U	9.94 U	10.3 U	10.7 U	10.2 U	9.65 U
AROCLOR-1248	10.2 U	10.5 U	9.85 U	9.94 U	10.3 U	10.7 U	10.2 U	9.65 U
AROCLOR-1254	10.2 U	10.5 U	9.85 U	9.94 U	10.3 U	10.7 U	10.2 U	9.65 U
AROCLOR-1260	10.2 U	10.5 U	9.85 U	9.94 U	10.3 U	10.7 U	10.2 U	9.65 U
PESTICIDES (UG/KG)								
4,4'-DDD	0.417 U	0.428 U	0.402 U	0.406 U	0.42 U	0.437 U	0.416 U	0.394 U
4,4'-DDE	0.417 U	0.428 U	0.402 U	0.406 U	0.42 U	0.437 U	0.416 U	0.394 U
4,4'-DDT	0.417 U	0.428 U	0.402 U	0.406 U	0.42 U	0.437 U	0.416 U	0.394 U
ALDRIN	0.417 U	0.428 U	0.402 U	0.406 U	0.42 U	0.437 U	0.416 U	0.394 U
ALPHA-BHC	0.417 U	0.428 U	0.402 U	0.406 U	0.42 U	0.437 U	0.416 U	0.394 U
ALPHA-CHLORDANE	0.417 U	0.428 U	0.402 U	0.406 U	0.42 U	0.437 U	0.416 U	0.394 U
BETA-BHC	0.417 U	0.428 U	0.402 U	0.406 U	0.265 J	0.437 U	0.221 J	0.488 J
DELTA-BHC	0.417 UJ	0.428 UJ	0.402 UJ	0.406 UJ	0.42 UJ	0.437 UJ	0.416 UJ	0.394 UJ
DIELDRIN	0.417 U	0.428 U	0.402 U	0.406 U	0.42 U	0.437 U	0.416 U	0.394 U
ENDOSULFAN I	0.417 U	0.428 U	0.402 U	0.406 U	0.42 U	0.437 U	0.416 U	0.394 U
ENDOSULFAN II	0.417 U	0.428 U	0.402 U	0.406 U	0.42 U	0.437 U	0.416 U	0.394 U
ENDOSULFAN SULFATE	0.417 U	0.428 U	0.402 U	0.406 U	0.42 U	0.437 U	0.416 U	0.394 U
ENDRIN	0.417 U	0.428 U	0.402 U	0.406 U	0.42 U	0.437 U	0.416 U	0.394 U
ENDRIN ALDEHYDE	0.417 U	0.428 U	0.402 U	0.406 U	0.42 U	0.437 U	0.416 U	0.394 U
ENDRIN KETONE	0.417 U	0.428 U	0.402 U	0.406 U	0.42 U	0.437 U	0.416 U	0.394 U
GAMMA-BHC (LINDANE)	0.417 U	0.428 U	0.402 U	0.406 U	0.42 U	0.437 U	0.416 U	0.394 U
GAMMA-CHLORDANE	0.417 U	0.428 UJ	0.402 UJ	0.406 UJ	0.42 U	0.437 UJ	0.416 U	0.355 J
HEPTACHLOR	0.417 U	0.428 U	0.402 U	0.406 U	0.42 U	0.437 U	0.416 U	0.394 U
HEPTACHLOR EPOXIDE	0.417 U	0.428 U	0.402 U	0.406 U	0.42 U	0.437 U	0.416 U	0.394 U
METHOXYCHLOR	0.417 U	0.428 U	0.402 U	0.406 U	0.42 U	0.437 U	0.416 U	0.394 U
TOXAPHENE	27 UJ	27.7 UJ	26 UJ	26.2 UJ	27.1 UJ	28.3 UJ	26.9 UJ	25.5 UJ
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)								
2-METHYLNAPHTHALENE	4.22 U	4.11 U	3.84 U	3.92 U	4.11 U	4.2 U	3.99 U	3.76 U
ACENAPHTHENE	4.22 U	4.11 U	3.84 U	3.92 U	4.11 U	4.2 U	3.99 U	3.76 U
ACENAPHTHYLENE	4.22 U	4.11 U	3.84 U	3.92 U	4.11 U	4.2 U	3.99 U	3.76 U
ANTHRACENE	4.22 U	4.11 U	3.84 U	3.92 U	4.11 U	4.2 U	3.99 U	3.76 U
BENZO(A)ANTHRACENE	4.22 U	4.11 U	3.84 U	3.92 U	4.11 U	4.2 U	3.99 U	3.76 U
BENZO(A)PYRENE	4.22 U	4.11 U	3.84 U	3.92 U	4.11 U	4.2 U	3.99 U	3.76 U
BENZO(B)FLUORANTHENE	4.22 U	4.11 U	3.84 U	3.92 U	4.11 U	4.2 U	3.99 U	3.76 U
BENZO(G,H,I)PERYLENE	4.22 U	4.11 U	3.84 U	3.92 U	4.11 U	4.2 U	3.99 U	3.76 U
BENZO(K)FLUORANTHENE	4.22 U	4.11 U	3.84 U	3.92 U	4.11 U	4.2 U	3.99 U	3.76 U
CHRYSENE	4.22 U	4.11 U	3.84 U	3.92 U	4.11 U	4.2 U	3.99 U	3.76 U
DIBENZO(A,H)ANTHRACENE	4.22 U	4.11 U	3.84 U	3.92 U	4.11 U	4.2 U	3.99 U	3.76 U
FLUORANTHENE	4.22 U	4.11 U	3.84 U	3.92 U	4.11 U	4.2 U	3.99 U	3.76 U
FLUORENE	4.22 U	4.11 U	3.84 U	3.92 U	4.11 U	4.2 U	3.99 U	3.76 U
INDENO(1,2,3-CD)PYRENE	4.22 U	4.11 U	3.84 U	3.92 U	4.11 U	4.2 U	3.99 U	3.76 U
NAPHTHALENE	4.22 U	4.11 U	3.84 U	3.92 U	4.11 U	4.2 U	3.99 U	3.76 U
PHENANTHRENE	4.22 U	4.11 U	3.84 U	3.92 U	2.24 J	4.2 U	3.99 U	3.76 U
PYRENE	4.22 U	4.11 U	3.84 U	3.92 U	4.11 U	4.2 U	3.99 U	3.76 U
SEMIVOLATILES (UG/KG)								
1,1-BIPHENYL	212 U	206 U	193 U	197 U	206 U	211 U	200 U	189 U

TABLE F-1
ANALYTICAL RESULTS FOR SOIL
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION	11SB01				11SB02		11SB03	
SAMPLE ID	11SB010002	11SB010002-D	11SB010406	11SB010406-D	11SB020002	11SB020406	11SB030002	11SB030406
SAMPLE DATE	20110426	20110426	20110426	20110426	20110426	20110426	20110426	20110426
TOP DEPTH	0	0	4	4	0	4	0	4
BOTTOM DEPTH	2	2	6	6	2	6	2	6
2,2'-OXYBIS(1-CHLOROPROPANE)	212 UJ	206 UJ	193 UJ	197 UJ	206 UJ	211 UJ	200 UJ	189 UJ
2,4,5-TRICHLOROPHENOL	212 U	206 U	193 U	197 U	206 U	211 U	200 U	189 U
2,4,6-TRICHLOROPHENOL	212 U	206 U	193 U	197 U	206 U	211 U	200 U	189 U
2,4-DICHLOROPHENOL	212 U	206 U	193 U	197 U	206 U	211 U	200 U	189 U
2,4-DIMETHYLPHENOL	845 U	823 U	769 U	786 U	823 U	842 U	800 U	753 U
2,4-DINITROPHENOL	2120 U	2060 U	1930 U	1970 U	2060 U	2110 U	2000 U	1890 U
2,4-DINITROTOLUENE	212 U	206 U	193 U	197 U	206 U	211 U	200 U	189 U
2,6-DINITROTOLUENE	212 U	206 U	193 U	197 U	206 U	211 U	200 U	189 U
2-CHLORONAPHTHALENE	212 UJ	206 U	193 U	197 U	206 U	211 UJ	200 UJ	189 U
2-CHLOROPHENOL	212 U	206 U	193 U	197 U	206 U	211 U	200 U	189 U
2-METHYLPHENOL	212 U	206 U	193 U	197 U	206 U	211 U	200 U	189 U
2-NITROANILINE	845 U	823 U	769 U	786 U	823 U	842 U	800 U	753 U
2-NITROPHENOL	212 U	206 U	193 U	197 U	206 U	211 U	200 U	189 U
3,3'-DICHLOROBENZIDINE	212 UJ	206 UJ	193 UJ	197 UJ	206 UJ	211 UJ	200 UJ	189 UJ
3-NITROANILINE	845 U	823 U	769 U	786 U	823 U	842 U	800 U	753 U
4,6-DINITRO-2-METHYLPHENOL	2120 U	2060 UJ	1930 UJ	1970 UJ	2060 UJ	2110 U	2000 U	1890 UJ
4-BROMOPHENYL PHENYL ETHER	212 U	206 U	193 U	197 U	206 U	211 U	200 U	189 U
4-CHLORO-3-METHYLPHENOL	212 U	206 U	193 U	197 U	206 U	211 U	200 U	189 U
4-CHLOROANILINE	212 U	206 U	193 U	197 U	206 U	211 U	200 U	189 U
4-CHLOROPHENYL PHENYL ETHER	212 U	206 U	193 U	197 U	206 U	211 U	200 U	189 U
4-METHYLPHENOL	212 U	206 U	193 U	197 U	206 U	211 U	200 U	189 U
4-NITROANILINE	845 U	823 U	769 U	786 U	823 U	842 U	800 U	753 U
4-NITROPHENOL	845 U	823 U	769 U	786 U	823 U	842 U	800 U	753 U
ACETOPHENONE	212 U	206 U	193 U	197 U	206 U	211 U	200 U	189 U
ATRAZINE	212 U	206 U	193 U	197 U	206 U	211 U	200 U	189 U
BENZALDEHYDE	212 UJ	206 U	193 U	197 U	206 U	211 UJ	200 UJ	189 U
BIS(2-CHLOROETHOXY)METHANE	212 U	206 U	193 U	197 U	206 U	211 U	200 U	189 U
BIS(2-CHLOROETHYL)ETHER	212 U	206 U	193 U	197 U	206 U	211 U	200 U	189 U
BIS(2-ETHYLHEXYL)PHTHALATE	212 U	206 U	193 U	197 U	206 U	211 U	200 U	189 U
BUTYL BENZYL PHTHALATE	212 U	206 U	193 U	197 U	206 U	211 U	200 U	189 U
CAPROLACTAM	212 U	206 U	193 U	197 U	206 U	211 U	200 U	189 U
CARBAZOLE	212 U	206 U	193 U	197 U	206 U	211 U	200 U	189 U
DIBENZOFURAN	212 U	206 U	193 U	197 U	206 U	211 U	200 U	189 U
DIETHYL PHTHALATE	212 U	206 U	300 J	197 U	4440	211 U	200 U	189 U
DIMETHYL PHTHALATE	212 U	206 U	193 U	197 U	206 U	211 U	200 U	189 U
DI-N-BUTYL PHTHALATE	212 U	206 U	193 U	197 U	206 U	211 U	200 U	189 U
DI-N-OCTYL PHTHALATE	212 U	206 U	193 U	197 U	206 U	211 U	200 U	189 U
HEXACHLOROBENZENE	212 U	206 U	193 U	197 U	206 U	211 U	200 U	189 U
HEXACHLOROBUTADIENE	212 U	206 U	193 U	197 U	206 U	211 U	200 U	189 U
HEXACHLOROCYCLOPENTADIENE	212 U	206 U	193 U	197 U	206 U	211 U	200 U	189 U
HEXACHLOROETHANE	212 U	206 U	193 U	197 U	206 U	211 U	200 U	189 U
ISOPHORONE	212 U	206 U	193 U	197 U	206 U	211 U	200 U	189 U
NITROBENZENE	212 U	206 U	193 U	197 U	206 U	211 U	200 U	189 U
N-NITROSO-DI-N-PROPYLAMINE	212 UJ	206 U	193 U	197 U	206 U	211 UJ	200 UJ	189 U
N-NITROSODIPHENYLAMINE	212 U	206 U	193 U	197 U	206 U	211 U	200 U	189 U
PENTACHLOROPHENOL	845 U	823 U	769 U	786 U	823 U	842 U	800 U	753 U
PHENOL	212 U	206 U	193 U	197 U	206 U	211 U	200 U	189 U
VOLATILES (UG/KG)								
1,1,1-TRICHLOROETHANE	2.51 UJ	2.45 UJ	2.38 UJ	2.4 UJ	2.74 U	2.55 UJ	2.81 U	2.38 U
1,1,2,2-TETRACHLOROETHANE	2.51 U	2.45 U	2.38 U	2.4 U	2.74 U	2.55 U	2.81 U	2.38 U
1,1,2-TRICHLOROETHANE	2.51 U	2.45 U	2.38 U	2.4 U	2.74 U	2.55 U	2.81 U	2.38 U
1,1,2-TRICHLOROTRIFLUOROETHANE	5.03 U	4.9 U	4.75 U	4.79 U	5.47 U	5.1 U	5.62 U	4.77 U
1,1-DICHLOROETHANE	2.51 U	2.45 U	2.38 U	2.4 U	2.74 U	2.55 U	2.81 U	2.38 U

TABLE F-1
ANALYTICAL RESULTS FOR SOIL
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION	11SB01				11SB02		11SB03	
SAMPLE ID	**11SB010002**	**11SB010002-D**	**11SB010406**	**11SB010406-D**	**11SB020002**	**11SB020406**	**11SB030002**	**11SB030406**
SAMPLE DATE	**20110426**	**20110426**	**20110426**	**20110426**	**20110426**	**20110426**	**20110426**	**20110426**
TOP DEPTH	**0**	**0**	**4**	**4**	**0**	**4**	**0**	**4**
BOTTOM DEPTH	**2**	**2**	**6**	**6**	**2**	**6**	**2**	**6**
1,1-DICHLOROETHENE	2.51 U	2.45 U	2.38 U	2.4 U	2.74 U	1.9 J	2.81 U	2.38 U
1,2,3-TRICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	2.51 UJ	2.45 UJ	2.38 UJ	2.4 UJ	2.74 U	2.55 UJ	2.81 U	2.38 U
1,2-DIBROMO-3-CHLOROPROPANE	5.03 UJ	4.9 UJ	4.75 UJ	4.79 UJ	5.47 U	5.1 UJ	5.62 U	4.77 U
1,2-DIBROMOETHANE	2.51 U	2.45 U	2.38 U	2.4 U	2.74 U	2.55 U	2.81 U	2.38 U
1,2-DICHLOROBENZENE	2.51 U	2.45 U	2.38 U	2.4 U	2.74 U	2.55 U	1.42 J	1.4 J
1,2-DICHLOROETHANE	2.51 UJ	2.45 UJ	2.38 UJ	2.4 UJ	2.74 U	2.55 UJ	2.81 U	2.38 U
1,2-DICHLOROPROPANE	2.51 UJ	2.45 UJ	2.38 UJ	2.4 UJ	2.74 U	2.55 UJ	2.81 U	2.38 U
1,3-DICHLOROBENZENE	2.51 U	2.45 U	2.38 U	2.4 U	2.74 U	2.55 U	2.81 U	2.38 U
1,4-DICHLOROBENZENE	2.51 U	2.45 U	2.38 U	2.4 U	2.74 U	2.55 U	2.81 U	2.38 U
2-BUTANONE	5.03 U	4.9 U	4.75 U	4.79 U	5.47 U	5.1 U	5.62 U	4.77 U
2-HEXANONE	2.51 U	2.45 U	2.38 U	2.4 U	2.74 U	2.55 U	2.81 U	2.38 U
4-METHYL-2-PENTANONE	2.51 UJ	2.45 UJ	2.38 UJ	2.4 UJ	2.74 U	2.55 UJ	2.81 U	2.38 U
ACETONE	10.1 U	9.8 U	9.5 U	9.59 U	14.6 J	10.2 U	11.2 UR	9.53 UR
BENZENE	2.51 U	2.45 U	2.38 U	2.4 U	2.74 U	2.55 U	2.81 U	2.38 U
BROMOCHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	2.51 UJ	2.45 UJ	2.38 UJ	2.4 UJ	2.74 U	2.55 UJ	2.81 U	2.38 U
BROMOFORM	2.51 UJ	2.45 UJ	2.38 UJ	2.4 UJ	2.74 U	2.55 UJ	2.81 U	2.38 U
BROMOMETHANE	5.03 UJ	4.9 UJ	4.75 UJ	4.79 UJ	5.47 U	5.1 UJ	5.62 U	4.77 U
CARBON DISULFIDE	2.51 U	2.45 U	2.38 U	2.4 U	2.74 U	2.55 U	2.81 U	2.38 U
CARBON TETRACHLORIDE	2.51 UJ	2.45 UJ	2.38 UJ	2.4 UJ	2.74 U	2.55 UJ	2.81 U	2.38 U
CHLOROBENZENE	2.51 U	2.45 U	2.38 U	2.4 U	2.74 U	2.55 U	2.81 U	2.38 U
CHLORODIBROMOMETHANE	2.51 U	2.45 U	2.38 U	2.4 U	2.74 U	2.55 U	2.81 U	2.38 U
CHLOROETHANE	5.03 UJ	4.9 UJ	4.75 UJ	4.79 UJ	5.47 U	5.1 UJ	5.62 U	4.77 U
CHLOROFORM	2.51 U	2.45 U	2.38 U	2.4 U	2.74 U	2.55 U	2.81 U	2.38 U
CHLOROMETHANE	5.03 U	4.9 U	4.75 U	4.79 U	5.47 U	5.1 U	5.62 U	4.77 U
CIS-1,2-DICHLOROETHENE	2.19 J	10.4 J	61.6 J	24.7 J	3.27 J	357	2.81 U	2.38 U
CIS-1,3-DICHLOROPROPENE	2.51 U	2.45 U	2.38 U	2.4 U	2.74 U	2.55 U	2.81 U	2.38 U
CYCLOHEXANE	2.51 UJ	2.45 UJ	2.38 UJ	2.4 UJ	2.74 U	2.55 UJ	2.81 U	2.38 U
DICHLORODIFLUOROMETHANE	5.03 UJ	4.9 UJ	4.75 UJ	4.79 UJ	5.47 U	5.1 UJ	5.62 U	4.77 U
ETHYLBENZENE	2.51 U	2.45 U	2.38 U	2.4 U	2.74 U	2.55 U	2.81 U	2.38 U
ISOPROPYLBENZENE	2.51 U	2.45 U	2.38 U	2.4 U	2.74 U	2.55 U	2.81 U	2.38 U
METHYL ACETATE	5.03 U	4.9 U	4.75 U	4.79 U	5.47 U	5.1 U	5.62 U	4.77 U
METHYL CYCLOHEXANE	2.51 U	2.45 U	2.38 U	2.4 U	2.74 U	2.55 U	2.81 U	2.38 U
METHYL TERT-BUTYL ETHER	2.51 U	2.45 U	2.38 U	2.4 U	2.74 U	2.55 U	2.81 U	2.38 U
METHYLENE CHLORIDE	5.03 U	4.9 U	4.75 U	4.79 U	5.47 U	5.1 U	5.62 U	4.77 U
STYRENE	2.51 U	2.45 U	2.38 U	2.4 U	2.74 U	2.55 U	2.81 U	2.38 U
TETRACHLOROETHENE	1.36 J	2.27 J	14.2 J	6.98 J	2.74 U	826	2.81 U	1.57 J
TOLUENE	2.51 U	2.45 U	2.38 U	2.4 U	2.74 U	10.6	2.81 U	2.38 U
TOTAL XYLENES	7.54 U	7.35 U	7.13 U	7.19 U	8.21 U	7.66 U	8.44 U	7.15 U
TRANS-1,2-DICHLOROETHENE	2.51 U	2.45 U	2.38 U	2.4 U	2.74 U	1.45 J	2.81 U	2.38 U
TRANS-1,3-DICHLOROPROPENE	2.51 U	2.45 U	2.38 U	2.4 U	2.74 U	2.55 U	2.81 U	2.38 U
TRICHLOROETHENE	2.51 U	5.75	159 J	65.6 J	2.74 U	243 J	2.81 U	2.38 U
TRICHLOROFLUOROMETHANE	5.03 U	4.9 U	4.75 U	4.79 U	5.47 U	5.1 U	5.62 U	4.77 U
VINYL CHLORIDE	2.51 U	2.45 U	2.38 U	2.4 U	2.74 U	154	2.81 U	2.38 U

TABLE F-1
ANALYTICAL RESULTS FOR SOIL
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION	11SB04		11SB05	11SB06	11SB07	11SB08	11SB09	11SB10
SAMPLE ID	11SB040002	11SB040406	11SS050002	11SS060002	11SS070002	11SS080002	11SS090002	11SS100002
SAMPLE DATE	20110426	20110426	20110426	20110426	20110426	20110426	20110426	20110426
TOP DEPTH	0	4	0	0	0	0	0	0
BOTTOM DEPTH	2	6	2	2	2	2	2	2
DIOXINS/FURANS (NG/KG)								
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA	NA	1510	NA
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA	NA	1.18 J	NA
1,2,3,4,6,7,8-HPCDD	NA	NA	NA	NA	NA	NA	22.9	NA
1,2,3,4,6,7,8-HPCDF	NA	NA	NA	NA	NA	NA	0.244 J	NA
1,2,3,4,7,8,9-HPCDF	NA	NA	NA	NA	NA	NA	3.19 U	NA
1,2,3,4,7,8-HXCDD	NA	NA	NA	NA	NA	NA	3.19 U	NA
1,2,3,4,7,8-HXCDF	NA	NA	NA	NA	NA	NA	3.19 U	NA
1,2,3,6,7,8-HXCDD	NA	NA	NA	NA	NA	NA	3.19 U	NA
1,2,3,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	3.19 U	NA
1,2,3,7,8,9-HXCDD	NA	NA	NA	NA	NA	NA	3.19 U	NA
1,2,3,7,8,9-HXCDF	NA	NA	NA	NA	NA	NA	3.19 U	NA
1,2,3,7,8-PECDD	NA	NA	NA	NA	NA	NA	3.19 U	NA
1,2,3,7,8-PECDF	NA	NA	NA	NA	NA	NA	3.19 U	NA
2,3,4,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	3.19 U	NA
2,3,4,7,8-PECDF	NA	NA	NA	NA	NA	NA	3.19 U	NA
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA	0.635 U	NA
2,3,7,8-TCDF	NA	NA	NA	NA	NA	NA	0.374 U	NA
TEQ BIRD	NA	NA	NA	NA	NA	NA	0.176458	NA
TEQ BIRD HALFND	NA	NA	NA	NA	NA	NA	4.939608	NA
TEQ EQUIVALENTS	NA	NA	NA	NA	NA	NA	0.684794	NA
TEQ EQUIVALENTS- HALFND	NA	NA	NA	NA	NA	NA	4.274794	NA
TOTAL HPCDD	NA	NA	NA	NA	NA	NA	46	NA
TOTAL HPCDF	NA	NA	NA	NA	NA	NA	0.691 J	NA
TOTAL HXCDD	NA	NA	NA	NA	NA	NA	1.52 J	NA
TOTAL HXCDF	NA	NA	NA	NA	NA	NA	3.19 U	NA
TOTAL PECDD	NA	NA	NA	NA	NA	NA	3.19 U	NA
TOTAL PECDF	NA	NA	NA	NA	NA	NA	3.19 U	NA
TOTAL TCDD	NA	NA	NA	NA	NA	NA	0.635 U	NA
TOTAL TCDF	NA	NA	NA	NA	NA	NA	0.374 U	NA
METALS (MG/KG)								
ALUMINUM	15100	8150	19200	12600	13300	12800	14000	13000
ANTIMONY	0.955 U	0.895 U	0.95 U	0.98 U	0.995 UJ	0.958 UJ	0.997 UJ	1.04 UJ
ARSENIC	6.39	6.22	11.9	6.44	11	8.4	8.75	5.83
BARIUM	52.1	49.1	67.8	70.8	57.3	48.2	49.9	43.9
BERYLLIUM	0.545 J	0.571	0.837	0.752	0.642	0.665	0.58 J	0.511 J
CADMIUM	0.239 U	0.224 U	0.238 U	0.245 U	0.249 UJ	0.239 UJ	0.249 UJ	0.26 UJ
CALCIUM	883	168 J	1920	1420	1800	650	723	750
CHROMIUM	17.2	19.4	19.2	14.4	16.4	14.4	23.8	15.6
COBALT	4.19	5.73	9.55	5.82	5.51	26	4.83	4.73
COPPER	13	7.28	17.4	13.4	13.7	11.5	14.7	10.2
IRON	18400	21300	25900	19100	20300	22500	25800	19100
LEAD	9.11	15.3	14.2	13.2	13	27.7	11.9	10
MAGNESIUM	1830	792	2180	1590	1670	1430	1640	1460
MANGANESE	127	593	279	191	187 J	835 J	190 J	123 J
MERCURY	0.0235 J	0.025 J	0.0407 J	0.0464 J	0.0478 J	0.0397 UJ	0.0645 J	0.0447 J
NICKEL	10.2	5.71	15.6	12.6	10.7	10.7	10.7	9.15
POTASSIUM	748	294 J	1110	613	667 J	636 J	677 J	577 J
SELENIUM	0.597 U	0.559 U	0.67 J	0.565 J	0.622 U	0.599 U	0.623 U	0.649 U
SILVER	0.239 U	0.224 U	0.238 U	0.245 U	0.249 U	0.239 U	0.249 U	0.26 U
SODIUM	358 U	336 U	356 U	368 U	373 U	359 U	374 U	389 U
THALLIUM	0.477 U	0.448 U	0.475 U	0.49 U	0.497 U	0.479 U	0.499 U	0.519 U
VANADIUM	29	32.9	39.6	29	29.4 J	30.5 J	32.1 J	26.4 J

TABLE F-1
ANALYTICAL RESULTS FOR SOIL
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION	11SB04		11SB05	11SB06	11SB07	11SB08	11SB09	11SB10
SAMPLE ID	11SB040002	11SB040406	11SS050002	11SS060002	11SS070002	11SS080002	11SS090002	11SS100002
SAMPLE DATE	20110426	20110426	20110426	20110426	20110426	20110426	20110426	20110426
TOP DEPTH	0	4	0	0	0	0	0	0
BOTTOM DEPTH	2	6	2	2	2	2	2	2
ZINC	27	11.4	46.9	37	36.6	31.8	37.8	29.6
MISCELLANEOUS PARAMETERS (MG/KG)								
CYANIDE	0.293 U	0.284 U	0.28 U	0.306 U	0.317 U	0.287 U	0.31 U	0.355 U
PCBS (UG/KG)								
AROCLOR-1016	10.3 UJ	9.24 UJ	9.67 U	9.85 U	10.3 U	10 U	10.4 U	11.3 U
AROCLOR-1221	10.3 U	9.24 U	9.67 U	9.85 U	10.3 U	10 U	10.4 U	11.3 U
AROCLOR-1232	10.3 U	9.24 U	9.67 U	9.85 U	10.3 U	10 U	10.4 U	11.3 U
AROCLOR-1242	10.3 U	9.24 U	9.67 U	9.85 U	10.3 U	10 U	10.4 U	11.3 U
AROCLOR-1248	10.3 U	9.24 U	9.67 U	9.85 U	10.3 U	10 U	10.4 U	11.3 U
AROCLOR-1254	10.3 U	9.24 U	9.67 U	9.85 U	10.3 U	10 U	10.4 U	11.3 U
AROCLOR-1260	10.3 U	9.24 U	9.67 U	9.85 U	10.3 U	10 U	10.4 U	11.3 U
PESTICIDES (UG/KG)								
4,4'-DDD	0.419 U	0.377 U	0.395 U	0.402 U	0.421 U	0.409 U	0.426 U	0.462 U
4,4'-DDE	0.419 U	0.377 U	0.395 U	0.402 U	0.421 U	0.409 U	0.426 U	0.462 U
4,4'-DDT	0.419 U	0.377 U	0.395 U	0.402 U	0.421 U	0.409 U	0.426 U	0.462 U
ALDRIN	0.419 U	0.377 U	0.395 U	0.402 U	0.421 U	0.409 U	0.426 U	0.462 U
ALPHA-BHC	0.419 U	0.377 U	0.395 U	0.402 U	0.421 U	0.93	0.426 U	0.226 J
ALPHA-CHLORDANE	0.419 U	0.377 U	0.395 U	0.402 U	0.421 U	0.409 U	0.426 U	0.462 U
BETA-BHC	0.419 U	0.377 U	0.395 U	0.402 U	0.421 U	0.409 U	0.426 U	0.462 U
DELTA-BHC	0.419 UJ	0.377 UJ	0.395 UJ	0.402 UJ	0.421 UJ	0.409 UJ	0.426 UJ	0.462 UJ
DIELDRIN	0.419 U	0.377 U	0.395 U	0.402 U	0.421 U	0.409 U	0.426 U	0.462 U
ENDOSULFAN I	0.419 U	0.377 U	0.395 U	0.402 U	0.421 U	0.409 U	0.426 U	0.462 U
ENDOSULFAN II	0.419 U	0.377 U	0.395 U	0.402 U	0.421 U	0.409 U	0.426 U	0.462 U
ENDOSULFAN SULFATE	0.419 U	0.377 U	0.395 U	0.402 U	0.421 U	0.409 U	0.426 U	0.462 U
ENDRIN	0.419 U	0.377 U	0.395 U	0.402 U	0.421 U	0.409 U	0.426 U	0.462 U
ENDRIN ALDEHYDE	0.419 U	0.377 U	0.395 U	0.402 U	0.421 U	0.409 U	0.426 U	0.462 U
ENDRIN KETONE	0.419 U	0.377 U	0.395 U	0.402 U	0.421 U	0.409 U	0.426 U	0.462 U
GAMMA-BHC (LINDANE)	0.419 U	0.377 U	0.395 U	0.402 U	0.421 U	0.409 U	0.426 U	0.462 U
GAMMA-CHLORDANE	0.419 UJ	0.377 UJ	0.395 UJ	0.935 J	1.25 J	0.409 U	0.426 UJ	0.462 U
HEPTACHLOR	0.419 U	0.377 U	0.395 U	0.402 U	0.421 U	0.409 U	0.426 U	0.462 U
HEPTACHLOR EPOXIDE	0.419 U	0.377 U	0.395 U	0.402 U	0.421 U	0.409 U	0.426 U	0.462 U
METHOXYCHLOR	0.419 U	0.377 U	0.395 UJ	0.402 UJ	0.421 UJ	0.409 UJ	0.426 UJ	0.462 UJ
TOXAPHENE	27.1 UJ	24.4 UJ	25.5 UJ	26 UJ	27.3 UJ	26.5 UJ	27.6 UJ	29.9 UJ
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)								
2-METHYLNAPHTHALENE	4.1 U	3.77 U	3.94 U	3.91 U	4.13 U	3.85 U	4.34 U	4.43 U
ACENAPHTHENE	4.1 U	3.77 U	3.94 U	3.91 U	4.13 U	3.85 U	4.34 U	4.43 U
ACENAPHTHYLENE	4.1 U	3.77 U	3.94 U	3.91 U	4.13 U	3.85 U	4.34 U	4.43 U
ANTHRACENE	4.1 U	3.77 U	3.94 U	3.91 U	4.13 U	3.85 U	4.34 U	4.43 U
BENZO(A)ANTHRACENE	4.1 U	3.77 U	3.94 U	3.91 U	5.49 J	3.85 U	4.34 U	4.43 U
BENZO(A)PYRENE	4.1 U	3.77 U	3.94 U	3.91 U	3.9 J	3.85 U	4.34 U	4.43 U
BENZO(B)FLUORANTHENE	4.1 U	3.77 U	4.63 J	3.91 U	8.6	3.85 U	4.34 U	4.43 U
BENZO(G,H,I)PERYLENE	4.1 U	3.77 U	3.94 U	2.71 J	4.98 J	3.85 U	4.34 U	4.43 U
BENZO(K)FLUORANTHENE	4.1 U	3.77 U	2.93 J	3.91 U	4.13 U	3.85 U	4.34 U	4.43 U
CHRYSENE	4.1 U	3.77 U	3.94 U	3.09 J	8.1 J	3.85 U	4.34 U	4.43 U
DIBENZO(A,H)ANTHRACENE	4.1 U	3.77 U	3.94 U	3.91 U	4.13 U	3.85 U	4.34 U	4.43 U
FLUORANTHENE	4.1 U	3.77 U	3.94 U	2.92 J	9.91	3.85 U	4.34 U	4.43 U
FLUORENE	4.1 U	3.77 U	3.94 U	3.91 U	4.13 U	3.85 U	4.34 U	4.43 U
INDENO(1,2,3-CD)PYRENE	4.1 U	3.77 U	3.94 U	2.64 J	3.85 J	3.85 U	4.34 U	4.43 U
NAPHTHALENE	4.1 U	3.77 U	3.94 U	3.91 U	4.13 U	3.85 U	4.34 U	4.43 U
PHENANTHRENE	4.1 U	3.77 U	3.94 U	2.35 J	2.64 J	3.85 U	4.34 U	4.43 U
PYRENE	4.1 U	3.77 U	2.46 J	2.87 J	10.6	3.85 U	4.34 U	4.43 U
SEMIVOLATILES (UG/KG)								
1,1-BIPHENYL	206 U	189 U	198 U	196 U	207 U	193 U	218 U	222 U

TABLE F-1
ANALYTICAL RESULTS FOR SOIL
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION	**11SB04**		**11SB05**	**11SB06**	**11SB07**	**11SB08**	**11SB09**	**11SB10**
SAMPLE ID	**11SB040002**	**11SB040406**	**11SS050002**	**11SS060002**	**11SS070002**	**11SS080002**	**11SS090002**	**11SS100002**
SAMPLE DATE	**20110426**	**20110426**	**20110426**	**20110426**	**20110426**	**20110426**	**20110426**	**20110426**
TOP DEPTH	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**
BOTTOM DEPTH	**2**	**6**	**2**	**2**	**2**	**2**	**2**	**2**
2,2'-OXYBIS(1-CHLOROPROPANE)	206 UJ	189 UJ	198 UJ	196 UJ	207 UJ	193 UJ	218 U	222 UJ
2,4,5-TRICHLOROPHENOL	206 U	189 U	198 U	196 U	207 U	193 U	218 U	222 U
2,4,6-TRICHLOROPHENOL	206 U	189 U	198 U	196 U	207 U	193 U	218 U	222 U
2,4-DICHLOROPHENOL	206 U	189 U	198 U	196 U	207 U	193 U	218 U	222 U
2,4-DIMETHYLPHENOL	822 U	755 U	790 U	784 U	827 U	772 U	869 U	888 U
2,4-DINITROPHENOL	2060 U	1890 U	1980 U	1960 U	2070 U	1930 U	2180 U	2220 U
2,4-DINITROTOLUENE	206 U	189 U	198 U	196 U	207 U	193 U	218 U	222 U
2,6-DINITROTOLUENE	206 U	189 U	198 U	196 U	207 U	193 U	218 U	222 U
2-CHLORONAPHTHALENE	206 U	189 U	198 UJ	196 UJ	207 UJ	193 UJ	218 U	222 UJ
2-CHLOROPHENOL	206 U	189 U	198 U	196 U	207 U	193 U	218 U	222 U
2-METHYLPHENOL	206 U	189 U	198 U	196 U	207 U	193 U	218 U	222 U
2-NITROANILINE	822 U	755 U	790 U	784 U	827 U	772 U	869 U	888 U
2-NITROPHENOL	206 U	189 U	198 U	196 U	207 U	193 U	218 U	222 U
3,3'-DICHLOROBENZIDINE	206 UJ	189 UJ	198 UJ	196 UJ	207 UJ	193 UJ	218 U	222 UJ
3-NITROANILINE	822 U	755 U	790 U	784 U	827 U	772 U	869 U	888 U
4,6-DINITRO-2-METHYLPHENOL	2060 UJ	1890 UJ	1980 U	1960 U	2070 U	1930 U	2180 U	2220 U
4-BROMOPHENYL PHENYL ETHER	206 U	189 U	198 U	196 U	207 U	193 U	218 U	222 U
4-CHLORO-3-METHYLPHENOL	206 U	189 U	198 U	196 U	207 U	193 U	218 U	222 U
4-CHLOROANILINE	206 U	189 U	198 U	196 U	207 U	193 U	218 U	222 U
4-CHLOROPHENYL PHENYL ETHER	206 U	189 U	198 U	196 U	207 U	193 U	218 U	222 U
4-METHYLPHENOL	206 U	189 U	198 U	196 U	207 U	193 U	218 U	222 U
4-NITROANILINE	822 U	755 U	790 U	784 U	827 U	772 U	869 U	888 U
4-NITROPHENOL	822 U	755 U	790 U	784 U	827 U	772 U	869 UJ	888 U
ACETOPHENONE	206 U	189 U	198 U	196 U	207 U	193 U	218 U	222 U
ATRAZINE	206 U	189 U	198 U	196 U	207 U	193 U	218 U	222 U
BENZALDEHYDE	206 U	189 U	198 UJ	196 UJ	207 UJ	193 UJ	218 UJ	222 UJ
BIS(2-CHLOROETHOXY)METHANE	206 U	189 U	198 U	196 U	207 U	193 U	218 U	222 U
BIS(2-CHLOROETHYL)ETHER	206 U	189 U	198 U	196 U	207 U	193 U	218 U	222 U
BIS(2-ETHYLHEXYL)PHTHALATE	206 U	189 U	198 U	196 U	207 U	193 U	218 U	222 U
BUTYL BENZYL PHTHALATE	206 U	189 U	198 U	196 U	207 U	193 U	218 U	222 U
CAPROLACTAM	206 U	189 U	198 U	196 U	207 U	193 U	218 U	222 U
CARBAZOLE	206 U	189 U	198 U	196 U	207 U	193 U	218 U	222 U
DIBENZOFURAN	206 U	189 U	198 U	196 U	207 U	193 U	218 U	222 U
DIETHYL PHTHALATE	206 U	189 U	198 U	196 U	207 U	193 U	218 U	222 U
DIMETHYL PHTHALATE	206 U	189 U	198 U	196 U	207 U	193 U	218 U	222 U
DI-N-BUTYL PHTHALATE	206 U	189 U	198 U	196 U	207 U	193 U	218 U	222 U
DI-N-OCTYL PHTHALATE	206 U	189 U	198 U	196 U	207 U	193 U	218 U	222 U
HEXACHLOROBENZENE	206 U	189 U	198 U	196 U	207 U	193 U	218 U	222 U
HEXACHLOROBUTADIENE	206 U	189 U	198 U	196 U	207 U	193 U	218 U	222 U
HEXACHLOROCYCLOPENTADIENE	206 U	189 U	198 U	196 U	207 U	193 U	218 U	222 U
HEXACHLOROETHANE	206 U	189 U	198 U	196 U	207 U	193 U	218 U	222 U
ISOPHORONE	206 U	189 U	198 U	196 U	207 U	193 U	218 U	222 U
NITROBENZENE	206 U	189 U	198 U	196 U	207 U	193 U	218 U	222 U
N-NITROSO-DI-N-PROPYLAMINE	206 U	189 U	198 UJ	196 UJ	207 UJ	193 UJ	218 U	222 UJ
N-NITROSODIPHENYLAMINE	206 U	189 U	198 U	196 U	207 U	193 U	218 U	222 U
PENTACHLOROPHENOL	822 U	755 U	790 U	784 U	827 U	772 U	869 U	888 U
PHENOL	206 U	189 U	198 U	196 U	207 U	193 U	218 U	222 U
VOLATILES (UG/KG)								
1,1,1-TRICHLOROETHANE	2.98 UJ	2.51 UJ	NA	NA	NA	NA	NA	NA
1,1,2,2-TETRACHLOROETHANE	2.98 U	2.51 U	NA	NA	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE	2.98 U	2.51 U	NA	NA	NA	NA	NA	NA
1,1,2-TRICHLOROTRIFLUOROETHANE	5.97 U	5.03 U	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHANE	2.98 U	2.51 U	NA	NA	NA	NA	NA	NA

TABLE F-1
ANALYTICAL RESULTS FOR SOIL
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION	**11SB04**		**11SB05**	**11SB06**	**11SB07**	**11SB08**	**11SB09**	**11SB10**
SAMPLE ID	**11SB040002**	**11SB040406**	**11SS050002**	**11SS060002**	**11SS070002**	**11SS080002**	**11SS090002**	**11SS100002**
SAMPLE DATE	**20110426**	**20110426**	**20110426**	**20110426**	**20110426**	**20110426**	**20110426**	**20110426**
TOP DEPTH	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**
BOTTOM DEPTH	**2**	**6**	**2**	**2**	**2**	**2**	**2**	**2**
1,1-DICHLOROETHENE	2.98 U	2.51 U	NA	NA	NA	NA	NA	NA
1,2,3-TRICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	2.98 UJ	2.51 UJ	NA	NA	NA	NA	NA	NA
1,2-DIBROMO-3-CHLOROPROPANE	5.97 UJ	5.03 UJ	NA	NA	NA	NA	NA	NA
1,2-DIBROMOETHANE	2.98 U	2.51 U	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	2.98 U	2.51 U	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	2.98 UJ	2.51 UJ	NA	NA	NA	NA	NA	NA
1,2-DICHLOROPROPANE	2.98 UJ	2.51 UJ	NA	NA	NA	NA	NA	NA
1,3-DICHLOROBENZENE	2.98 U	2.51 U	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	2.98 U	2.51 U	NA	NA	NA	NA	NA	NA
2-BUTANONE	3.68 J	5.03 U	NA	NA	NA	NA	NA	NA
2-HEXANONE	2.98 U	2.51 U	NA	NA	NA	NA	NA	NA
4-METHYL-2-PENTANONE	2.98 UJ	2.51 UJ	NA	NA	NA	NA	NA	NA
ACETONE	25.8	10.1 U	NA	NA	NA	NA	NA	NA
BENZENE	2.98 U	2.51 U	NA	NA	NA	NA	NA	NA
BROMOCHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	2.98 UJ	2.51 UJ	NA	NA	NA	NA	NA	NA
BROMOFORM	2.98 UJ	2.51 UJ	NA	NA	NA	NA	NA	NA
BROMOMETHANE	5.97 UJ	5.03 UJ	NA	NA	NA	NA	NA	NA
CARBON DISULFIDE	2.98 U	2.51 U	NA	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	2.98 UJ	2.51 UJ	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	2.98 U	2.51 U	NA	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	2.98 U	2.51 U	NA	NA	NA	NA	NA	NA
CHLOROETHANE	5.97 UJ	5.03 UJ	NA	NA	NA	NA	NA	NA
CHLOROFORM	2.98 U	2.51 U	NA	NA	NA	NA	NA	NA
CHLOROMETHANE	5.97 U	5.03 U	NA	NA	NA	NA	NA	NA
CIS-1,2-DICHLOROETHENE	2.98 U	2.51 U	NA	NA	NA	NA	NA	NA
CIS-1,3-DICHLOROPROPENE	2.98 U	2.51 U	NA	NA	NA	NA	NA	NA
CYCLOHEXANE	2.98 UJ	2.51 UJ	NA	NA	NA	NA	NA	NA
DICHLORODIFLUOROMETHANE	5.97 UJ	5.03 UJ	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	2.98 U	2.51 U	NA	NA	NA	NA	NA	NA
ISOPROPYLBENZENE	2.98 U	2.51 U	NA	NA	NA	NA	NA	NA
METHYL ACETATE	5.97 U	5.03 U	NA	NA	NA	NA	NA	NA
METHYL CYCLOHEXANE	2.98 U	2.51 U	NA	NA	NA	NA	NA	NA
METHYL TERT-BUTYL ETHER	2.98 U	2.51 U	NA	NA	NA	NA	NA	NA
METHYLENE CHLORIDE	5.97 U	5.03 U	NA	NA	NA	NA	NA	NA
STYRENE	2.98 U	2.51 U	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	2.98 UJ	2.51 UJ	NA	NA	NA	NA	NA	NA
TOLUENE	2.98 U	2.51 U	NA	NA	NA	NA	NA	NA
TOTAL XYLENES	8.95 U	7.54 U	NA	NA	NA	NA	NA	NA
TRANS-1,2-DICHLOROETHENE	2.98 U	2.51 U	NA	NA	NA	NA	NA	NA
TRANS-1,3-DICHLOROPROPENE	2.98 U	2.51 U	NA	NA	NA	NA	NA	NA
TRICHLOROETHENE	2.98 U	2.51 U	NA	NA	NA	NA	NA	NA
TRICHLOROFLUOROMETHANE	5.97 U	5.03 U	NA	NA	NA	NA	NA	NA
VINYL CHLORIDE	2.98 U	2.51 U	NA	NA	NA	NA	NA	NA

TABLE F-1
ANALYTICAL RESULTS FOR SOIL
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION	11SB11		11SB12	11SB13	11SB14	11SB15	11SB16	11SB17
SAMPLE ID	11SS110002	11SS110002-D	11SS120002	11SS130002	11SS140002	11SS150002	11SS160002	11SS170002
SAMPLE DATE	20110426	20110426	20110426	20110426	20110426	20110426	20110426	20110426
TOP DEPTH	0	0	0	0	0	0	0	0
BOTTOM DEPTH	2	2	2	2	2	2	2	2
DIOXINS/FURANS (NG/KG)								
1,2,3,4,6,7,8,9-OCDD	6220 J	1660 J	NA	NA	6710 J	NA	NA	NA
1,2,3,4,6,7,8,9-OCDF	583 J	9.74 J	NA	NA	8.23 J	NA	NA	NA
1,2,3,4,6,7,8-HPCDD	772 J	42.6 J	NA	NA	91.7	NA	NA	NA
1,2,3,4,6,7,8-HPCDF	102 J	1.68 J	NA	NA	3.45 J	NA	NA	NA
1,2,3,4,7,8,9-HPCDF	7.82	3.11 U	NA	NA	3.12 U	NA	NA	NA
1,2,3,4,7,8-HXCDD	8.54	3.11 U	NA	NA	0.716 J	NA	NA	NA
1,2,3,4,7,8-HXCDF	3.91 J	3.11 U	NA	NA	0.547 J	NA	NA	NA
1,2,3,6,7,8-HXCDD	24.7 J	0.694 J	NA	NA	0.976 J	NA	NA	NA
1,2,3,6,7,8-HXCDF	4.61 J	3.11 U	NA	NA	0.737 J	NA	NA	NA
1,2,3,7,8,9-HXCDD	13.7 J	0.536 J	NA	NA	1.21 J	NA	NA	NA
1,2,3,7,8,9-HXCDF	1.56 J	3.11 U	NA	NA	3.12 U	NA	NA	NA
1,2,3,7,8-PECDD	2.45 J	3.11 U	NA	NA	3.12 U	NA	NA	NA
1,2,3,7,8-PECDF	2.14 J	3.11 U	NA	NA	0.849 J	NA	NA	NA
2,3,4,6,7,8-HXCDF	4.51 J	3.11 U	NA	NA	1.68 J	NA	NA	NA
2,3,4,7,8-PECDF	1.04 J	3.11 U	NA	NA	3.12 J	NA	NA	NA
2,3,7,8-TCDD	0.637 U	0.62 U	NA	NA	0.621 U	NA	NA	NA
2,3,7,8-TCDF	0.637 U	0.62 U	NA	NA	0.507 U	NA	NA	NA
TEQ BIRD	9.7575	0.286914	NA	NA	4.465883	NA	NA	NA
TEQ BIRD HALFND	10.3945	4.887714	NA	NA	6.761483	NA	NA	NA
TEQ EQUIVALENTS	19.8383	1.066722	NA	NA	4.515039	NA	NA	NA
TEQ EQUIVALENTS- HALFND	20.18865	4.268922	NA	NA	6.582489	NA	NA	NA
TOTAL HPCDD	1440 J	83.9 J	NA	NA	175	NA	NA	NA
TOTAL HPCDF	430 J	6.56 J	NA	NA	8.24	NA	NA	NA
TOTAL HXCDD	168 J	5.48 J	NA	NA	11.7	NA	NA	NA
TOTAL HXCDF	108 J	1.31 J	NA	NA	28.7	NA	NA	NA
TOTAL PECDD	18.5 J	3.11 UJ	NA	NA	1.12 J	NA	NA	NA
TOTAL PECDF	19.2 J	3.11 UJ	NA	NA	36.6	NA	NA	NA
TOTAL TCDD	1.17	0.62 U	NA	NA	0.621 U	NA	NA	NA
TOTAL TCDF	1.74 U	0.62 U	NA	NA	8.4 U	NA	NA	NA
METALS (MG/KG)								
ALUMINUM	14000	14600	10400	12300	7490	16900	16100	7930
ANTIMONY	0.968 UJ	0.991 UJ	0.96 UJ	0.973 UJ	0.985 UJ	0.982 UJ	1.04 UJ	0.928 UJ
ARSENIC	8.81	8.18	3.16	6.73	5.86	10.7	10.6	5.35
BARIUM	78.1	71.8	33.6	88.1	54.4	76	76.6	21.4
BERYLLIUM	0.737	0.658	0.373 J	0.855	0.573 J	0.857	0.934	0.438 J
CADMIUM	0.242 UJ	0.248 UJ	0.24 UJ	0.243 UJ	0.246 UJ	0.246 UJ	0.261 UJ	0.232 UJ
CALCIUM	13700 J	5030 J	1740	1860	10600	2110	1560	242 J
CHROMIUM	17.8	18.4	12.7	14.2	13.7	19.1	19.2	15.2
COBALT	7.71	6.03	5.18	12.1	8.4	9.64	13.1	2.85
COPPER	15.2	14.9	6.37	10.4	13.6	17.5	17	6.82
IRON	22000	20900	13400	17300	15700	24800	25100	18100
LEAD	16.7	10.7	5.45 J	14.4	21.5	14.6	14.6	13.7
MAGNESIUM	2440	2180	743	1330	1810	2260	2220	738
MANGANESE	380 J	298 J	251 J	622 J	486 J	419 J	472 J	244 J
MERCURY	0.0321 J	0.0198 J	0.0303 J	0.0426	0.0346 J	0.0588	0.0512	0.0296 U
NICKEL	13.1	12.1	6.12	12	10.5	16.1	15.7	5.23
POTASSIUM	667 J	716 J	368 J	602 J	445 J	855 J	819 J	278 J
SELENIUM	0.605 U	0.619 U	0.6 U	0.608 U	0.616 U	0.517 J	0.542 J	0.58 U
SILVER	0.242 U	0.248 U	0.24 U	0.243 U	0.246 U	0.246 U	0.261 U	0.232 U
SODIUM	139 J	371 U	360 U	365 U	179 J	340 J	342 J	348 U
THALLIUM	0.484 U	0.495 U	0.48 U	0.486 U	0.492 U	0.491 U	0.522 U	0.464 U
VANADIUM	29.1 J	30.5 J	19 J	27.2 J	17.6 J	34.3 J	35.5 J	25 J

TABLE F-1
ANALYTICAL RESULTS FOR SOIL
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION	11SB11		11SB12	11SB13	11SB14	11SB15	11SB16	11SB17
SAMPLE ID	11SS110002	11SS110002-D	11SS120002	11SS130002	11SS140002	11SS150002	11SS160002	11SS170002
SAMPLE DATE	20110426	20110426	20110426	20110426	20110426	20110426	20110426	20110426
TOP DEPTH	0	0	0	0	0	0	0	0
BOTTOM DEPTH	2	2	2	2	2	2	2	2
ZINC	43.7	41	18.2	32.8	39.6	44.6	45.1	10.9
MISCELLANEOUS PARAMETERS (MG/KG)								
CYANIDE	0.307 UJ	0.318 UJ	0.317 UJ	0.283 UJ	0.282 UJ	0.316 UJ	0.305 UJ	0.308 UJ
PCBS (UG/KG)								
AROCLOR-1016	10.1 U	10.3 U	9.59 U	9.85 U	10.1 U	9.93 U	10.6 U	9.63 U
AROCLOR-1221	10.1 U	10.3 U	9.59 U	9.85 U	10.1 U	9.93 U	10.6 U	9.63 U
AROCLOR-1232	10.1 U	10.3 U	9.59 U	9.85 U	10.1 U	9.93 U	10.6 U	9.63 U
AROCLOR-1242	10.1 U	10.3 U	9.59 U	9.85 U	10.1 U	9.93 U	10.6 U	9.63 U
AROCLOR-1248	10.1 U	10.3 U	9.59 U	9.85 U	10.1 U	9.93 U	10.6 U	9.63 U
AROCLOR-1254	10.1 U	10.3 U	9.59 U	9.85 U	10.1 U	9.93 U	10.6 U	9.63 U
AROCLOR-1260	10.1 U	10.3 U	9.59 U	9.85 U	10.1 U	9.93 U	10.6 U	9.63 U
PESTICIDES (UG/KG)								
4,4'-DDD	0.411 U	0.419 U	0.392 U	0.402 U	0.41 U	0.405 U	0.431 U	0.393 U
4,4'-DDE	0.411 U	0.419 U	0.392 U	0.402 U	1.4 J	0.405 U	0.431 U	0.393 U
4,4'-DDT	0.411 U	0.419 U	0.392 U	0.402 U	0.41 U	0.405 U	0.431 U	0.393 U
ALDRIN	0.411 U	0.419 U	0.392 U	0.402 U	0.41 U	0.405 U	0.431 U	0.393 U
ALPHA-BHC	0.411 U	0.419 U	0.392 U	0.402 U	0.41 U	0.405 U	0.431 U	0.393 U
ALPHA-CHLORDANE	0.411 U	0.419 U	0.392 U	0.402 U	0.41 U	0.405 U	0.431 U	0.393 U
BETA-BHC	0.411 U	0.419 U	0.392 U	0.402 U	0.41 U	0.405 U	0.431 U	0.393 U
DELTA-BHC	0.411 UJ	0.419 UJ	0.392 UJ	0.402 UJ	0.41 UJ	0.405 UJ	0.431 UJ	0.393 UJ
DIELDRIN	0.411 U	0.413 UJ	0.392 U	0.402 U	0.41 U	0.405 UJ	0.428 UJ	0.383 UJ
ENDOSULFAN I	0.411 U	0.413 UJ	0.392 U	0.402 U	0.41 U	0.405 UJ	0.428 UJ	0.383 UJ
ENDOSULFAN II	0.411 U	0.413 UJ	0.392 U	0.402 U	0.41 U	0.405 UJ	0.428 UJ	0.383 UJ
ENDOSULFAN SULFATE	0.411 U	0.419 U	0.392 U	0.402 U	0.41 U	0.405 U	0.431 U	0.393 U
ENDRIN	0.411 U	0.413 UJ	0.392 U	0.402 U	0.41 U	0.405 UJ	0.428 UJ	0.383 UJ
ENDRIN ALDEHYDE	0.411 U	0.413 UJ	0.392 U	0.402 U	0.41 U	0.405 UJ	0.428 UJ	0.383 UJ
ENDRIN KETONE	0.411 U	0.419 U	0.392 U	0.402 U	0.41 U	0.405 U	0.431 U	0.393 U
GAMMA-BHC (LINDANE)	0.411 U	0.419 U	0.392 U	2.27 J	0.41 U	0.405 U	0.431 U	0.393 U
GAMMA-CHLORDANE	0.893 J	0.419 U	0.244 J	0.859 J	0.902 J	0.405 U	0.431 U	0.393 U
HEPTACHLOR	0.411 U	0.419 U	0.392 U	0.402 U	0.41 U	0.405 U	0.431 U	0.393 U
HEPTACHLOR EPOXIDE	0.411 U	0.419 U	0.392 U	0.402 U	0.41 U	0.405 U	0.431 U	0.393 U
METHOXYCHLOR	0.411 UJ	0.413 UJ	1.01 J	0.402 UJ	0.41 UJ	0.405 UJ	0.428 UJ	0.383 UJ
TOXAPHENE	26.6 UJ	27.1 UJ	25.3 UJ	26 UJ	26.6 UJ	26.2 UJ	27.9 UJ	25.4 UJ
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)								
2-METHYLNAPHTHALENE	3.84 U	4.08 U	3.91 U	10.8 J	4.05 U	4.13 U	4.28 U	3.98 U
ACENAPHTHENE	17.2 J	4.08 UJ	3.91 U	19.2 U	4.05 U	4.13 U	4.28 U	3.98 U
ACENAPHTHYLENE	3.57 J	5.84 J	3.91 U	86.9	10.2	4.13 U	4.28 U	3.98 U
ANTHRACENE	28.6 J	5.14 J	3.91 U	52.3	3.9 J	4.13 U	4.28 U	3.98 U
BENZO(A)ANTHRACENE	130 J	20.8 J	3.91 U	322	33.1	4.13 U	4.28 U	3.98 U
BENZO(A)PYRENE	136 J	27.8 J	3.91 U	348	34.5	4.13 U	4.28 U	3.98 U
BENZO(B)FLUORANTHENE	183 J	48.9 J	3.91 U	454	54.3	4.13 U	4.28 U	3.63 J
BENZO(G,H,I)PERYLENE	117 J	26.1 J	3.91 U	234	28.6	4.13 U	4.28 U	3.98 U
BENZO(K)FLUORANTHENE	83.1 J	17.3 J	3.91 U	202	26.5	4.13 U	4.28 U	2.59 J
CHRYSENE	157 J	38.5 J	3.91 U	427	37.3	4.13 U	4.28 U	3.98 U
DIBENZO(A,H)ANTHRACENE	25 J	7.04 J	3.91 U	82.1	9.15	4.13 U	4.28 U	3.98 U
FLUORANTHENE	403 J	51.5 J	3.91 U	454	40.5	4.13 U	4.28 U	2.67 J
FLUORENE	12.4 J	4.08 U	3.91 U	16.1 J	4.05 U	4.13 U	4.28 U	3.98 U
INDENO(1,2,3-CD)PYRENE	92.7 J	20.5 J	3.91 U	187	24.7	4.13 U	4.28 U	2.08 J
NAPHTHALENE	2.74 J	2.19 J	3.91 U	14.4 J	4.05 U	4.13 U	4.28 U	3.98 U
PHENANTHRENE	301 J	22.9 J	3.91 U	153 J	8.33 J	4.13 U	4.28 U	3.98 U
PYRENE	304 J	48.2 J	3.91 U	417 J	35.5 J	4.13 U	4.28 U	6.41 J
SEMIVOLATILES (UG/KG)								
1,1-BIPHENYL	193 U	204 U	196 U	193 U	203 U	207 U	214 U	200 U

LOCATION	11SB11		11SB12	11SB13	11SB14	11SB15	11SB16	11SB17
SAMPLE ID	11SS110002	11SS110002-D	11SS120002	11SS130002	11SS140002	11SS150002	11SS160002	11SS170002
SAMPLE DATE	20110426	20110426	20110426	20110426	20110426	20110426	20110426	20110426
TOP DEPTH	0	0	0	0	0	0	0	0
BOTTOM DEPTH	2	2	2	2	2	2	2	2
2,2'-OXYBIS(1-CHLOROPROPANE)	193 U	204 U	196 U	193 U	203 U	207 U	214 U	200 U
2,4,5-TRICHLOROPHENOL	193 U	204 U	196 U	193 U	203 U	207 U	214 U	200 U
2,4,6-TRICHLOROPHENOL	193 U	204 U	196 U	193 U	203 U	207 U	214 U	200 U
2,4-DICHLOROPHENOL	193 U	204 U	196 U	193 U	203 U	207 U	214 U	200 U
2,4-DIMETHYLPHENOL	770 U	816 U	783 U	769 U	810 U	827 U	857 U	797 U
2,4-DINITROPHENOL	1930 U	2040 UJ	1960 UJ	1930 UJ	2030 UJ	2070 UJ	2140 UJ	2000 UJ
2,4-DINITROTOLUENE	193 U	204 U	196 U	193 U	203 U	207 U	214 U	200 U
2,6-DINITROTOLUENE	193 U	204 U	196 U	193 U	203 U	207 U	214 U	200 U
2-CHLORONAPHTHALENE	193 U	204 UJ	196 UJ	193 UJ	203 UJ	207 UJ	214 UJ	200 UJ
2-CHLOROPHENOL	193 U	204 U	196 U	193 U	203 U	207 U	214 U	200 U
2-METHYLPHENOL	193 U	204 U	196 U	193 U	203 U	207 U	214 U	200 U
2-NITROANILINE	770 U	816 U	783 U	769 U	810 U	827 U	857 U	797 U
2-NITROPHENOL	193 U	204 U	196 U	193 U	203 U	207 U	214 U	200 U
3,3'-DICHLOROBENZIDINE	193 U	204 U	196 U	193 U	203 U	207 U	214 U	200 U
3-NITROANILINE	770 U	816 U	783 U	769 U	810 U	827 U	857 U	797 U
4,6-DINITRO-2-METHYLPHENOL	1930 U	2040 UJ	1960 UJ	1930 UJ	2030 UJ	2070 UJ	2140 UJ	2000 UJ
4-BROMOPHENYL PHENYL ETHER	193 U	204 U	196 U	193 U	203 U	207 U	214 U	200 U
4-CHLORO-3-METHYLPHENOL	193 U	204 U	196 U	193 U	203 U	207 U	214 U	200 U
4-CHLOROANILINE	193 U	204 U	196 U	193 U	203 U	207 U	214 U	200 U
4-CHLOROPHENYL PHENYL ETHER	193 U	204 UJ	196 UJ	193 UJ	203 UJ	207 UJ	214 UJ	200 UJ
4-METHYLPHENOL	193 U	204 U	196 U	193 U	203 U	207 U	214 U	200 U
4-NITROANILINE	770 U	816 UJ	783 UJ	769 UJ	810 UJ	827 UJ	857 UJ	797 UJ
4-NITROPHENOL	770 UJ	816 U	783 U	769 U	810 U	827 U	857 U	797 U
ACETOPHENONE	193 U	204 U	196 U	193 U	203 U	207 U	214 U	200 U
ATRAZINE	193 U	204 U	196 U	193 U	203 U	207 U	214 U	200 U
BENZALDEHYDE	193 UJ	204 UJ	196 UJ	193 UJ	203 UJ	207 UJ	214 UJ	200 UJ
BIS(2-CHLOROETHOXY)METHANE	193 U	204 U	196 U	193 U	203 U	207 U	214 U	200 U
BIS(2-CHLOROETHYL)ETHER	193 U	204 U	196 U	193 U	203 U	207 U	214 U	200 U
BIS(2-ETHYLHEXYL)PHTHALATE	193 U	204 U	196 U	193 U	203 U	207 U	214 U	200 U
BUTYL BENZYL PHTHALATE	193 U	204 U	196 U	193 U	203 U	207 U	214 U	200 U
CAPROLACTAM	193 U	204 U	196 U	193 U	203 U	207 U	214 U	200 U
CARBAZOLE	193 U	204 U	196 U	193 U	203 U	207 U	214 U	200 U
DIBENZOFURAN	193 U	204 U	196 U	193 U	203 U	207 U	214 U	200 U
DIETHYL PHTHALATE	193 U	204 U	196 U	193 U	203 U	207 U	214 U	200 U
DIMETHYL PHTHALATE	193 U	204 U	196 U	193 U	203 U	207 U	214 U	200 U
DI-N-BUTYL PHTHALATE	193 U	204 U	196 U	193 U	203 U	207 U	214 U	200 U
DI-N-OCTYL PHTHALATE	193 U	204 U	196 U	193 U	203 U	207 U	214 U	200 U
HEXACHLOROBENZENE	193 U	204 U	196 U	193 U	203 U	207 U	214 U	200 U
HEXACHLOROBUTADIENE	193 U	204 U	196 U	193 U	203 U	207 U	214 U	200 U
HEXACHLOROCYCLOPENTADIENE	193 U	204 UJ	196 UJ	193 UJ	203 UJ	207 UJ	214 UJ	200 UJ
HEXACHLOROETHANE	193 U	204 U	196 U	193 U	203 U	207 U	214 U	200 U
ISOPHORONE	193 U	204 U	196 U	193 U	203 U	207 U	214 U	200 U
NITROBENZENE	193 U	204 U	196 U	193 U	203 U	207 U	214 U	200 U
N-NITROSO-DI-N-PROPYLAMINE	193 U	204 U	196 U	193 U	203 U	207 U	214 U	200 U
N-NITROSODIPHENYLAMINE	193 U	204 UJ	196 UJ	193 UJ	203 UJ	207 UJ	214 UJ	200 UJ
PENTACHLOROPHENOL	770 U	816 UJ	783 UJ	769 UJ	810 UJ	827 UJ	857 UJ	797 UJ
PHENOL	193 U	204 U	196 U	193 U	203 U	207 U	214 U	200 U
VOLATILES (UG/KG)								
1,1,1-TRICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-TETRACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA

TABLE F-1
ANALYTICAL RESULTS FOR SOIL
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION	**11SB11**		**11SB12**	**11SB13**	**11SB14**	**11SB15**	**11SB16**	**11SB17**
SAMPLE ID	**11SS110002**	**11SS110002-D**	**11SS120002**	**11SS130002**	**11SS140002**	**11SS150002**	**11SS160002**	**11SS170002**
SAMPLE DATE	**20110426**	**20110426**	**20110426**	**20110426**	**20110426**	**20110426**	**20110426**	**20110426**
TOP DEPTH	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
BOTTOM DEPTH	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
1,1-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-TRICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DIBROMO-3-CHLOROPROPANE	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DIBROMOETHANE	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROPROPANE	NA	NA	NA	NA	NA	NA	NA	NA
1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
2-BUTANONE	NA	NA	NA	NA	NA	NA	NA	NA
2-HEXANONE	NA	NA	NA	NA	NA	NA	NA	NA
4-METHYL-2-PENTANONE	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	NA	NA	NA	NA	NA	NA	NA	NA
BROMOCHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA
BROMOFORM	NA	NA	NA	NA	NA	NA	NA	NA
BROMOMETHANE	NA	NA	NA	NA	NA	NA	NA	NA
CARBON DISULFIDE	NA	NA	NA	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROFORM	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA
CIS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA
CIS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA	NA	NA
CYCLOHEXANE	NA	NA	NA	NA	NA	NA	NA	NA
DICHLORODIFLUOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
ISOPROPYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
METHYL ACETATE	NA	NA	NA	NA	NA	NA	NA	NA
METHYL CYCLOHEXANE	NA	NA	NA	NA	NA	NA	NA	NA
METHYL TERT-BUTYL ETHER	NA	NA	NA	NA	NA	NA	NA	NA
METHYLENE CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA
TOLUENE	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL XYLENES	NA	NA	NA	NA	NA	NA	NA	NA
TRANS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA
TRANS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROFLUOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA
VINYL CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA

LOCATION	11SB18	11SB19	11SB20	11SB21		11SB22	11SB23	11SB24
SAMPLE ID	11SS180002	11SS190002	11SS200002	11SS210002	11SS210002-D	11SS220002	11SS230002	11SS240002
SAMPLE DATE	20110426	20110426	20110426	20110426	20110426	20110426	20110426	20110426
TOP DEPTH	0	0	0	0	0	0	0	0
BOTTOM DEPTH	2	2	2	2	2	2	2	2
DIOXINS/FURANS (NG/KG)								
1,2,3,4,6,7,8,9-OCDD	1280	2060	6410 J	2310	2260	1420	2490	443
1,2,3,4,6,7,8,9-OCDF	6.33 U	1.14 J	8.05 J	1.36 J	6.03 U	17.1	6.36 U	6.22 U
1,2,3,4,6,7,8-HPCDD	13.9	31.6	103	39.6	47	47.9	25.3	4.84
1,2,3,4,6,7,8-HPCDF	3.17 U	0.625 J	3.95 J	0.839 J	3.02 U	7.44	3.19 U	3.12 U
1,2,3,4,7,8,9-HPCDF	3.17 U	3.18 U	0.329 J	3.21 U	3.02 U	0.455 J	3.19 U	3.12 U
1,2,3,4,7,8-HXCDD	3.17 U	3.18 U	0.816 J	3.21 U	3.02 U	0.57 J	3.19 U	3.12 U
1,2,3,4,7,8-HXCDF	3.17 U	3.18 U	0.318 J	0.321 J	3.02 U	2.53 J	3.19 U	3.12 U
1,2,3,6,7,8-HXCDD	3.17 U	0.663 J	1.28 J	0.642 J	0.592 J	1.18 J	3.19 U	3.12 U
1,2,3,6,7,8-HXCDF	3.17 U	3.18 U	0.313 J	3.21 U	3.02 U	0.553 J	3.19 U	3.12 U
1,2,3,7,8,9-HXCDD	3.17 U	0.596 J	1.69 J	0.671 J	0.985 J	1.16 J	3.19 U	3.12 U
1,2,3,7,8,9-HXCDF	3.17 U	3.18 U	3.09 U	3.21 U	3.02 U	3.19 U	3.19 U	3.12 U
1,2,3,7,8-PECDD	3.17 U	3.18 U	3.09 U	3.21 U	3.02 U	0.51 J	3.19 U	3.12 U
1,2,3,7,8-PECDF	3.17 U	3.18 U	3.09 U	3.21 U	3.02 U	2.5 J	3.19 U	3.12 U
2,3,4,6,7,8-HXCDF	3.17 U	3.18 U	0.383 J	3.21 U	3.02 U	1.31 J	3.19 U	3.12 U
2,3,4,7,8-PECDF	3.17 U	3.18 U	3.09 U	3.21 U	3.02 U	2.03 J	3.19 U	3.12 U
2,3,7,8-TCDD	0.633 U	0.24 J	0.616 U	0.641 U	0.603 U	0.69 J	0.636 U	0.622 U
2,3,7,8-TCDF	0.481 U	0.455 U	0.503 U	0.369 U	0.507 U	0.673 U	0.369 U	0.506 U
TEQ BIRD	0.1419	0.550194	1.111595	0.384746	0.37742	4.34616	0.2743	0.04914
TEQ BIRD HALFND	4.947017	4.848094	5.070095	4.838046	4.813422	4.84216	5.051718	4.794251
TEQ EQUIVALENTS	0.523	1.306492	3.478205	1.261198	1.3057	3.60338	1	0.1813
TEQ EQUIVALENTS- HALFND	4.11375	4.254842	6.020705	4.392848	4.426955	3.79653	4.607154	3.716533
TOTAL HPCDD	26.9	67.3	199	82.9	90.1	162	50.1	9.63
TOTAL HPCDF	3.17 U	1.33 J	8.31	1.53 J	3.02 U	18.6	3.19 U	3.12 U
TOTAL HXCDD	1.94 J	9.32	14.8	5.5	6.35	23	1.38 J	3.12 U
TOTAL HXCDF	3.17 U	0.255 J	5.3	1.25 J	3.02 U	20.2	3.19 U	3.12 U
TOTAL PECDD	0.332 J	0.491 J	1.11 J	3.21 U	3.02 U	2.48 J	3.19 U	3.12 U
TOTAL PECDF	3.17 U	3.18 U	0.853 J	3.21 U	3.02 U	26.6	3.19 U	3.12 U
TOTAL TCDD	0.633 U	0.634 U	0.616 U	0.641 U	0.603 U	0.69 J	0.636 U	0.622 U
TOTAL TCDF	0.868 U	0.842 U	0.899 U	0.641 U	0.952 U	10	0.369 U	0.506 U
METALS (MG/KG)								
ALUMINUM	14800	NA	NA	NA	NA	NA	NA	NA
ANTIMONY	0.959 UJ	NA	NA	NA	NA	NA	NA	NA
ARSENIC	8.93	NA	NA	NA	NA	NA	NA	NA
BARIUM	69.6	NA	NA	NA	NA	NA	NA	NA
BERYLLIUM	0.773	NA	NA	NA	NA	NA	NA	NA
CADMIUM	0.24 UJ	NA	NA	NA	NA	NA	NA	NA
CALCIUM	1980	NA	NA	NA	NA	NA	NA	NA
CHROMIUM	19.3	NA	NA	NA	NA	NA	NA	NA
COBALT	5.92	NA	NA	NA	NA	NA	NA	NA
COPPER	18.4	NA	NA	NA	NA	NA	NA	NA
IRON	23600	NA	NA	NA	NA	NA	NA	NA
LEAD	13.1	NA	NA	NA	NA	NA	NA	NA
MAGNESIUM	2490	NA	NA	NA	NA	NA	NA	NA
MANGANESE	213 J	NA	NA	NA	NA	NA	NA	NA
MERCURY	0.0365 U	NA	NA	NA	NA	NA	NA	NA
NICKEL	14.7	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	762 J	NA	NA	NA	NA	NA	NA	NA
SELENIUM	0.599 U	NA	NA	NA	NA	NA	NA	NA
SILVER	0.24 U	NA	NA	NA	NA	NA	NA	NA
SODIUM	174 J	NA	NA	NA	NA	NA	NA	NA
THALLIUM	0.479 U	NA	NA	NA	NA	NA	NA	NA
VANADIUM	32 J	NA	NA	NA	NA	NA	NA	NA

LOCATION	11SB18	11SB19	11SB20	11SB21		11SB22	11SB23	11SB24
SAMPLE ID	11SS180002	11SS190002	11SS200002	11SS210002	11SS210002-D	11SS220002	11SS230002	11SS240002
SAMPLE DATE	20110426	20110426	20110426	20110426	20110426	20110426	20110426	20110426
TOP DEPTH	0	0	0	0	0	0	0	0
BOTTOM DEPTH	2	2	2	2	2	2	2	2
ZINC	44.3	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (MG/KG)								
CYANIDE	0.284 UJ	NA	NA	NA	NA	NA	NA	NA
PCBS (UG/KG)								
AROCLOR-1016	9.8 U	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1221	9.8 U	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1232	9.8 U	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1242	9.8 U	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1248	9.8 U	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1254	9.8 U	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1260	9.8 U	NA	NA	NA	NA	NA	NA	NA
PESTICIDES (UG/KG)								
4,4'-DDD	0.4 U	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	0.4 U	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	0.4 U	NA	NA	NA	NA	NA	NA	NA
ALDRIN	0.4 U	NA	NA	NA	NA	NA	NA	NA
ALPHA-BHC	0.4 U	NA	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	0.4 U	NA	NA	NA	NA	NA	NA	NA
BETA-BHC	0.4 U	NA	NA	NA	NA	NA	NA	NA
DELTA-BHC	0.4 UJ	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	0.414 UJ	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	0.414 UJ	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN II	0.414 UJ	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	0.4 U	NA	NA	NA	NA	NA	NA	NA
ENDRIN	0.414 UJ	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	0.414 UJ	NA	NA	NA	NA	NA	NA	NA
ENDRIN KETONE	0.4 U	NA	NA	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	0.4 U	NA	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	0.4 U	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	0.4 U	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	0.4 U	NA	NA	NA	NA	NA	NA	NA
METHOXYCHLOR	0.414 UJ	NA	NA	NA	NA	NA	NA	NA
TOXAPHENE	25.9 UJ	NA	NA	NA	NA	NA	NA	NA
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)								
2-METHYLNAPHTHALENE	3.87 U	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	3.87 U	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	3.87 U	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	3.87 U	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	3.87 U	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	3.87 U	NA	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	3.87 U	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	3.87 U	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	3.87 U	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	3.87 U	NA	NA	NA	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	3.87 U	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	3.87 U	NA	NA	NA	NA	NA	NA	NA
FLUORENE	3.87 U	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	3.87 U	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	3.87 U	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	3.87 U	NA	NA	NA	NA	NA	NA	NA
PYRENE	3.87 U	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/KG)								
1,1-BIPHENYL	194 U	NA	NA	NA	NA	NA	NA	NA

LOCATION	11SB18	11SB19	11SB20	11SB21		11SB22	11SB23	11SB24
SAMPLE ID	11SS180002	11SS190002	11SS200002	11SS210002	11SS210002-D	11SS220002	11SS230002	11SS240002
SAMPLE DATE	20110426	20110426	20110426	20110426	20110426	20110426	20110426	20110426
TOP DEPTH	0	0	0	0	0	0	0	0
BOTTOM DEPTH	2	2	2	2	2	2	2	2
2,2'-OXYBIS(1-CHLOROPROPANE)	194 U	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	194 U	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	194 U	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	194 U	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	775 U	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	1940 UJ	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	194 U	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	194 U	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	194 UJ	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	194 U	NA	NA	NA	NA	NA	NA	NA
2-METHYLPHENOL	194 U	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	775 U	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	194 U	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	194 U	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	775 U	NA	NA	NA	NA	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	1940 UJ	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	194 U	NA	NA	NA	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	194 U	NA	NA	NA	NA	NA	NA	NA
4-CHLOROANILINE	194 U	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	194 UJ	NA	NA	NA	NA	NA	NA	NA
4-METHYLPHENOL	194 U	NA	NA	NA	NA	NA	NA	NA
4-NITROANILINE	775 UJ	NA	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	775 U	NA	NA	NA	NA	NA	NA	NA
ACETOPHENONE	194 U	NA	NA	NA	NA	NA	NA	NA
ATRAZINE	194 U	NA	NA	NA	NA	NA	NA	NA
BENZALDEHYDE	194 UJ	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	194 U	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	194 U	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	194 U	NA	NA	NA	NA	NA	NA	NA
BUTYL BENZYL PHTHALATE	194 U	NA	NA	NA	NA	NA	NA	NA
CAPROLACTAM	194 U	NA	NA	NA	NA	NA	NA	NA
CARBAZOLE	194 U	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	194 U	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	194 U	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	194 U	NA	NA	NA	NA	NA	NA	NA
DI-N-BUTYL PHTHALATE	194 U	NA	NA	NA	NA	NA	NA	NA
DI-N-OCTYL PHTHALATE	194 U	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	194 U	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBUTADIENE	194 U	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	194 UJ	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	194 U	NA	NA	NA	NA	NA	NA	NA
ISOPHORONE	194 U	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	194 U	NA	NA	NA	NA	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	194 U	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	194 UJ	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	775 UJ	NA	NA	NA	NA	NA	NA	NA
PHENOL	194 U	NA	NA	NA	NA	NA	NA	NA
VOLATILES (UG/KG)								
1,1,1-TRICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-TETRACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA

TABLE F-1
ANALYTICAL RESULTS FOR SOIL
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION	**11SB18**	**11SB19**	**11SB20**	**11SB21**		**11SB22**	**11SB23**	**11SB24**
SAMPLE ID	**11SS180002**	**11SS190002**	**11SS200002**	**11SS210002**	**11SS210002-D**	**11SS220002**	**11SS230002**	**11SS240002**
SAMPLE DATE	**20110426**	**20110426**	**20110426**	**20110426**	**20110426**	**20110426**	**20110426**	**20110426**
TOP DEPTH	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
BOTTOM DEPTH	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
1,1-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-TRICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DIBROMO-3-CHLOROPROPANE	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DIBROMOETHANE	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA
1,2-DICHLOROPROPANE	NA	NA	NA	NA	NA	NA	NA	NA
1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
2-BUTANONE	NA	NA	NA	NA	NA	NA	NA	NA
2-HEXANONE	NA	NA	NA	NA	NA	NA	NA	NA
4-METHYL-2-PENTANONE	NA	NA	NA	NA	NA	NA	NA	NA
ACETONE	NA	NA	NA	NA	NA	NA	NA	NA
BENZENE	NA	NA	NA	NA	NA	NA	NA	NA
BROMOCHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA
BROMOFORM	NA	NA	NA	NA	NA	NA	NA	NA
BROMOMETHANE	NA	NA	NA	NA	NA	NA	NA	NA
CARBON DISULFIDE	NA	NA	NA	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
CHLORODIBROMOMETHANE	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROFORM	NA	NA	NA	NA	NA	NA	NA	NA
CHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA
CIS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA
CIS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA	NA	NA
CYCLOHEXANE	NA	NA	NA	NA	NA	NA	NA	NA
DICHLORODIFLUOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
ISOPROPYLBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
METHYL ACETATE	NA	NA	NA	NA	NA	NA	NA	NA
METHYL CYCLOHEXANE	NA	NA	NA	NA	NA	NA	NA	NA
METHYL TERT-BUTYL ETHER	NA	NA	NA	NA	NA	NA	NA	NA
METHYLENE CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA
STYRENE	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA
TOLUENE	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL XYLENES	NA	NA	NA	NA	NA	NA	NA	NA
TRANS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA
TRANS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROETHENE	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROFLUOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA
VINYL CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA

LOCATION	11SB25	11SB26	11SB27	11SB28	11SB29	11SB30	11SB31	
SAMPLE ID	11SB250507	11SB260507	11SB270507	11SB280507	11SS290002	11SS300002	11SS310002	11SS310002-D
SAMPLE DATE	20110426	20110427	20110426	20110426	20110427	20110427	20110426	20110427
TOP DEPTH	5	5	5	5	0	0	0	0
BOTTOM DEPTH	7	7	7	7	2	2	2	2
DIOXINS/FURANS (NG/KG)								
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDF	NA	NA	NA	NA	NA	NA	NA	NA
TEQ BIRD	NA	NA	NA	NA	NA	NA	NA	NA
TEQ BIRD HALFND	NA	NA	NA	NA	NA	NA	NA	NA
TEQ EQUIVALENTS	NA	NA	NA	NA	NA	NA	NA	NA
TEQ EQUIVALENTS- HALFND	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDF	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDF	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDF	NA	NA	NA	NA	NA	NA	NA	NA
METALS (MG/KG)								
ALUMINUM	NA	NA	NA	NA	10200	8830	13400	13300
ANTIMONY	NA	NA	NA	NA	1.02 UJ	0.923 UJ	0.96 UJ	1.04 UJ
ARSENIC	NA	NA	NA	NA	4.37	3.48	7.85	7.86
BARIUM	NA	NA	NA	NA	44.7	65.7	142	88.6
BERYLLIUM	NA	NA	NA	NA	0.622 J	0.731	0.925	0.869
CADMIUM	NA	NA	NA	NA	0.256 UJ	0.174 J	0.139 J	0.259 UJ
CALCIUM	NA	NA	NA	NA	14600	96200	1950	2190
CHROMIUM	NA	NA	NA	NA	10.9	12.7	13.6	19.8
COBALT	NA	NA	NA	NA	4.98	12.6	13.2	9.01
COPPER	NA	NA	NA	NA	9.24	11.2	12.6	12.7
IRON	NA	NA	NA	NA	16400	19400	18300	24300
LEAD	NA	NA	NA	NA	7.26	8.75	17.1	18.6
MAGNESIUM	NA	NA	NA	NA	1310	4260	1390	1230
MANGANESE	NA	NA	NA	NA	101 J	253 J	1070 J	433 J
MERCURY	NA	NA	NA	NA	0.0252 J	0.0402 U	0.0448	0.03 J
NICKEL	NA	NA	NA	NA	7.05	17.1	14.3	12.7
POTASSIUM	NA	NA	NA	NA	481 J	690 J	710 J	645 J
SELENIUM	NA	NA	NA	NA	0.64 U	0.577 U	0.516 J	0.648 U
SILVER	NA	NA	NA	NA	0.256 U	0.231 U	0.24 U	0.259 U
SODIUM	NA	NA	NA	NA	384 U	397 J	360 U	389 U
THALLIUM	NA	NA	NA	NA	0.512 U	0.461 U	0.48 U	0.518 U
VANADIUM	NA	NA	NA	NA	18.6 J	18.3 J	27 J	30.5 J

LOCATION	11SB25	11SB26	11SB27	11SB28	11SB29	11SB30	11SB31	
SAMPLE ID	11SB250507	11SB260507	11SB270507	11SB280507	11SS290002	11SS300002	11SS310002	11SS310002-D
SAMPLE DATE	20110426	20110427	20110426	20110426	20110427	20110427	20110426	20110427
TOP DEPTH	5	5	5	5	0	0	0	0
BOTTOM DEPTH	7	7	7	7	2	2	2	2
ZINC	NA	NA	NA	NA	26.8	50	44	57.5
MISCELLANEOUS PARAMETERS (MG/KG)								
CYANIDE	NA	NA	NA	NA	0.297 UJ	0.313 UJ	0.323 UJ	0.332 UJ
PCBS (UG/KG)								
AROCLOR-1016	NA	NA	NA	NA	10.3 U	9.54 U	10.1 U	10.2 U
AROCLOR-1221	NA	NA	NA	NA	10.3 U	9.54 U	10.1 U	10.2 U
AROCLOR-1232	NA	NA	NA	NA	10.3 U	9.54 U	10.1 U	10.2 U
AROCLOR-1242	NA	NA	NA	NA	10.3 U	9.54 U	10.1 U	10.2 U
AROCLOR-1248	NA	NA	NA	NA	10.3 U	9.54 U	10.1 U	10.2 U
AROCLOR-1254	NA	NA	NA	NA	10.3 U	9.54 U	10.1 U	10.2 U
AROCLOR-1260	NA	NA	NA	NA	10.3 U	9.54 U	10.1 U	10.2 U
PESTICIDES (UG/KG)								
4,4'-DDD	NA	NA	NA	NA	0.42 U	0.39 U	0.411 U	0.417 U
4,4'-DDE	NA	NA	NA	NA	0.42 U	0.39 U	0.411 U	0.417 U
4,4'-DDT	NA	NA	NA	NA	0.42 U	0.39 U	0.411 U	0.417 U
ALDRIN	NA	NA	NA	NA	0.42 U	0.39 U	0.411 U	0.417 U
ALPHA-BHC	NA	NA	NA	NA	0.42 U	0.39 U	0.411 U	0.417 U
ALPHA-CHLORDANE	NA	NA	NA	NA	0.42 U	0.39 U	0.411 U	0.417 U
BETA-BHC	NA	NA	NA	NA	0.42 U	0.39 U	0.411 U	0.417 U
DELTA-BHC	NA	NA	NA	NA	0.42 UJ	0.39 UJ	0.411 UJ	0.417 UJ
DIELDRIN	NA	NA	NA	NA	0.431 UJ	0.387 UJ	0.403 UJ	0.423 UJ
ENDOSULFAN I	NA	NA	NA	NA	0.431 UJ	0.387 UJ	0.403 UJ	0.423 UJ
ENDOSULFAN II	NA	NA	NA	NA	0.431 UJ	0.387 UJ	0.403 UJ	0.423 UJ
ENDOSULFAN SULFATE	NA	NA	NA	NA	0.42 U	0.39 U	0.411 U	0.417 U
ENDRIN	NA	NA	NA	NA	0.431 UJ	0.387 UJ	0.403 UJ	0.423 UJ
ENDRIN ALDEHYDE	NA	NA	NA	NA	0.431 UJ	0.387 UJ	0.403 UJ	0.423 UJ
ENDRIN KETONE	NA	NA	NA	NA	0.42 U	0.39 U	0.411 U	0.417 U
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	0.42 U	0.39 U	0.411 U	0.417 U
GAMMA-CHLORDANE	NA	NA	NA	NA	0.42 U	0.39 U	0.411 U	0.417 U
HEPTACHLOR	NA	NA	NA	NA	0.42 U	0.39 U	0.411 U	0.417 U
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	0.42 U	0.39 U	0.411 U	0.417 U
METHOXYCHLOR	NA	NA	NA	NA	0.431 UJ	0.387 UJ	0.403 UJ	0.423 UJ
TOXAPHENE	NA	NA	NA	NA	27.2 UJ	25.2 UJ	26.6 UJ	27 UJ
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)								
2-METHYLNAPHTHALENE	NA	3.71 U	3.85 U	4.5 U	4.25 U	3.77 U	2.52 J	4.19 U
ACENAPHTHENE	NA	3.71 U	3.85 U	4.5 U	4.25 U	3.91 U	4.05 U	4.19 U
ACENAPHTHYLENE	NA	3.71 U	3.85 U	4.5 U	5.09 J	12.9	19	26.2
ANTHRACENE	NA	3.71 U	3.85 U	4.5 U	4.25 U	18.3	9.88	11.8
BENZO(A)ANTHRACENE	NA	3.71 U	3.85 U	4.5 U	12.1	107	37	53.1
BENZO(A)PYRENE	NA	3.71 U	3.85 U	4.5 U	16.1	122	60.2	78.6
BENZO(B)FLUORANTHENE	NA	3.71 U	3.85 U	4.5 U	20.1	152	81	118
BENZO(G,H,I)PERYLENE	NA	3.71 U	3.85 U	4.5 U	18.2	94.6	55.8	84.6
BENZO(K)FLUORANTHENE	NA	3.71 U	3.85 U	4.5 U	9.14	64.2	36	40.3
CHRYSENE	NA	3.71 U	3.85 U	4.5 U	16.1	136	66.8	82.3
DIBENZO(A,H)ANTHRACENE	NA	3.71 U	3.85 U	4.5 U	4.25 U	22.3	15.7	20.4
FLUORANTHENE	NA	3.71 U	3.85 U	4.5 U	9.7	221	73.4	61.5
FLUORENE	NA	3.71 U	3.85 U	4.5 U	4.25 U	3.93 J	4.05 U	4.19 U
INDENO(1,2,3-CD)PYRENE	NA	3.71 U	3.85 U	4.5 U	12.4	72.6	41.4	61.2
NAPHTHALENE	NA	3.71 U	3.85 U	4.5 U	4.25 U	2.26 J	3.7 J	3.65 J
PHENANTHRENE	NA	3.71 U	3.85 U	4.5 U	2.33 J	72.7 J	31.6 J	14.3 J
PYRENE	NA	3.71 U	3.85 U	4.5 U	14.4 J	198 J	78.4 J	81.6 J
SEMIVOLATILES (UG/KG)								
1,1-BIPHENYL	NA	186 UJ	193 U	226 U	213 U	189 U	203 U	210 U

LOCATION	11SB25	11SB26	11SB27	11SB28	11SB29	11SB30	11SB31	
SAMPLE ID	11SB250507	11SB260507	11SB270507	11SB280507	11SS290002	11SS300002	11SS310002	11SS310002-D
SAMPLE DATE	20110426	20110427	20110426	20110426	20110427	20110427	20110426	20110427
TOP DEPTH	5	5	5	5	0	0	0	0
BOTTOM DEPTH	7	7	7	7	2	2	2	2
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	186 U	193 UJ	226 U	213 U	189 U	203 U	210 U
2,4,5-TRICHLOROPHENOL	NA	186 U	193 U	226 U	213 U	189 U	203 U	210 U
2,4,6-TRICHLOROPHENOL	NA	186 U	193 U	226 U	213 U	189 U	203 U	210 U
2,4-DICHLOROPHENOL	NA	186 U	193 U	226 U	213 U	189 U	203 U	210 U
2,4-DIMETHYLPHENOL	NA	744 U	771 U	902 U	851 U	754 U	812 U	840 U
2,4-DINITROPHENOL	NA	1860 U	1930 U	2260 U	2130 UJ	1890 UJ	2030 UJ	2100 UJ
2,4-DINITROTOLUENE	NA	186 U	193 U	226 U	213 U	189 U	203 U	210 U
2,6-DINITROTOLUENE	NA	186 U	193 U	226 U	213 U	189 U	203 U	210 U
2-CHLORONAPHTHALENE	NA	186 UJ	193 U	226 U	213 UJ	189 UJ	203 UJ	210 UJ
2-CHLOROPHENOL	NA	186 U	193 U	226 U	213 U	189 U	203 U	210 U
2-METHYLPHENOL	NA	186 U	193 U	226 U	213 U	189 U	203 U	210 U
2-NITROANILINE	NA	744 U	771 U	902 U	851 U	754 U	812 U	840 U
2-NITROPHENOL	NA	186 U	193 U	226 U	213 U	189 U	203 U	210 U
3,3'-DICHLOROBENZIDINE	NA	186 U	193 UJ	226 U	213 U	189 U	203 U	210 U
3-NITROANILINE	NA	744 U	771 U	902 U	851 U	754 U	812 U	840 U
4,6-DINITRO-2-METHYLPHENOL	NA	1860 U	1930 UJ	2260 U	2130 UJ	1890 UJ	2030 UJ	2100 UJ
4-BROMOPHENYL PHENYL ETHER	NA	186 U	193 U	226 U	213 U	189 U	203 U	210 U
4-CHLORO-3-METHYLPHENOL	NA	186 U	193 U	226 U	213 U	189 U	203 U	210 U
4-CHLOROANILINE	NA	186 U	193 U	226 U	213 U	189 U	203 U	210 U
4-CHLOROPHENYL PHENYL ETHER	NA	186 U	193 U	226 U	213 UJ	189 UJ	203 UJ	210 UJ
4-METHYLPHENOL	NA	186 U	193 U	226 U	213 U	189 U	203 U	210 U
4-NITROANILINE	NA	744 UJ	771 U	902 U	851 UJ	754 UJ	812 UJ	840 UJ
4-NITROPHENOL	NA	744 U	771 U	902 UJ	851 U	754 U	812 U	840 U
ACETOPHENONE	NA	186 UJ	193 U	226 U	213 U	189 U	203 U	210 U
ATRAZINE	NA	186 U	193 U	226 U	213 U	189 U	203 U	210 U
BENZALDEHYDE	NA	186 U	193 U	226 UJ	213 UJ	189 UJ	203 UJ	210 UJ
BIS(2-CHLOROETHOXY)METHANE	NA	186 U	193 U	226 U	213 U	189 U	203 U	210 U
BIS(2-CHLOROETHYL)ETHER	NA	186 U	193 U	226 U	213 U	189 U	203 U	210 U
BIS(2-ETHYLHEXYL)PHTHALATE	NA	186 U	193 U	226 U	213 U	189 U	203 U	210 U
BUTYL BENZYL PHTHALATE	NA	186 U	193 U	226 U	213 U	189 U	203 U	210 U
CAPROLACTAM	NA	186 U	193 U	226 U	213 U	189 U	203 U	210 U
CARBAZOLE	NA	186 U	193 U	226 U	213 U	189 U	203 U	210 U
DIBENZOFURAN	NA	186 U	193 U	226 U	213 U	189 U	203 U	210 U
DIETHYL PHTHALATE	NA	186 U	193 U	226 U	213 U	189 U	203 U	210 U
DIMETHYL PHTHALATE	NA	186 U	193 U	226 U	213 U	189 U	203 U	210 U
DI-N-BUTYL PHTHALATE	NA	186 U	193 U	226 U	213 U	189 U	203 U	210 U
DI-N-OCTYL PHTHALATE	NA	186 U	193 U	226 U	213 U	189 U	203 U	210 U
HEXACHLOROBENZENE	NA	186 U	193 U	226 U	213 U	189 U	203 U	210 U
HEXACHLOROBUTADIENE	NA	186 U	193 U	226 U	213 U	189 U	203 U	210 U
HEXACHLOROCYCLOPENTADIENE	NA	186 U	193 U	226 U	213 UJ	189 UJ	203 UJ	210 UJ
HEXACHLOROETHANE	NA	186 U	193 U	226 U	213 U	189 U	203 U	210 U
ISOPHORONE	NA	186 U	193 U	226 U	213 U	189 U	203 U	210 U
NITROBENZENE	NA	186 U	193 U	226 U	213 U	189 U	203 U	210 U
N-NITROSO-DI-N-PROPYLAMINE	NA	186 U	193 U	226 U	213 U	189 U	203 U	210 U
N-NITROSODIPHENYLAMINE	NA	186 UJ	193 U	226 U	213 UJ	189 UJ	203 UJ	210 UJ
PENTACHLOROPHENOL	NA	744 U	771 U	902 U	851 UJ	754 UJ	812 UJ	840 UJ
PHENOL	NA	186 U	193 U	226 U	213 U	189 U	203 U	210 U
VOLATILES (UG/KG)								
1,1,1-TRICHLOROETHANE	2.9 UJ	2.79 U	2.24 UJ	3.31 UJ	NA	NA	NA	NA
1,1,2,2-TETRACHLOROETHANE	2.9 U	2.79 U	2.24 U	3.31 U	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE	2.9 U	2.79 U	2.24 U	3.31 U	NA	NA	NA	NA
1,1,2-TRICHLOROTRIFLUOROETHANE	5.79 U	5.57 U	4.48 U	6.62 U	NA	NA	NA	NA
1,1-DICHLOROETHANE	2.9 U	2.79 U	2.24 U	3.31 U	NA	NA	NA	NA

TABLE F-1
ANALYTICAL RESULTS FOR SOIL
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION	**11SB25**	**11SB26**	**11SB27**	**11SB28**	**11SB29**	**11SB30**	**11SB31**	
SAMPLE ID	**11SB250507**	**11SB260507**	**11SB270507**	**11SB280507**	**11SS290002**	**11SS300002**	**11SS310002**	**11SS310002-D**
SAMPLE DATE	**20110426**	**20110427**	**20110426**	**20110426**	**20110427**	**20110427**	**20110426**	**20110427**
TOP DEPTH	**5**	**5**	**5**	**5**	**0**	**0**	**0**	**0**
BOTTOM DEPTH	**7**	**7**	**7**	**7**	**2**	**2**	**2**	**2**
1,1-DICHLOROETHENE	2.9 U	2.79 U	2.24 U	3.31 U	NA	NA	NA	NA
1,2,3-TRICHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	2.9 UJ	2.79 U	2.24 UJ	3.31 UJ	NA	NA	NA	NA
1,2-DIBROMO-3-CHLOROPROPANE	5.79 UJ	5.57 U	4.48 UJ	6.62 UJ	NA	NA	NA	NA
1,2-DIBROMOETHANE	2.9 U	2.79 U	2.24 U	3.31 U	NA	NA	NA	NA
1,2-DICHLOROBENZENE	2.9 U	2.79 U	2.24 U	3.31 U	NA	NA	NA	NA
1,2-DICHLOROETHANE	2.9 UJ	2.79 U	2.24 UJ	3.31 UJ	NA	NA	NA	NA
1,2-DICHLOROPROPANE	2.9 UJ	2.79 U	2.24 UJ	3.31 UJ	NA	NA	NA	NA
1,3-DICHLOROBENZENE	2.9 U	2.79 U	2.24 U	3.31 U	NA	NA	NA	NA
1,4-DICHLOROBENZENE	2.9 U	2.79 U	2.24 U	3.31 U	NA	NA	NA	NA
2-BUTANONE	5.79 U	5.57 U	4.48 U	6.62 U	NA	NA	NA	NA
2-HEXANONE	2.9 U	2.79 U	2.24 U	3.31 U	NA	NA	NA	NA
4-METHYL-2-PENTANONE	2.9 UJ	2.79 U	2.24 UJ	3.31 UJ	NA	NA	NA	NA
ACETONE	11.6 U	11.1 UJ	8.97 U	13.2 U	NA	NA	NA	NA
BENZENE	2.9 U	2.79 U	2.24 U	3.31 U	NA	NA	NA	NA
BROMOCHLOROMETHANE	NA	NA	NA	NA	NA	NA	NA	NA
BROMODICHLOROMETHANE	2.9 UJ	2.79 U	2.24 UJ	3.31 UJ	NA	NA	NA	NA
BROMOFORM	2.9 UJ	2.79 U	2.24 UJ	3.31 UJ	NA	NA	NA	NA
BROMOMETHANE	5.79 UJ	5.57 U	4.48 UJ	6.62 UJ	NA	NA	NA	NA
CARBON DISULFIDE	2.9 U	2.79 U	2.24 U	3.31 U	NA	NA	NA	NA
CARBON TETRACHLORIDE	2.9 UJ	2.79 U	2.24 UJ	3.31 UJ	NA	NA	NA	NA
CHLOROBENZENE	2.9 U	2.79 U	2.24 U	3.31 U	NA	NA	NA	NA
CHLORODIBROMOMETHANE	2.9 U	2.79 U	2.24 U	3.31 U	NA	NA	NA	NA
CHLOROETHANE	5.79 UJ	5.57 U	4.48 UJ	6.62 UJ	NA	NA	NA	NA
CHLOROFORM	2.9 U	2.79 U	2.24 U	3.31 U	NA	NA	NA	NA
CHLOROMETHANE	5.79 U	5.57 U	4.48 U	6.62 U	NA	NA	NA	NA
CIS-1,2-DICHLOROETHENE	2.9 U	2.79 U	2.24 U	3.31 U	NA	NA	NA	NA
CIS-1,3-DICHLOROPROPENE	2.9 U	2.79 U	2.24 U	3.31 U	NA	NA	NA	NA
CYCLOHEXANE	2.9 UJ	2.79 U	2.24 UJ	3.31 UJ	NA	NA	NA	NA
DICHLORODIFLUOROMETHANE	5.79 UJ	5.57 U	4.48 UJ	6.62 UJ	NA	NA	NA	NA
ETHYLBENZENE	2.9 U	2.79 U	2.24 U	3.31 U	NA	NA	NA	NA
ISOPROPYLBENZENE	2.9 U	2.79 U	2.24 U	3.31 U	NA	NA	NA	NA
METHYL ACETATE	5.79 U	5.57 U	4.48 U	6.62 U	NA	NA	NA	NA
METHYL CYCLOHEXANE	2.9 U	2.79 U	2.24 U	3.31 U	NA	NA	NA	NA
METHYL TERT-BUTYL ETHER	2.9 U	2.79 U	2.24 U	3.31 U	NA	NA	NA	NA
METHYLENE CHLORIDE	5.79 U	11.1 J	4.48 U	6.62 U	NA	NA	NA	NA
STYRENE	2.9 U	2.79 U	2.24 U	3.31 U	NA	NA	NA	NA
TETRACHLOROETHENE	2.9 UJ	2.79 U	2.24 UJ	3.31 UJ	NA	NA	NA	NA
TOLUENE	2.9 U	2.79 U	2.24 U	3.31 U	NA	NA	NA	NA
TOTAL XYLENES	8.69 U	8.36 U	6.73 U	9.93 U	NA	NA	NA	NA
TRANS-1,2-DICHLOROETHENE	2.9 U	2.79 U	2.24 U	3.31 U	NA	NA	NA	NA
TRANS-1,3-DICHLOROPROPENE	2.9 U	2.79 U	2.24 U	3.31 U	NA	NA	NA	NA
TRICHLOROETHENE	2.9 U	2.79 U	2.24 U	3.31 U	NA	NA	NA	NA
TRICHLOROFLUOROMETHANE	5.79 U	5.57 U	4.48 U	6.62 U	NA	NA	NA	NA
VINYL CHLORIDE	2.9 U	2.79 U	2.24 U	3.31 U	NA	NA	NA	NA

LOCATION	11SB32	11SB33		11SB34		11SB35		11SB36
SAMPLE ID	11SS320002	11SB330406	11SB330607	11SB340406	11SB340708	11SB350305	11SB350506	11SB360204
SAMPLE DATE	20110426	20111116	20111116	20111116	20111116	20111116	20111116	20111117
TOP DEPTH	0	4	6	4	7	3	5	2
BOTTOM DEPTH	2	6	7	6	8	5	6	4
DIOXINS/FURANS (NG/KG)								
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDF	NA	NA	NA	NA	NA	NA	NA	NA
TEQ BIRD	NA	NA	NA	NA	NA	NA	NA	NA
TEQ BIRD HALFND	NA	NA	NA	NA	NA	NA	NA	NA
TEQ EQUIVALENTS	NA	NA	NA	NA	NA	NA	NA	NA
TEQ EQUIVALENTS- HALFND	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDF	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDF	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDF	NA	NA	NA	NA	NA	NA	NA	NA
METALS (MG/KG)								
ALUMINUM	14400	NA	NA	NA	NA	NA	NA	NA
ANTIMONY	0.953 UJ	NA	NA	NA	NA	NA	NA	NA
ARSENIC	8.78	NA	NA	NA	NA	NA	NA	NA
BARIUM	109	NA	NA	NA	NA	NA	NA	NA
BERYLLIUM	1.14	NA	NA	NA	NA	NA	NA	NA
CADMIUM	0.238 UJ	NA	NA	NA	NA	NA	NA	NA
CALCIUM	2280	NA	NA	NA	NA	NA	NA	NA
CHROMIUM	27.6	NA	NA	NA	NA	NA	NA	NA
COBALT	16.2	NA	NA	NA	NA	NA	NA	NA
COPPER	12.3	NA	NA	NA	NA	NA	NA	NA
IRON	30100	NA	NA	NA	NA	NA	NA	NA
LEAD	19.2	NA	NA	NA	NA	NA	NA	NA
MAGNESIUM	1490	NA	NA	NA	NA	NA	NA	NA
MANGANESE	839 J	NA	NA	NA	NA	NA	NA	NA
MERCURY	0.0327 J	NA	NA	NA	NA	NA	NA	NA
NICKEL	14.7	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	686 J	NA	NA	NA	NA	NA	NA	NA
SELENIUM	0.472 J	NA	NA	NA	NA	NA	NA	NA
SILVER	0.238 U	NA	NA	NA	NA	NA	NA	NA
SODIUM	357 U	NA	NA	NA	NA	NA	NA	NA
THALLIUM	0.476 U	NA	NA	NA	NA	NA	NA	NA
VANADIUM	36 J	NA	NA	NA	NA	NA	NA	NA

LOCATION	11SB32	11SB33		11SB34		11SB35		11SB36
SAMPLE ID	11SS320002	11SB330406	11SB330607	11SB340406	11SB340708	11SB350305	11SB350506	11SB360204
SAMPLE DATE	20110426	20111116	20111116	20111116	20111116	20111116	20111116	20111117
TOP DEPTH	0	4	6	4	7	3	5	2
BOTTOM DEPTH	2	6	7	6	8	5	6	4
ZINC	50.2	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (MG/KG)								
CYANIDE	0.286 UJ	NA	NA	NA	NA	NA	NA	NA
PCBS (UG/KG)								
AROCLOR-1016	10.1 U	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1221	10.1 U	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1232	10.1 U	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1242	10.1 U	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1248	10.1 U	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1254	10.1 U	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1260	10.1 U	NA	NA	NA	NA	NA	NA	NA
PESTICIDES (UG/KG)								
4,4'-DDD	0.413 U	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	0.413 U	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	0.413 U	NA	NA	NA	NA	NA	NA	NA
ALDRIN	0.413 U	NA	NA	NA	NA	NA	NA	NA
ALPHA-BHC	0.413 U	NA	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	0.413 U	NA	NA	NA	NA	NA	NA	NA
BETA-BHC	0.413 U	NA	NA	NA	NA	NA	NA	NA
DELTA-BHC	0.413 UJ	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	0.427 UJ	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	0.427 UJ	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN II	0.427 UJ	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	0.413 U	NA	NA	NA	NA	NA	NA	NA
ENDRIN	0.427 UJ	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	0.427 UJ	NA	NA	NA	NA	NA	NA	NA
ENDRIN KETONE	0.413 U	NA	NA	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	0.413 U	NA	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	0.413 U	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	0.413 U	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	0.413 U	NA	NA	NA	NA	NA	NA	NA
METHOXYCHLOR	0.427 UJ	NA	NA	NA	NA	NA	NA	NA
TOXAPHENE	26.8 UJ	NA	NA	NA	NA	NA	NA	NA
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)								
2-METHYLNAPHTHALENE	2.52 J	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	2.57 J	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	20.8	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	15.8	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	97.3	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	130	NA	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	170	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	104	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	60.2	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	117	NA	NA	NA	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	30.8	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	147	NA	NA	NA	NA	NA	NA	NA
FLUORENE	3.25 J	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	79.4	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	4.82 J	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	48.9 J	NA	NA	NA	NA	NA	NA	NA
PYRENE	145 J	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/KG)								
1,1-BIPHENYL	204 U	NA	NA	NA	NA	NA	NA	NA

LOCATION	11SB32	11SB33		11SB34		11SB35		11SB36
SAMPLE ID	11SS320002	11SB330406	11SB330607	11SB340406	11SB340708	11SB350305	11SB350506	11SB360204
SAMPLE DATE	20110426	20111116	20111116	20111116	20111116	20111116	20111116	20111117
TOP DEPTH	0	4	6	4	7	3	5	2
BOTTOM DEPTH	2	6	7	6	8	5	6	4
2,2'-OXYBIS(1-CHLOROPROPANE)	204 U	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	204 U	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	204 U	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	204 U	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	816 U	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	2040 UJ	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	204 U	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	204 U	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	204 UJ	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	204 U	NA	NA	NA	NA	NA	NA	NA
2-METHYLPHENOL	204 U	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	816 U	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	204 U	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	204 U	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	816 U	NA	NA	NA	NA	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	2040 UJ	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	204 U	NA	NA	NA	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	204 U	NA	NA	NA	NA	NA	NA	NA
4-CHLOROANILINE	204 U	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	204 UJ	NA	NA	NA	NA	NA	NA	NA
4-METHYLPHENOL	204 U	NA	NA	NA	NA	NA	NA	NA
4-NITROANILINE	816 UJ	NA	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	816 U	NA	NA	NA	NA	NA	NA	NA
ACETOPHENONE	204 U	NA	NA	NA	NA	NA	NA	NA
ATRAZINE	204 U	NA	NA	NA	NA	NA	NA	NA
BENZALDEHYDE	204 UJ	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	204 U	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	204 U	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	204 U	NA	NA	NA	NA	NA	NA	NA
BUTYL BENZYL PHTHALATE	204 U	NA	NA	NA	NA	NA	NA	NA
CAPROLACTAM	204 U	NA	NA	NA	NA	NA	NA	NA
CARBAZOLE	204 U	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	204 U	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	204 U	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	204 U	NA	NA	NA	NA	NA	NA	NA
DI-N-BUTYL PHTHALATE	204 U	NA	NA	NA	NA	NA	NA	NA
DI-N-OCTYL PHTHALATE	204 U	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	204 U	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBUTADIENE	204 U	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	204 UJ	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	204 U	NA	NA	NA	NA	NA	NA	NA
ISOPHORONE	204 U	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	204 U	NA	NA	NA	NA	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	204 U	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	204 UJ	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	816 UJ	NA	NA	NA	NA	NA	NA	NA
PHENOL	204 U	NA	NA	NA	NA	NA	NA	NA
VOLATILES (UG/KG)								
1,1,1-TRICHLOROETHANE	NA	2.31 U	2.17 U	122 U	2.38 U	2.88 U	2.72 U	117 U
1,1,2,2-TETRACHLOROETHANE	NA	2.31 U	2.17 U	122 U	2.38 U	2.88 U	2.72 U	117 U
1,1,2-TRICHLOROETHANE	NA	2.31 U	2.17 U	122 U	2.38 U	2.88 U	2.72 U	117 U
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	4.62 U	4.33 U	243 U	4.76 U	5.75 U	5.44 U	233 U
1,1-DICHLOROETHANE	NA	2.31 U	2.17 U	122 U	2.38 U	2.88 U	2.72 U	117 U

TABLE F-1
ANALYTICAL RESULTS FOR SOIL
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION	**11SB32**	**11SB33**		**11SB34**		**11SB35**		**11SB36**
SAMPLE ID	**11SS320002**	**11SB330406**	**11SB330607**	**11SB340406**	**11SB340708**	**11SB350305**	**11SB350506**	**11SB360204**
SAMPLE DATE	**20110426**	**20111116**	**20111116**	**20111116**	**20111116**	**20111116**	**20111116**	**20111117**
TOP DEPTH	**0**	**4**	**6**	**4**	**7**	**3**	**5**	**2**
BOTTOM DEPTH	**2**	**6**	**7**	**6**	**8**	**5**	**6**	**4**
1,1-DICHLOROETHENE	NA	2.31 U	2.17 U	122 U	2.38 U	2.88 U	2.72 U	117 U
1,2,3-TRICHLOROBENZENE	NA	2.31 U	2.17 U	122 UJ	2.38 UJ	2.88 UJ	2.72 UJ	117 UJ
1,2,4-TRICHLOROBENZENE	NA	2.31 U	2.17 U	122 UJ	2.38 UJ	2.88 U	2.72 U	117 UJ
1,2-DIBROMO-3-CHLOROPROPANE	NA	4.62 U	4.33 U	243 U	4.76 U	5.75 UJ	5.44 UJ	233 U
1,2-DIBROMOETHANE	NA	2.31 U	2.17 U	122 U	2.38 U	2.88 U	2.72 U	117 U
1,2-DICHLOROBENZENE	NA	2.31 U	2.17 U	122 U	2.38 U	2.88 U	2.72 U	526
1,2-DICHLOROETHANE	NA	2.31 U	2.17 U	122 U	2.38 U	2.88 U	2.72 U	117 U
1,2-DICHLOROPROPANE	NA	2.31 U	2.17 U	122 U	2.38 U	2.88 U	2.72 U	117 U
1,3-DICHLOROBENZENE	NA	2.31 U	2.17 U	122 U	2.38 U	2.88 U	2.72 U	117 U
1,4-DICHLOROBENZENE	NA	2.31 U	2.17 U	122 U	2.38 U	2.88 U	2.72 U	117 U
2-BUTANONE	NA	4.62 U	4.33 U	243 UJ	4.29 J	5.75 UJ	5.44 UJ	233 UJ
2-HEXANONE	NA	2.31 U	2.17 U	122 UJ	2.38 UJ	2.88 UJ	2.72 UJ	117 UJ
4-METHYL-2-PENTANONE	NA	2.31 U	2.17 U	122 U	2.38 U	2.88 UJ	2.72 UJ	117 U
ACETONE	NA	9.23 U	8.67 U	270 J	14.6 J	11.5 UJ	6.24 J	466 UJ
BENZENE	NA	2.31 U	2.17 U	122 U	2.38 U	2.88 U	2.72 U	117 U
BROMOCHLOROMETHANE	NA	2.31 U	2.17 U	122 U	2.38 U	2.88 U	2.72 U	117 U
BROMODICHLOROMETHANE	NA	2.31 U	2.17 U	122 U	2.38 U	2.88 U	2.72 U	117 U
BROMOFORM	NA	2.31 U	2.17 U	122 U	2.38 U	2.88 UJ	2.72 UJ	117 U
BROMOMETHANE	NA	4.62 U	4.33 U	243 U	4.76 U	5.75 U	5.44 U	233 U
CARBON DISULFIDE	NA	2.31 U	2.17 U	122 U	2.38 U	2.88 U	2.72 U	117 U
CARBON TETRACHLORIDE	NA	2.31 U	2.17 U	122 U	2.38 U	2.88 U	2.72 U	117 U
CHLOROBENZENE	NA	2.31 U	2.17 U	122 U	2.38 U	2.88 U	2.72 U	619
CHLORODIBROMOMETHANE	NA	2.31 U	2.17 U	122 U	2.38 U	2.88 U	2.72 U	117 U
CHLOROETHANE	NA	4.62 U	4.33 U	243 U	4.76 U	5.75 U	5.44 U	233 U
CHLOROFORM	NA	2.31 U	2.17 U	122 U	2.38 U	2.88 U	2.72 U	117 U
CHLOROMETHANE	NA	4.62 U	4.33 U	243 U	4.76 U	5.75 U	5.44 U	233 U
CIS-1,2-DICHLOROETHENE	NA	9.93	11.7	122 U	49	2.88 U	10.5	117 U
CIS-1,3-DICHLOROPROPENE	NA	2.31 U	2.17 U	122 U	2.38 U	2.88 U	2.72 U	117 U
CYCLOHEXANE	NA	2.31 U	2.17 U	122 U	2.38 U	2.88 U	2.72 U	117 U
DICHLORODIFLUOROMETHANE	NA	4.62 U	4.33 U	243 U	4.76 U	5.75 U	5.44 U	233 U
ETHYLBENZENE	NA	2.31 U	2.17 U	122 U	2.38 U	2.88 U	2.72 U	117 U
ISOPROPYLBENZENE	NA	2.31 U	2.17 U	122 U	2.38 U	2.88 U	2.72 U	117 U
METHYL ACETATE	NA	4.62 U	4.33 U	243 U	4.76 U	5.75 U	5.44 U	233 U
METHYL CYCLOHEXANE	NA	2.31 U	2.17 U	122 U	6.28	2.88 U	2.72 U	117 U
METHYL TERT-BUTYL ETHER	NA	2.31 U	2.17 U	122 U	2.38 U	2.88 U	2.72 U	117 U
METHYLENE CHLORIDE	NA	4.62 U	4.33 U	243 U	4.76 U	5.75 U	5.44 U	233 U
STYRENE	NA	2.31 U	2.17 U	122 U	2.38 U	2.88 UJ	2.72 UJ	117 U
TETRACHLOROETHENE	NA	53	55.9	122 U	2.22 J	2.48 J	9.47	117 U
TOLUENE	NA	2.31 U	2.17 U	122 U	2.38 U	2.88 U	2.72 U	117 U
TOTAL XYLENES	NA	6.93 U	6.5 U	365 U	7.15 U	8.63 U	8.16 U	350 U
TRANS-1,2-DICHLOROETHENE	NA	2.31 U	2.17 U	122 U	2.38 U	2.88 U	2.72 U	117 U
TRANS-1,3-DICHLOROPROPENE	NA	2.31 U	2.17 U	122 U	2.38 U	2.88 U	2.72 U	117 U
TRICHLOROETHENE	NA	4.11 J	4.77	122 U	2.06 J	2.88 U	1.81 J	117 U
TRICHLOROFLUOROMETHANE	NA	4.62 U	4.33 U	243 U	4.76 U	5.75 U	5.44 U	233 U
VINYL CHLORIDE	NA	2.31 U	2.17 U	122 UJ	60.4 J	2.88 U	2.72 U	117 UJ

LOCATION	11SB36		11SB37		11SB38		11SB39	
SAMPLE ID	11SB360405	11SB360405-D	11SB370103	11SB370304	11SB380406	11SB380607	11SB390406	11SB390708
SAMPLE DATE	20111117	20111117	20111116	20111116	20111115	20111115	20111115	20111115
TOP DEPTH	4	4	1	3	4	6	4	7
BOTTOM DEPTH	5	5	3	4	6	7	6	8
DIOXINS/FURANS (NG/KG)								
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDF	NA	NA	NA	NA	NA	NA	NA	NA
TEQ BIRD	NA	NA	NA	NA	NA	NA	NA	NA
TEQ BIRD HALFND	NA	NA	NA	NA	NA	NA	NA	NA
TEQ EQUIVALENTS	NA	NA	NA	NA	NA	NA	NA	NA
TEQ EQUIVALENTS- HALFND	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDF	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDF	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDF	NA	NA	NA	NA	NA	NA	NA	NA
METALS (MG/KG)								
ALUMINUM	NA	NA	NA	NA	NA	NA	NA	NA
ANTIMONY	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	NA	NA	NA	NA	NA	NA	NA	NA
BARIUM	NA	NA	NA	NA	NA	NA	NA	NA
BERYLLIUM	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	NA	NA	NA	NA	NA	NA	NA	NA
CALCIUM	NA	NA	NA	NA	NA	NA	NA	NA
CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA
COBALT	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	NA	NA	NA	NA	NA	NA	NA	NA
IRON	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	NA	NA	NA	NA	NA	NA	NA	NA
MAGNESIUM	NA	NA	NA	NA	NA	NA	NA	NA
MANGANESE	NA	NA	NA	NA	NA	NA	NA	NA
MERCURY	NA	NA	NA	NA	NA	NA	NA	NA
NICKEL	NA	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	NA	NA	NA	NA	NA	NA	NA	NA
SILVER	NA	NA	NA	NA	NA	NA	NA	NA
SODIUM	NA	NA	NA	NA	NA	NA	NA	NA
THALLIUM	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM	NA	NA	NA	NA	NA	NA	NA	NA

LOCATION	11SB36		11SB37		11SB38		11SB39	
SAMPLE ID	11SB360405	11SB360405-D	11SB370103	11SB370304	11SB380406	11SB380607	11SB390406	11SB390708
SAMPLE DATE	20111117	20111117	20111116	20111116	20111115	20111115	20111115	20111115
TOP DEPTH	4	4	1	3	4	6	4	7
BOTTOM DEPTH	5	5	3	4	6	7	6	8
ZINC	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (MG/KG)								
CYANIDE	NA	NA	NA	NA	NA	NA	NA	NA
PCBS (UG/KG)								
AROCLOR-1016	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1221	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1232	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1242	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1248	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1254	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1260	NA	NA	NA	NA	NA	NA	NA	NA
PESTICIDES (UG/KG)								
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-BHC	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA
BETA-BHC	NA	NA	NA	NA	NA	NA	NA	NA
DELTA-BHC	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN II	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN KETONE	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA	NA
METHOXYCHLOR	NA	NA	NA	NA	NA	NA	NA	NA
TOXAPHENE	NA	NA	NA	NA	NA	NA	NA	NA
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)								
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	NA	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/KG)								
1,1-BIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA

LOCATION	11SB36		11SB37		11SB38		11SB39	
SAMPLE ID	11SB360405	11SB360405-D	11SB370103	11SB370304	11SB380406	11SB380607	11SB390406	11SB390708
SAMPLE DATE	20111117	20111117	20111116	20111116	20111115	20111115	20111115	20111115
TOP DEPTH	4	4	1	3	4	6	4	7
BOTTOM DEPTH	5	5	3	4	6	7	6	8
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROANILINE	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	NA	NA	NA	NA	NA	NA	NA	NA
4-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
ACETOPHENONE	NA	NA	NA	NA	NA	NA	NA	NA
ATRAZINE	NA	NA	NA	NA	NA	NA	NA	NA
BENZALDEHYDE	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
BUTYL BENZYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
CAPROLACTAM	NA	NA	NA	NA	NA	NA	NA	NA
CARBAZOLE	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-OCTYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBUTADIENE	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA
ISOPHORONE	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	NA	NA	NA	NA	NA	NA	NA	NA
VOLATILES (UG/KG)								
1,1,1-TRICHLOROETHANE	113 U	109 U	2.62 U	2.32 U	3.9 U	3.42 U	2.8 U	3.64 U
1,1,2,2-TETRACHLOROETHANE	113 U	109 U	2.62 U	2.32 U	3.9 U	3.42 U	2.8 U	3.64 U
1,1,2-TRICHLOROETHANE	113 U	109 U	2.62 U	2.32 U	3.9 U	3.42 U	2.8 U	3.64 U
1,1,2-TRICHLOROTRIFLUOROETHANE	226 U	219 U	5.24 U	4.63 U	7.79 U	6.84 U	5.61 U	7.27 U
1,1-DICHLOROETHANE	113 U	109 U	2.62 U	2.32 U	3.9 U	3.42 U	2.8 U	3.64 U

TABLE F-1
ANALYTICAL RESULTS FOR SOIL
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION	**11SB36**		**11SB37**		**11SB38**		**11SB39**	
SAMPLE ID	**11SB360405**	**11SB360405-D**	**11SB370103**	**11SB370304**	**11SB380406**	**11SB380607**	**11SB390406**	**11SB390708**
SAMPLE DATE	**20111117**	**20111117**	**20111116**	**20111116**	**20111115**	**20111115**	**20111115**	**20111115**
TOP DEPTH	**4**	**4**	**1**	**3**	**4**	**6**	**4**	**7**
BOTTOM DEPTH	**5**	**5**	**3**	**4**	**6**	**7**	**6**	**8**
1,1-DICHLOROETHENE	113 U	109 U	2.62 U	2.32 U	3.9 U	3.42 U	2.8 U	3.64 U
1,2,3-TRICHLOROBENZENE	113 U	109 UJ	2.62 UJ	2.32 UJ	3.9 U	3.42 UJ	2.8 U	3.64 UJ
1,2,4-TRICHLOROBENZENE	113 UJ	109 UJ	2.62 UJ	2.32 UJ	3.9 U	3.42 UJ	2.8 U	3.64 UJ
1,2-DIBROMO-3-CHLOROPROPANE	226 U	219 U	5.24 U	4.63 U	7.79 U	6.84 U	5.61 U	7.27 U
1,2-DIBROMOETHANE	113 U	109 U	2.62 U	2.32 U	3.9 U	3.42 U	2.8 U	3.64 U
1,2-DICHLOROBENZENE	779 J	425 J	2.62 U	2.32 U	100	243	9.91	3.46 J
1,2-DICHLOROETHANE	113 U	109 U	2.62 U	2.32 U	3.9 U	3.42 U	2.8 U	3.64 U
1,2-DICHLOROPROPANE	113 U	109 U	2.62 U	2.32 U	3.9 U	3.42 U	2.8 U	3.64 U
1,3-DICHLOROBENZENE	113 U	109 U	2.62 U	2.32 U	3.9 U	3.42 U	2.8 U	3.64 U
1,4-DICHLOROBENZENE	71.2 J	109 U	2.62 U	2.32 U	3.63 J	8.1	2.8 U	3.64 U
2-BUTANONE	226 UJ	219 UJ	5.24 UJ	4.63 UJ	7.79 U	6.84 U	2.87 U	7.27 U
2-HEXANONE	113 U	109 UJ	2.62 UJ	2.32 UJ	3.9 U	3.42 U	2.8 U	3.64 U
4-METHYL-2-PENTANONE	113 U	109 U	2.62 U	2.32 U	3.9 U	3.42 U	2.8 U	3.64 U
ACETONE	453 UJ	437 UJ	10.5 UJ	9.26 UJ	15.6 U	13.7 UJ	18.5 U	14.5 UJ
BENZENE	146 J	109 U	2.62 U	2.32 U	3.9 U	3.42 U	2.8 U	3.64 U
BROMOCHLOROMETHANE	113 U	109 U	2.62 U	2.32 U	3.9 U	3.42 U	2.8 U	3.64 U
BROMODICHLOROMETHANE	113 U	109 U	2.62 U	2.32 U	3.9 U	3.42 U	2.8 U	3.64 U
BROMOFORM	113 U	109 U	2.62 U	2.32 U	3.9 U	3.42 U	2.8 U	3.64 U
BROMOMETHANE	226 U	219 U	5.24 U	4.63 U	7.79 U	6.84 U	5.61 U	7.27 U
CARBON DISULFIDE	113 U	109 U	2.62 U	2.32 U	3.9 U	3.42 U	2.8 U	3.64 U
CARBON TETRACHLORIDE	113 U	109 U	2.62 U	2.32 U	3.9 U	3.42 U	2.8 U	3.64 U
CHLOROBENZENE	1670 J	724 J	2.62 U	2.32 U	8.57	13	2.8 U	3.64 U
CHLORODIBROMOMETHANE	113 U	109 U	2.62 U	2.32 U	3.9 U	3.42 U	2.8 U	3.64 U
CHLOROETHANE	226 U	219 U	5.24 U	4.63 U	7.79 U	6.84 U	5.61 U	7.27 U
CHLOROFORM	113 U	109 U	2.62 U	2.32 U	3.9 U	3.42 U	2.8 U	3.64 U
CHLOROMETHANE	226 U	219 U	5.24 U	4.63 U	7.79 U	6.84 U	5.61 U	7.27 U
CIS-1,2-DICHLOROETHENE	113 U	109 U	2.62 U	2.32 U	47.6	45.6	2.8 U	6.23 J
CIS-1,3-DICHLOROPROPENE	113 U	109 U	2.62 U	2.32 U	3.9 U	3.42 U	2.8 U	3.64 U
CYCLOHEXANE	113 U	109 U	2.62 U	2.32 U	3.9 U	3.42 U	2.8 U	3.64 U
DICHLORODIFLUOROMETHANE	226 U	219 U	5.24 U	4.63 U	7.79 U	6.84 U	5.61 U	7.27 U
ETHYLBENZENE	113 U	109 U	2.62 U	2.32 U	3.9 U	3.42 U	2.8 U	3.64 U
ISOPROPYLBENZENE	113 U	109 U	2.62 U	2.32 U	3.9 U	3.42 U	2.8 U	3.64 U
METHYL ACETATE	226 U	219 U	5.24 U	4.63 U	7.79 U	6.84 U	5.61 U	7.27 U
METHYL CYCLOHEXANE	113 U	109 U	2.62 U	2.32 U	3.9 U	3.42 U	2.8 U	3.64 U
METHYL TERT-BUTYL ETHER	113 U	109 U	2.62 U	2.32 U	3.9 U	3.42 U	2.8 U	3.64 U
METHYLENE CHLORIDE	226 U	219 U	5.24 U	4.63 U	7.79 U	6.84 U	5.61 U	7.27 U
STYRENE	113 U	109 U	2.62 U	2.32 U	3.9 U	3.42 U	2.8 U	3.64 U
TETRACHLOROETHENE	113 U	109 U	2.62 U	2.32 U	28.6	66.1	2.8 U	3.64 U
TOLUENE	113 U	109 U	2.62 U	2.32 U	3.9 U	3.42 U	2.8 U	3.64 U
TOTAL XYLENES	340 U	328 U	7.85 U	6.95 U	11.7 U	10.3 U	8.41 U	10.9 U
TRANS-1,2-DICHLOROETHENE	113 U	109 U	2.62 U	2.32 U	3.9 U	3.42 U	2.8 U	3.64 U
TRANS-1,3-DICHLOROPROPENE	113 U	109 U	2.62 U	2.32 U	3.9 U	3.42 U	2.8 U	3.64 U
TRICHLOROETHENE	113 U	109 U	2.62 U	2.32 U	33.2	45.3	2.8 U	3.64 U
TRICHLOROFLUOROMETHANE	226 U	219 U	5.24 U	4.63 U	7.79 U	6.84 U	5.61 U	7.27 U
VINYL CHLORIDE	113 UJ	109 UJ	2.62 UJ	2.32 UJ	3.9 U	3.42 U	2.8 U	3.64 U

LOCATION	11SB40		11SB41		11SB42		11SB43	
SAMPLE ID	11SB400305	11SB400506	11SB410204	11SB410405	11SB420102	11SB420203	11SB430406	11SB430809
SAMPLE DATE	20111115	20111115	20111117	20111117	20111116	20111116	20111116	20111116
TOP DEPTH	3	5	2	4	1	2	4	8
BOTTOM DEPTH	5	6	4	5	2	3	6	9
DIOXINS/FURANS (NG/KG)								
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDF	NA	NA	NA	NA	NA	NA	NA	NA
TEQ BIRD	NA	NA	NA	NA	NA	NA	NA	NA
TEQ BIRD HALFND	NA	NA	NA	NA	NA	NA	NA	NA
TEQ EQUIVALENTS	NA	NA	NA	NA	NA	NA	NA	NA
TEQ EQUIVALENTS- HALFND	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDF	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDF	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDF	NA	NA	NA	NA	NA	NA	NA	NA
METALS (MG/KG)								
ALUMINUM	NA	NA	NA	NA	NA	NA	NA	NA
ANTIMONY	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	NA	NA	NA	NA	NA	NA	NA	NA
BARIUM	NA	NA	NA	NA	NA	NA	NA	NA
BERYLLIUM	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	NA	NA	NA	NA	NA	NA	NA	NA
CALCIUM	NA	NA	NA	NA	NA	NA	NA	NA
CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA
COBALT	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	NA	NA	NA	NA	NA	NA	NA	NA
IRON	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	NA	NA	NA	NA	NA	NA	NA	NA
MAGNESIUM	NA	NA	NA	NA	NA	NA	NA	NA
MANGANESE	NA	NA	NA	NA	NA	NA	NA	NA
MERCURY	NA	NA	NA	NA	NA	NA	NA	NA
NICKEL	NA	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	NA	NA	NA	NA	NA	NA	NA	NA
SILVER	NA	NA	NA	NA	NA	NA	NA	NA
SODIUM	NA	NA	NA	NA	NA	NA	NA	NA
THALLIUM	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM	NA	NA	NA	NA	NA	NA	NA	NA

LOCATION	11SB40		11SB41		11SB42		11SB43	
SAMPLE ID	11SB400305	11SB400506	11SB410204	11SB410405	11SB420102	11SB420203	11SB430406	11SB430809
SAMPLE DATE	20111115	20111115	20111117	20111117	20111116	20111116	20111116	20111116
TOP DEPTH	3	5	2	4	1	2	4	8
BOTTOM DEPTH	5	6	4	5	2	3	6	9
ZINC	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (MG/KG)								
CYANIDE	NA	NA	NA	NA	NA	NA	NA	NA
PCBS (UG/KG)								
AROCLOR-1016	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1221	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1232	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1242	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1248	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1254	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1260	NA	NA	NA	NA	NA	NA	NA	NA
PESTICIDES (UG/KG)								
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-BHC	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA
BETA-BHC	NA	NA	NA	NA	NA	NA	NA	NA
DELTA-BHC	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN II	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN KETONE	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA	NA
METHOXYCHLOR	NA	NA	NA	NA	NA	NA	NA	NA
TOXAPHENE	NA	NA	NA	NA	NA	NA	NA	NA
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)								
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	NA	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/KG)								
1,1-BIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA

LOCATION	11SB40		11SB41		11SB42		11SB43	
SAMPLE ID	11SB400305	11SB400506	11SB410204	11SB410405	11SB420102	11SB420203	11SB430406	11SB430809
SAMPLE DATE	20111115	20111115	20111117	20111117	20111116	20111116	20111116	20111116
TOP DEPTH	3	5	2	4	1	2	4	8
BOTTOM DEPTH	5	6	4	5	2	3	6	9
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROANILINE	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	NA	NA	NA	NA	NA	NA	NA	NA
4-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
ACETOPHENONE	NA	NA	NA	NA	NA	NA	NA	NA
ATRAZINE	NA	NA	NA	NA	NA	NA	NA	NA
BENZALDEHYDE	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
BUTYL BENZYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
CAPROLACTAM	NA	NA	NA	NA	NA	NA	NA	NA
CARBAZOLE	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-OCTYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBUTADIENE	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA
ISOPHORONE	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	NA	NA	NA	NA	NA	NA	NA	NA
VOLATILES (UG/KG)								
1,1,1-TRICHLOROETHANE	157 U	465 U	114 U	133 U	2.29 U	2.33 U	2.69 U	2.77 U
1,1,2,2-TETRACHLOROETHANE	157 U	465 U	114 U	133 U	2.29 U	2.33 U	2.69 U	2.77 U
1,1,2-TRICHLOROETHANE	157 U	465 U	114 U	133 U	2.29 U	2.33 U	2.69 U	2.77 U
1,1,2-TRICHLOROTRIFLUOROETHANE	314 U	929 U	228 U	266 U	4.58 U	4.65 U	5.38 U	5.53 U
1,1-DICHLOROETHANE	157 U	465 U	114 U	133 U	2.29 U	2.33 U	2.69 U	2.77 U

TABLE F-1
ANALYTICAL RESULTS FOR SOIL
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION	**11SB40**		**11SB41**		**11SB42**		**11SB43**	
SAMPLE ID	**11SB400305**	**11SB400506**	**11SB410204**	**11SB410405**	**11SB420102**	**11SB420203**	**11SB430406**	**11SB430809**
SAMPLE DATE	**20111115**	**20111115**	**20111117**	**20111117**	**20111116**	**20111116**	**20111116**	**20111116**
TOP DEPTH	**3**	**5**	**2**	**4**	**1**	**2**	**4**	**8**
BOTTOM DEPTH	**5**	**6**	**4**	**5**	**2**	**3**	**6**	**9**
1,1-DICHLOROETHENE	157 U	465 U	114 U	133 U	2.29 U	2.33 U	2.69 U	2.77 U
1,2,3-TRICHLOROBENZENE	157 UJ	465 UJ	114 U	133 U	2.29 UJ	2.33 UJ	2.69 U	2.77 U
1,2,4-TRICHLOROBENZENE	157 UJ	465 UJ	114 UJ	133 UJ	2.29 UJ	2.33 UJ	2.69 U	2.77 U
1,2-DIBROMO-3-CHLOROPROPANE	314 U	929 U	228 U	266 U	4.58 U	4.65 U	5.38 U	5.53 U
1,2-DIBROMOETHANE	157 U	465 U	114 U	133 U	2.29 U	2.33 U	2.69 U	2.77 U
1,2-DICHLOROBENZENE	157 U	465 U	5870	5810	2.29 U	2.33 U	6.65	2.77 U
1,2-DICHLOROETHANE	157 U	465 U	114 U	133 U	2.29 U	2.33 U	2.69 U	2.77 U
1,2-DICHLOROPROPANE	157 U	465 U	114 U	133 U	2.29 U	2.33 U	2.69 U	2.77 U
1,3-DICHLOROBENZENE	157 U	465 U	114 U	133 U	2.29 U	2.33 U	2.69 U	2.77 U
1,4-DICHLOROBENZENE	157 U	465 U	137 J	150 J	2.29 U	2.33 U	2.69 U	2.77 U
2-BUTANONE	314 U	929 U	228 UJ	266 UJ	4.58 UJ	4.65 UJ	5.38 U	5.53 U
2-HEXANONE	157 U	465 U	114 U	133 U	2.29 UJ	2.33 UJ	2.69 U	2.77 U
4-METHYL-2-PENTANONE	157 U	465 U	114 U	133 U	2.29 U	2.33 U	2.69 U	2.77 U
ACETONE	628 UJ	1860 UJ	456 UJ	532 UJ	9.16 UJ	9.3 UJ	11.1 J	6.89 J
BENZENE	157 U	465 U	114 U	133 U	2.29 U	2.33 U	2.69 U	2.77 U
BROMOCHLOROMETHANE	157 U	465 U	114 U	133 U	2.29 U	2.33 U	2.69 U	2.77 U
BROMODICHLOROMETHANE	157 U	465 U	114 U	133 U	2.29 U	2.33 U	2.69 U	2.77 U
BROMOFORM	157 U	465 U	114 U	133 U	2.29 U	2.33 U	2.69 U	2.77 U
BROMOMETHANE	314 U	929 U	228 U	266 U	4.58 U	4.65 U	5.38 U	5.53 U
CARBON DISULFIDE	157 U	465 U	114 U	133 U	2.29 U	2.33 U	2.69 U	2.77 U
CARBON TETRACHLORIDE	157 U	465 U	114 U	133 U	2.29 U	2.33 U	2.69 U	2.77 U
CHLOROBENZENE	157 U	465 U	183 J	364	2.29 U	2.33 U	2.69 U	2.77 U
CHLORODIBROMOMETHANE	157 U	465 U	114 U	133 U	2.29 U	2.33 U	2.69 U	2.77 U
CHLOROETHANE	314 U	929 U	228 U	266 U	4.58 U	4.65 U	5.38 U	5.53 U
CHLOROFORM	157 U	465 U	114 U	133 U	2.29 U	2.33 U	2.69 U	2.77 U
CHLOROMETHANE	314 U	929 U	228 U	266 U	4.58 U	4.65 U	5.38 U	5.53 U
CIS-1,2-DICHLOROETHENE	1020	1700 J	156 J	112 J	2.29 U	2.33 U	2.69 U	44.4
CIS-1,3-DICHLOROPROPENE	157 U	465 U	114 U	133 U	2.29 U	2.33 U	2.69 U	2.77 U
CYCLOHEXANE	157 U	465 U	114 U	133 U	2.29 U	2.33 U	2.69 U	2.77 U
DICHLORODIFLUOROMETHANE	314 U	929 U	228 U	266 U	4.58 U	4.65 U	5.38 U	5.53 U
ETHYLBENZENE	157 U	465 U	114 U	133 U	2.29 U	2.33 U	2.69 U	2.77 U
ISOPROPYLBENZENE	157 U	465 U	114 U	133 U	2.29 U	2.33 U	2.69 U	2.77 U
METHYL ACETATE	314 U	929 U	228 U	266 U	4.58 U	4.65 U	5.38 U	5.53 U
METHYL CYCLOHEXANE	157 U	465 U	114 U	133 U	2.29 U	2.33 U	2.69 U	2.77 U
METHYL TERT-BUTYL ETHER	157 U	465 U	114 U	133 U	2.29 U	2.33 U	2.69 U	2.77 U
METHYLENE CHLORIDE	296 J	883 J	228 U	266 U	4.58 U	4.65 U	5.38 U	5.53 U
STYRENE	157 U	465 U	114 U	133 U	2.29 U	2.33 U	2.69 U	2.77 U
TETRACHLOROETHENE	2990	31200	114 U	133 U	2.29 U	2.33 U	2.69 U	230 J
TOLUENE	157 U	465 U	114 U	133 U	2.29 U	2.33 U	2.69 U	2.77 U
TOTAL XYLENES	471 U	1390 U	342 U	399 U	6.87 U	6.98 U	8.07 U	8.3 U
TRANS-1,2-DICHLOROETHENE	157 U	465 U	114 U	133 U	2.29 U	2.33 U	2.69 U	2.77 U
TRANS-1,3-DICHLOROPROPENE	157 U	465 U	114 U	133 U	2.29 U	2.33 U	2.69 U	2.77 U
TRICHLOROETHENE	210 J	879 J	62.7 J	133 U	2.29 U	2.33 U	2.69 U	46.5
TRICHLOROFLUOROMETHANE	314 U	929 U	228 U	266 U	4.58 U	4.65 U	5.38 U	5.53 U
VINYL CHLORIDE	157 U	465 U	114 UJ	133 UJ	2.29 UJ	2.33 UJ	2.69 U	2.77 U

LOCATION	11SB44		11SB45		11SB46		11SB47	
SAMPLE ID	11SB440406	11SB440607	11SB450204	11SB450506	11SB460305	11SB460506	11SB470103	11SB470304
SAMPLE DATE	20111116	20111116	20111116	20111116	20111117	20111117	20111116	20111116
TOP DEPTH	4	6	2	5	3	5	1	3
BOTTOM DEPTH	6	7	4	6	5	6	3	4
DIOXINS/FURANS (NG/KG)								
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDF	NA	NA	NA	NA	NA	NA	NA	NA
TEQ BIRD	NA	NA	NA	NA	NA	NA	NA	NA
TEQ BIRD HALFND	NA	NA	NA	NA	NA	NA	NA	NA
TEQ EQUIVALENTS	NA	NA	NA	NA	NA	NA	NA	NA
TEQ EQUIVALENTS- HALFND	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDF	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDF	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDF	NA	NA	NA	NA	NA	NA	NA	NA
METALS (MG/KG)								
ALUMINUM	NA	NA	NA	NA	NA	NA	NA	NA
ANTIMONY	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	NA	NA	NA	NA	NA	NA	NA	NA
BARIUM	NA	NA	NA	NA	NA	NA	NA	NA
BERYLLIUM	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	NA	NA	NA	NA	NA	NA	NA	NA
CALCIUM	NA	NA	NA	NA	NA	NA	NA	NA
CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA
COBALT	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	NA	NA	NA	NA	NA	NA	NA	NA
IRON	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	NA	NA	NA	NA	NA	NA	NA	NA
MAGNESIUM	NA	NA	NA	NA	NA	NA	NA	NA
MANGANESE	NA	NA	NA	NA	NA	NA	NA	NA
MERCURY	NA	NA	NA	NA	NA	NA	NA	NA
NICKEL	NA	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	NA	NA	NA	NA	NA	NA	NA	NA
SILVER	NA	NA	NA	NA	NA	NA	NA	NA
SODIUM	NA	NA	NA	NA	NA	NA	NA	NA
THALLIUM	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM	NA	NA	NA	NA	NA	NA	NA	NA

LOCATION	11SB44		11SB45		11SB46		11SB47	
SAMPLE ID	11SB440406	11SB440607	11SB450204	11SB450506	11SB460305	11SB460506	11SB470103	11SB470304
SAMPLE DATE	20111116	20111116	20111116	20111116	20111117	20111117	20111116	20111116
TOP DEPTH	4	6	2	5	3	5	1	3
BOTTOM DEPTH	6	7	4	6	5	6	3	4
ZINC	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (MG/KG)								
CYANIDE	NA	NA	NA	NA	NA	NA	NA	NA
PCBS (UG/KG)								
AROCLOR-1016	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1221	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1232	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1242	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1248	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1254	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1260	NA	NA	NA	NA	NA	NA	NA	NA
PESTICIDES (UG/KG)								
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-BHC	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA
BETA-BHC	NA	NA	NA	NA	NA	NA	NA	NA
DELTA-BHC	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN II	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN KETONE	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA	NA
METHOXYCHLOR	NA	NA	NA	NA	NA	NA	NA	NA
TOXAPHENE	NA	NA	NA	NA	NA	NA	NA	NA
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)								
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	NA	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/KG)								
1,1-BIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA

LOCATION	11SB44		11SB45		11SB46		11SB47	
SAMPLE ID	11SB440406	11SB440607	11SB450204	11SB450506	11SB460305	11SB460506	11SB470103	11SB470304
SAMPLE DATE	20111116	20111116	20111116	20111116	20111117	20111117	20111116	20111116
TOP DEPTH	4	6	2	5	3	5	1	3
BOTTOM DEPTH	6	7	4	6	5	6	3	4
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROANILINE	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	NA	NA	NA	NA	NA	NA	NA	NA
4-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
ACETOPHENONE	NA	NA	NA	NA	NA	NA	NA	NA
ATRAZINE	NA	NA	NA	NA	NA	NA	NA	NA
BENZALDEHYDE	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
BUTYL BENZYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
CAPROLACTAM	NA	NA	NA	NA	NA	NA	NA	NA
CARBAZOLE	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-OCTYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBUTADIENE	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA
ISOPHORONE	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	NA	NA	NA	NA	NA	NA	NA	NA
VOLATILES (UG/KG)								
1,1,1-TRICHLOROETHANE	2.32 U	2.45 U	136 U	2.25 U	2.28 U	108 U	2.8 U	2.45 U
1,1,2,2-TETRACHLOROETHANE	2.32 U	2.45 U	136 U	2.25 U	2.28 U	108 U	2.8 U	2.45 U
1,1,2-TRICHLOROETHANE	2.32 U	2.45 U	136 U	2.25 U	2.28 U	108 U	2.8 U	2.45 U
1,1,2-TRICHLOROTRIFLUOROETHANE	4.64 U	4.9 U	272 U	4.5 U	4.55 U	215 U	5.6 U	4.91 U
1,1-DICHLOROETHANE	2.32 U	2.45 U	136 U	2.25 U	2.28 U	108 U	2.8 U	2.45 U

TABLE F-1
ANALYTICAL RESULTS FOR SOIL
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION	**11SB44**		**11SB45**		**11SB46**		**11SB47**	
SAMPLE ID	**11SB440406**	**11SB440607**	**11SB450204**	**11SB450506**	**11SB460305**	**11SB460506**	**11SB470103**	**11SB470304**
SAMPLE DATE	**20111116**	**20111116**	**20111116**	**20111116**	**20111117**	**20111117**	**20111116**	**20111116**
TOP DEPTH	**4**	**6**	**2**	**5**	**3**	**5**	**1**	**3**
BOTTOM DEPTH	**6**	**7**	**4**	**6**	**5**	**6**	**3**	**4**
1,1-DICHLOROETHENE	2.32 U	2.45 U	136 U	2.25 U	2.28 U	108 U	2.8 U	2.45 U
1,2,3-TRICHLOROBENZENE	2.32 UJ	2.45 U	136 U	2.25 U	2.28 U	108 UJ	2.8 U	2.45 UJ
1,2,4-TRICHLOROBENZENE	2.32 UJ	2.45 U	136 U	2.25 U	2.28 UJ	108 UJ	2.8 U	2.45 UJ
1,2-DIBROMO-3-CHLOROPROPANE	4.64 U	4.9 U	272 U	4.5 U	4.55 U	215 U	5.6 U	4.91 U
1,2-DIBROMOETHANE	2.32 U	2.45 U	136 U	2.25 U	2.28 U	108 U	2.8 U	2.45 U
1,2-DICHLOROBENZENE	19	3.41 J	136 U	2.25 U	2.46 J	108 U	2.8 U	2.45 U
1,2-DICHLOROETHANE	2.32 U	2.45 U	136 U	2.25 U	2.28 U	108 U	2.8 U	2.45 U
1,2-DICHLOROPROPANE	2.32 U	2.45 U	136 U	2.25 U	2.28 U	108 U	2.8 U	2.45 U
1,3-DICHLOROBENZENE	2.32 U	2.45 U	136 U	2.25 U	2.28 U	108 U	2.8 U	2.45 U
1,4-DICHLOROBENZENE	2.32 U	2.45 U	136 U	2.25 U	2.28 U	108 U	2.8 U	2.45 U
2-BUTANONE	4.64 UJ	4.9 U	272 U	2.76 J	4.55 UJ	215 UJ	5.6 U	4.91 UJ
2-HEXANONE	2.32 UJ	2.45 U	136 U	2.25 U	2.28 U	108 UJ	2.8 U	2.45 UJ
4-METHYL-2-PENTANONE	2.32 U	2.45 U	136 U	2.25 U	2.28 U	108 U	2.8 U	2.45 U
ACETONE	9.28 UJ	9.8 U	543 U	23.2	9.1 UJ	430 UJ	11.2 U	9.81 UJ
BENZENE	2.32 U	2.45 U	136 U	2.25 U	2.28 U	108 U	2.8 U	2.45 U
BROMOCHLOROMETHANE	2.32 U	2.45 U	136 U	2.25 U	2.28 U	108 U	2.8 U	2.45 U
BROMODICHLOROMETHANE	2.32 U	2.45 U	136 U	2.25 U	2.28 U	108 U	2.8 U	2.45 U
BROMOFORM	2.32 U	2.45 U	136 U	2.25 U	2.28 U	108 U	2.8 U	2.45 U
BROMOMETHANE	4.64 U	4.9 U	272 U	4.5 U	4.55 U	215 U	5.6 U	4.91 U
CARBON DISULFIDE	2.32 U	2.45 U	136 U	2.25 U	2.28 U	108 U	2.8 U	2.45 U
CARBON TETRACHLORIDE	2.32 U	2.45 U	136 U	2.25 U	2.28 U	108 U	2.8 U	2.45 U
CHLOROBENZENE	2.32 U	2.45 U	136 U	2.25 U	2.28 U	108 U	2.8 U	2.45 U
CHLORODIBROMOMETHANE	2.32 U	2.45 U	136 U	2.25 U	2.28 U	108 U	2.8 U	2.45 U
CHLOROETHANE	4.64 U	4.9 U	272 U	4.5 U	4.55 U	215 U	5.6 U	4.91 U
CHLOROFORM	2.32 U	2.45 U	136 U	2.25 U	2.28 U	108 U	2.8 U	2.45 U
CHLOROMETHANE	4.64 U	4.9 U	272 U	4.5 U	4.55 U	215 U	5.6 U	4.91 U
CIS-1,2-DICHLOROETHENE	2.32 U	47	136 U	2.25 U	5.52	117 J	2.8 U	2.45 U
CIS-1,3-DICHLOROPROPENE	2.32 U	2.45 U	136 U	2.25 U	2.28 U	108 U	2.8 U	2.45 U
CYCLOHEXANE	2.32 U	2.45 U	136 U	2.25 U	2.28 U	108 U	2.8 U	2.45 U
DICHLORODIFLUOROMETHANE	4.64 U	4.9 U	272 U	4.5 U	4.55 U	215 U	5.6 U	4.91 U
ETHYLBENZENE	2.32 U	2.45 U	136 U	6.21	2.28 U	108 U	2.8 U	2.45 U
ISOPROPYLBENZENE	2.32 U	2.45 UJ	136 UJ	1.38 J	2.28 U	108 U	2.8 UJ	2.45 U
METHYL ACETATE	4.64 U	4.9 U	272 U	4.5 U	4.55 U	215 U	5.6 U	4.91 U
METHYL CYCLOHEXANE	2.32 U	2.45 U	136 U	2.25 U	2.28 U	108 U	2.8 U	2.45 U
METHYL TERT-BUTYL ETHER	2.32 U	2.45 U	136 U	2.25 U	2.28 U	108 U	2.8 U	2.45 U
METHYLENE CHLORIDE	4.64 U	4.9 U	272 U	4.5 U	4.55 U	215 U	5.6 U	4.91 U
STYRENE	2.32 U	2.45 UJ	136 UJ	2.25 UJ	2.28 U	108 U	2.8 UJ	2.45 U
TETRACHLOROETHENE	3.64 J	26.3	136 U	2.25 U	7.57	382	2.8 U	2.45 U
TOLUENE	2.32 U	2.45 U	136 U	1.28 J	2.28 U	108 U	2.8 U	2.45 U
TOTAL XYLENES	6.96 U	7.35 U	407 U	6.74 U	6.83 U	323 U	8.4 U	7.36 U
TRANS-1,2-DICHLOROETHENE	2.32 U	2.45 U	136 U	2.25 U	2.28 U	108 U	2.8 U	2.45 U
TRANS-1,3-DICHLOROPROPENE	2.32 U	2.45 U	136 U	2.25 U	2.28 U	108 U	2.8 U	2.45 U
TRICHLOROETHENE	1.95 J	9.85	136 U	2.25 U	4.95	71.6 J	2.8 U	2.45 U
TRICHLOROFLUOROMETHANE	4.64 U	4.9 U	272 U	4.5 U	4.55 U	215 U	5.6 U	4.91 U
VINYL CHLORIDE	2.32 UJ	2.45 U	136 U	1.71 J	2.28 UJ	108 UJ	2.8 U	2.45 UJ

LOCATION	11SB48		11SB49		11SB50		11SB51	
SAMPLE ID	11SB480305	11SB480506	11SB490204	11SB490405	11SB500305	11SB500506	11SB51-0204	11SB51-0204-D
SAMPLE DATE	20111116	20111116	20111116	20111116	20111116	20111116	20121030	20121030
TOP DEPTH	3	5	2	4	3	5	2	2
BOTTOM DEPTH	5	6	4	5	5	6	4	4
DIOXINS/FURANS (NG/KG)								
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDF	NA	NA	NA	NA	NA	NA	NA	NA
TEQ BIRD	NA	NA	NA	NA	NA	NA	NA	NA
TEQ BIRD HALFND	NA	NA	NA	NA	NA	NA	NA	NA
TEQ EQUIVALENTS	NA	NA	NA	NA	NA	NA	NA	NA
TEQ EQUIVALENTS- HALFND	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDF	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDF	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDF	NA	NA	NA	NA	NA	NA	NA	NA
METALS (MG/KG)								
ALUMINUM	NA	NA	NA	NA	NA	NA	NA	NA
ANTIMONY	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	NA	NA	NA	NA	NA	NA	NA	NA
BARIUM	NA	NA	NA	NA	NA	NA	NA	NA
BERYLLIUM	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	NA	NA	NA	NA	NA	NA	NA	NA
CALCIUM	NA	NA	NA	NA	NA	NA	NA	NA
CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA
COBALT	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	NA	NA	NA	NA	NA	NA	NA	NA
IRON	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	NA	NA	NA	NA	NA	NA	NA	NA
MAGNESIUM	NA	NA	NA	NA	NA	NA	NA	NA
MANGANESE	NA	NA	NA	NA	NA	NA	NA	NA
MERCURY	NA	NA	NA	NA	NA	NA	NA	NA
NICKEL	NA	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	NA	NA	NA	NA	NA	NA	NA	NA
SILVER	NA	NA	NA	NA	NA	NA	NA	NA
SODIUM	NA	NA	NA	NA	NA	NA	NA	NA
THALLIUM	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM	NA	NA	NA	NA	NA	NA	NA	NA

LOCATION	11SB48		11SB49		11SB50		11SB51	
SAMPLE ID	11SB480305	11SB480506	11SB490204	11SB490405	11SB500305	11SB500506	11SB51-0204	11SB51-0204-D
SAMPLE DATE	20111116	20111116	20111116	20111116	20111116	20111116	20121030	20121030
TOP DEPTH	3	5	2	4	3	5	2	2
BOTTOM DEPTH	5	6	4	5	5	6	4	4
ZINC	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (MG/KG)								
CYANIDE	NA	NA	NA	NA	NA	NA	NA	NA
PCBS (UG/KG)								
AROCLOR-1016	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1221	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1232	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1242	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1248	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1254	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1260	NA	NA	NA	NA	NA	NA	NA	NA
PESTICIDES (UG/KG)								
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-BHC	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA
BETA-BHC	NA	NA	NA	NA	NA	NA	NA	NA
DELTA-BHC	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN II	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN KETONE	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA	NA
METHOXYCHLOR	NA	NA	NA	NA	NA	NA	NA	NA
TOXAPHENE	NA	NA	NA	NA	NA	NA	NA	NA
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)								
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	NA	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/KG)								
1,1-BIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA

LOCATION	11SB48		11SB49		11SB50		11SB51	
SAMPLE ID	11SB480305	11SB480506	11SB490204	11SB490405	11SB500305	11SB500506	11SB51-0204	11SB51-0204-D
SAMPLE DATE	20111116	20111116	20111116	20111116	20111116	20111116	20121030	20121030
TOP DEPTH	3	5	2	4	3	5	2	2
BOTTOM DEPTH	5	6	4	5	5	6	4	4
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROANILINE	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	NA	NA	NA	NA	NA	NA	NA	NA
4-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
ACETOPHENONE	NA	NA	NA	NA	NA	NA	NA	NA
ATRAZINE	NA	NA	NA	NA	NA	NA	NA	NA
BENZALDEHYDE	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
BUTYL BENZYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
CAPROLACTAM	NA	NA	NA	NA	NA	NA	NA	NA
CARBAZOLE	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-OCTYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBUTADIENE	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA
ISOPHORONE	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	NA	NA	NA	NA	NA	NA	NA	NA
VOLATILES (UG/KG)								
1,1,1-TRICHLOROETHANE	2.84 U	2.45 U	2.79 U	2.41 U	2.5 U	2.22 U	2.59 U	2.39 U
1,1,2,2-TETRACHLOROETHANE	2.84 U	2.45 U	2.79 U	2.41 U	2.5 U	2.22 U	2.59 U	2.39 U
1,1,2-TRICHLOROETHANE	2.84 U	2.45 U	2.79 U	2.41 U	2.5 U	2.22 U	2.59 U	2.39 U
1,1,2-TRICHLOROTRIFLUOROETHANE	5.68 U	4.89 U	5.58 U	4.81 U	4.99 U	4.44 U	5.19 U	4.77 U
1,1-DICHLOROETHANE	2.84 U	2.45 U	2.79 U	2.41 U	2.5 U	2.22 U	2.59 U	2.39 U

TABLE F-1
ANALYTICAL RESULTS FOR SOIL
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION	**11SB48**		**11SB49**		**11SB50**		**11SB51**	
SAMPLE ID	**11SB480305**	**11SB480506**	**11SB490204**	**11SB490405**	**11SB500305**	**11SB500506**	**11SB51-0204**	**11SB51-0204-D**
SAMPLE DATE	**20111116**	**20111116**	**20111116**	**20111116**	**20111116**	**20111116**	**20121030**	**20121030**
TOP DEPTH	**3**	**5**	**2**	**4**	**3**	**5**	**2**	**2**
BOTTOM DEPTH	**5**	**6**	**4**	**5**	**5**	**6**	**4**	**4**
1,1-DICHLOROETHENE	2.84 U	2.45 U	2.79 U	2.41 U	2.5 U	2.22 U	2.59 U	2.39 U
1,2,3-TRICHLOROBENZENE	2.84 U	2.45 U	2.79 U	2.41 U	2.5 UJ	2.22 U	2.59 U	2.39 U
1,2,4-TRICHLOROBENZENE	2.84 U	2.45 U	2.79 U	2.41 U	2.5 UJ	2.22 U	2.59 U	2.39 U
1,2-DIBROMO-3-CHLOROPROPANE	5.68 U	4.89 U	5.58 U	4.81 U	4.99 U	4.44 U	5.19 U	4.77 U
1,2-DIBROMOETHANE	2.84 U	2.45 U	2.79 U	2.41 U	2.5 U	2.22 U	2.59 U	2.39 U
1,2-DICHLOROBENZENE	2.84 U	2.45 U	2.79 U	2.41 U	2.5 U	2.22 U	48.3	33.4
1,2-DICHLOROETHANE	2.84 U	2.45 U	2.79 U	2.41 U	2.5 U	2.22 U	2.59 U	2.39 U
1,2-DICHLOROPROPANE	2.84 U	2.45 U	2.79 U	2.41 U	2.5 U	2.22 U	2.59 U	2.39 U
1,3-DICHLOROBENZENE	2.84 U	2.45 U	2.79 U	2.41 U	2.5 U	2.22 U	2.59 U	2.39 U
1,4-DICHLOROBENZENE	2.84 U	2.45 U	2.79 U	2.41 U	2.5 U	2.22 U	2.59 U	2.39 U
2-BUTANONE	5.68 U	4.89 U	5.58 U	4.81 U	4.99 UJ	4.44 U	5.19 U	4.77 U
2-HEXANONE	2.84 U	2.45 U	2.79 U	2.41 U	2.5 UJ	2.22 U	2.59 U	2.39 U
4-METHYL-2-PENTANONE	2.84 U	2.45 U	2.79 U	2.41 U	2.5 U	2.22 U	2.59 U	2.39 U
ACETONE	20.5 J	9.78 U	11.2 U	9.63 U	6.25 J	8.87 U	14 J	11.9 J
BENZENE	2.84 U	2.45 U	2.79 U	2.41 U	2.5 U	2.22 U	2.59 U	2.39 U
BROMOCHLOROMETHANE	2.84 U	2.45 U	2.79 U	2.41 U	2.5 U	2.22 U	2.59 U	2.39 U
BROMODICHLOROMETHANE	2.84 U	2.45 U	2.79 U	2.41 U	2.5 U	2.22 U	2.59 U	2.39 U
BROMOFORM	2.84 U	2.45 U	2.79 U	2.41 U	2.5 U	2.22 U	2.59 U	2.39 U
BROMOMETHANE	5.68 U	4.89 U	5.58 U	4.81 U	4.99 U	4.44 U	5.19 UJ	4.77 UJ
CARBON DISULFIDE	2.84 U	2.45 U	2.79 U	2.41 U	2.5 U	2.22 U	2.59 U	2.39 U
CARBON TETRACHLORIDE	2.84 U	2.45 U	2.79 U	2.41 U	2.5 U	2.22 U	2.59 U	2.39 U
CHLOROBENZENE	2.84 U	2.45 U	2.79 U	2.41 U	2.5 U	2.22 U	2.59 U	2.39 U
CHLORODIBROMOMETHANE	2.84 U	2.45 U	2.79 U	2.41 U	2.5 U	2.22 U	2.59 U	2.39 U
CHLOROETHANE	5.68 U	4.89 U	5.58 U	4.81 U	4.99 U	4.44 U	5.19 U	4.77 U
CHLOROFORM	2.84 U	2.45 U	2.79 U	2.41 U	2.5 U	2.22 U	2.59 U	2.39 U
CHLOROMETHANE	5.68 U	4.89 U	5.58 U	4.81 U	4.99 U	4.44 U	5.19 U	4.77 U
CIS-1,2-DICHLOROETHENE	2.84 U	2.45 U	2.79 U	2.41 U	2.5 U	2.22 U	16.5	16.8
CIS-1,3-DICHLOROPROPENE	2.84 U	2.45 U	2.79 U	2.41 U	2.5 U	2.22 U	2.59 U	2.39 U
CYCLOHEXANE	2.84 U	2.45 U	2.79 U	2.41 U	2.5 U	2.22 U	2.59 U	2.39 U
DICHLORODIFLUOROMETHANE	5.68 U	4.89 U	5.58 U	4.81 U	4.99 U	4.44 U	5.19 UJ	4.77 UJ
ETHYLBENZENE	2.84 U	2.45 U	2.79 U	2.41 U	2.5 U	2.22 U	2.59 U	2.39 U
ISOPROPYLBENZENE	2.84 UJ	2.45 UJ	2.79 UJ	2.41 UJ	2.5 U	2.22 UJ	3.24 J	2.5 J
METHYL ACETATE	5.68 U	4.89 U	5.58 U	4.81 U	4.99 U	4.44 U	5.19 U	4.77 U
METHYL CYCLOHEXANE	2.84 U	2.45 U	2.79 U	2.41 U	2.5 U	2.22 U	2.59 U	2.39 U
METHYL TERT-BUTYL ETHER	2.84 U	2.45 U	2.79 U	2.41 U	2.5 U	2.22 U	2.59 U	2.39 U
METHYLENE CHLORIDE	5.68 U	4.89 U	5.58 U	4.81 U	2.63 J	4.44 U	5.19 U	4.77 U
STYRENE	2.84 UJ	2.45 UJ	2.79 UJ	2.41 UJ	2.5 U	2.22 UJ	2.59 U	2.39 U
TETRACHLOROETHENE	2.84 U	2.45 U	2.79 U	2.41 U	2.5 U	2.22 U	74.9	64.2
TOLUENE	2.84 U	2.45 U	2.79 U	2.41 U	2.5 U	2.22 U	2.59 U	2.39 U
TOTAL XYLENES	8.52 U	7.34 U	8.36 U	7.22 U	7.49 U	6.65 U	7.78 U	7.16 U
TRANS-1,2-DICHLOROETHENE	2.84 U	2.45 U	2.79 U	2.41 U	2.5 U	2.22 U	2.59 U	2.39 U
TRANS-1,3-DICHLOROPROPENE	2.84 U	2.45 U	2.79 U	2.41 U	2.5 U	2.22 U	2.59 U	2.39 U
TRICHLOROETHENE	2.84 U	2.45 U	2.79 U	2.41 U	2.5 U	2.22 U	32.8	30.3
TRICHLOROFLUOROMETHANE	5.68 U	4.89 U	5.58 U	4.81 U	4.99 U	4.44 U	5.19 U	4.77 U
VINYL CHLORIDE	2.84 U	2.45 U	2.79 U	2.41 U	2.5 UJ	2.22 U	3.61 J	3.73 J

LOCATION	11SB51	11SB52		11SB53		11SB54		11SB55
SAMPLE ID	11SB51-0506	11SB52-0204	11SB52-0506	11SB53-0204	11SB53-0506	11SB54-0204	11SB54-0405	11SB55-0406
SAMPLE DATE	20121030	20121030	20121030	20121030	20121030	20121030	20121030	20121030
TOP DEPTH	5	2	5	2	5	2	4	4
BOTTOM DEPTH	6	4	6	4	6	4	5	6
DIOXINS/FURANS (NG/KG)								
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDF	NA	NA	NA	NA	NA	NA	NA	NA
TEQ BIRD	NA	NA	NA	NA	NA	NA	NA	NA
TEQ BIRD HALFND	NA	NA	NA	NA	NA	NA	NA	NA
TEQ EQUIVALENTS	NA	NA	NA	NA	NA	NA	NA	NA
TEQ EQUIVALENTS- HALFND	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDF	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDF	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDF	NA	NA	NA	NA	NA	NA	NA	NA
METALS (MG/KG)								
ALUMINUM	NA	NA	NA	NA	NA	NA	NA	NA
ANTIMONY	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	NA	NA	NA	NA	NA	NA	NA	NA
BARIUM	NA	NA	NA	NA	NA	NA	NA	NA
BERYLLIUM	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	NA	NA	NA	NA	NA	NA	NA	NA
CALCIUM	NA	NA	NA	NA	NA	NA	NA	NA
CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA
COBALT	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	NA	NA	NA	NA	NA	NA	NA	NA
IRON	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	NA	NA	NA	NA	NA	NA	NA	NA
MAGNESIUM	NA	NA	NA	NA	NA	NA	NA	NA
MANGANESE	NA	NA	NA	NA	NA	NA	NA	NA
MERCURY	NA	NA	NA	NA	NA	NA	NA	NA
NICKEL	NA	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	NA	NA	NA	NA	NA	NA	NA	NA
SILVER	NA	NA	NA	NA	NA	NA	NA	NA
SODIUM	NA	NA	NA	NA	NA	NA	NA	NA
THALLIUM	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM	NA	NA	NA	NA	NA	NA	NA	NA

LOCATION	11SB51	11SB52		11SB53		11SB54		11SB55
SAMPLE ID	11SB51-0506	11SB52-0204	11SB52-0506	11SB53-0204	11SB53-0506	11SB54-0204	11SB54-0405	11SB55-0406
SAMPLE DATE	20121030	20121030	20121030	20121030	20121030	20121030	20121030	20121030
TOP DEPTH	5	2	5	2	5	2	4	4
BOTTOM DEPTH	6	4	6	4	6	4	5	6
ZINC	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (MG/KG)								
CYANIDE	NA	NA	NA	NA	NA	NA	NA	NA
PCBS (UG/KG)								
AROCLOR-1016	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1221	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1232	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1242	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1248	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1254	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1260	NA	NA	NA	NA	NA	NA	NA	NA
PESTICIDES (UG/KG)								
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-BHC	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA
BETA-BHC	NA	NA	NA	NA	NA	NA	NA	NA
DELTA-BHC	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN II	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN KETONE	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA	NA
METHOXYCHLOR	NA	NA	NA	NA	NA	NA	NA	NA
TOXAPHENE	NA	NA	NA	NA	NA	NA	NA	NA
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)								
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	NA	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/KG)								
1,1-BIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA

LOCATION	11SB51	11SB52		11SB53		11SB54		11SB55
SAMPLE ID	11SB51-0506	11SB52-0204	11SB52-0506	11SB53-0204	11SB53-0506	11SB54-0204	11SB54-0405	11SB55-0406
SAMPLE DATE	20121030	20121030	20121030	20121030	20121030	20121030	20121030	20121030
TOP DEPTH	5	2	5	2	5	2	4	4
BOTTOM DEPTH	6	4	6	4	6	4	5	6
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROANILINE	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	NA	NA	NA	NA	NA	NA	NA	NA
4-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
ACETOPHENONE	NA	NA	NA	NA	NA	NA	NA	NA
ATRAZINE	NA	NA	NA	NA	NA	NA	NA	NA
BENZALDEHYDE	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
BUTYL BENZYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
CAPROLACTAM	NA	NA	NA	NA	NA	NA	NA	NA
CARBAZOLE	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-OCTYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBUTADIENE	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA
ISOPHORONE	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	NA	NA	NA	NA	NA	NA	NA	NA
VOLATILES (UG/KG)								
1,1,1-TRICHLOROETHANE	2.39 U	2.48 U	2.4 U	2.55 U	2.59 U	2.24 U	2.3 U	2.3 U
1,1,2,2-TETRACHLOROETHANE	2.39 U	2.48 U	2.4 U	2.55 U	2.59 U	2.24 U	2.3 U	2.3 U
1,1,2-TRICHLOROETHANE	2.39 U	2.48 U	2.4 U	2.55 U	2.59 U	2.24 U	2.3 U	2.3 U
1,1,2-TRICHLOROTRIFLUOROETHANE	4.79 U	4.95 U	4.81 U	5.1 U	5.18 U	4.48 U	4.61 U	4.61 U
1,1-DICHLOROETHANE	2.39 U	2.48 U	2.4 U	2.55 U	2.59 U	2.24 U	2.3 U	2.3 U

TABLE F-1
ANALYTICAL RESULTS FOR SOIL
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION	**11SB51**	**11SB52**		**11SB53**		**11SB54**		**11SB55**
SAMPLE ID	**11SB51-0506**	**11SB52-0204**	**11SB52-0506**	**11SB53-0204**	**11SB53-0506**	**11SB54-0204**	**11SB54-0405**	**11SB55-0406**
SAMPLE DATE	**20121030**	**20121030**	**20121030**	**20121030**	**20121030**	**20121030**	**20121030**	**20121030**
TOP DEPTH	**5**	**2**	**5**	**2**	**5**	**2**	**4**	**4**
BOTTOM DEPTH	**6**	**4**	**6**	**4**	**6**	**4**	**5**	**6**
1,1-DICHLOROETHENE	2.39 U	1.67 J	2.4 U	2.55 U	2.59 U	2.24 U	2.3 U	2.3 U
1,2,3-TRICHLOROBENZENE	2.39 U	2.48 U	2.4 U	2.55 U	2.59 U	2.24 U	2.3 U	2.3 U
1,2,4-TRICHLOROBENZENE	2.39 U	2.48 UJ	2.4 U	2.55 U	2.59 U	2.24 U	2.3 U	2.3 U
1,2-DIBROMO-3-CHLOROPROPANE	4.79 U	4.95 U	4.81 U	5.1 U	5.18 U	4.48 U	4.61 U	4.61 U
1,2-DIBROMOETHANE	2.39 U	2.48 U	2.4 U	2.55 U	2.59 U	2.24 U	2.3 U	2.3 U
1,2-DICHLOROBENZENE	9.56	13.7 J	39.9	165	1660	4.37 J	2.3 U	2.3 U
1,2-DICHLOROETHANE	2.39 U	2.48 U	2.4 U	2.55 U	2.59 U	2.24 U	2.3 U	2.3 U
1,2-DICHLOROPROPANE	2.39 U	2.48 U	2.4 U	2.55 U	2.59 U	2.24 U	2.3 U	2.3 U
1,3-DICHLOROBENZENE	2.39 U	2.48 UJ	2.4 U	2.55 U	2.59 U	2.24 U	2.3 U	2.3 U
1,4-DICHLOROBENZENE	2.39 U	2.48 UJ	2.4 U	3.27 J	16.7	2.24 U	2.3 U	2.3 U
2-BUTANONE	4.79 U	4.52 J	4.81 U	5.42 J	5.18 U	4.48 U	4.61 U	4.61 U
2-HEXANONE	2.39 U	2.48 U	2.4 U	2.55 U	2.59 U	2.24 U	2.3 U	2.3 U
4-METHYL-2-PENTANONE	2.39 U	2.48 U	2.4 U	2.55 U	2.59 U	2.24 U	2.3 U	2.3 U
ACETONE	9.58 UJ	49.2 J	9.62 UJ	49.1 J	5.34 J	5.96 J	7.22 J	9.21 UJ
BENZENE	2.39 U	2.48 U	2.4 U	2.15 J	2.59 U	2.24 U	2.3 U	2.3 U
BROMOCHLOROMETHANE	2.39 U	2.48 U	2.4 U	2.55 U	2.59 U	2.24 U	2.3 U	2.3 U
BROMODICHLOROMETHANE	2.39 U	2.48 U	2.4 U	2.55 U	2.59 U	2.24 U	2.3 U	2.3 U
BROMOFORM	2.39 U	2.48 U	2.4 U	2.55 U	2.59 U	2.24 U	2.3 U	2.3 U
BROMOMETHANE	4.79 UJ	4.95 UJ	4.81 UJ	5.1 UJ	5.18 UJ	4.48 UJ	4.61 UJ	4.61 UJ
CARBON DISULFIDE	2.39 U	2.48 U	2.4 U	2.55 U	2.59 U	2.24 U	2.3 U	2.3 U
CARBON TETRACHLORIDE	2.39 U	2.48 U	2.4 U	2.55 U	2.59 U	2.24 U	2.3 U	2.3 U
CHLOROBENZENE	2.39 U	2.48 UJ	3.15 J	8.56	33.8	2.24 U	2.3 U	2.3 U
CHLORODIBROMOMETHANE	2.39 U	2.48 U	2.4 U	2.55 U	2.59 U	2.24 U	2.3 U	2.3 U
CHLOROETHANE	4.79 U	4.95 U	4.81 U	5.1 U	5.18 U	4.48 U	4.61 U	4.61 U
CHLOROFORM	2.39 U	2.48 U	2.4 U	2.55 U	2.59 U	2.24 U	2.3 U	2.3 U
CHLOROMETHANE	4.79 U	4.95 U	4.81 U	5.1 U	5.18 U	4.48 U	4.61 U	4.61 U
CIS-1,2-DICHLOROETHENE	6.99	361	647	178	111	4.99	8.96	2.3 U
CIS-1,3-DICHLOROPROPENE	2.39 U	2.48 U	2.4 U	2.55 U	2.59 U	2.24 U	2.3 U	2.3 U
CYCLOHEXANE	2.39 U	2.48 U	2.4 U	2.55 U	2.59 U	2.24 U	2.3 U	2.3 U
DICHLORODIFLUOROMETHANE	4.79 UJ	4.95 UJ	4.81 UJ	5.1 UJ	5.18 UJ	4.48 UJ	4.61 UJ	4.61 UJ
ETHYLBENZENE	2.39 U	2.48 U	3.36 J	2.55 U	1.94 J	2.24 U	2.3 U	2.3 U
ISOPROPYLBENZENE	2.39 U	2.48 U	2.4 U	2.55 U	2.59 U	2.24 U	2.3 U	2.3 U
METHYL ACETATE	4.79 U	4.95 U	4.81 U	5.1 U	5.18 U	4.48 U	4.61 U	4.61 U
METHYL CYCLOHEXANE	2.39 U	2.48 U	2.4 U	2.55 U	2.59 U	5.35	5.01	2.3 U
METHYL TERT-BUTYL ETHER	2.39 U	2.48 U	2.4 U	2.55 U	2.59 U	2.24 U	2.3 U	2.3 U
METHYLENE CHLORIDE	4.79 U	4.95 U	4.81 U	5.1 U	5.18 U	4.48 U	4.61 U	4.61 U
STYRENE	2.39 U	2.48 UJ	2.4 U	2.55 U	2.59 U	2.24 U	2.3 U	2.3 U
TETRACHLOROETHENE	20.3	89	1640	12.6	13.3	2.24 U	2.3 U	2.3 U
TOLUENE	2.39 U	2.27 J	7.04	1.77 J	2.59 U	2.24 U	2.3 U	2.3 U
TOTAL XYLENES	7.18 U	6.58 J	20.5	7.65 U	4.45 J	6.72 U	6.91 U	6.91 U
TRANS-1,2-DICHLOROETHENE	2.39 U	14.6	2.4 U	8.82	2.59 U	2.24 U	2.3 U	2.3 U
TRANS-1,3-DICHLOROPROPENE	2.39 U	2.48 U	2.4 U	2.55 U	2.59 U	2.24 U	2.3 U	2.3 U
TRICHLOROETHENE	4.9	74.9	632	189	22.4	1.5 J	2.1 J	2.3 U
TRICHLOROFLUOROMETHANE	4.79 U	4.95 U	4.81 U	5.1 U	5.18 U	4.48 U	4.61 U	4.61 U
VINYL CHLORIDE	2.5 J	85 J	74	5.43 J	2.56 J	3.76 J	5.81 J	2.3 U

LOCATION	11SB55	11SB56		11SB57		11SB58		11SB59
SAMPLE ID	11SB55-0607	11SB56-0406	11SB56-0708	11SB57-0406	11SB57-0607	11SB58-0305	11SB58-0506	11SB59-0204
SAMPLE DATE	20121030	20121030	20121030	20121030	20121030	20121030	20121030	20121030
TOP DEPTH	6	4	7	4	6	3	5	2
BOTTOM DEPTH	7	6	8	6	7	5	6	4
DIOXINS/FURANS (NG/KG)								
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDF	NA	NA	NA	NA	NA	NA	NA	NA
TEQ BIRD	NA	NA	NA	NA	NA	NA	NA	NA
TEQ BIRD HALFND	NA	NA	NA	NA	NA	NA	NA	NA
TEQ EQUIVALENTS	NA	NA	NA	NA	NA	NA	NA	NA
TEQ EQUIVALENTS- HALFND	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDF	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDF	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDF	NA	NA	NA	NA	NA	NA	NA	NA
METALS (MG/KG)								
ALUMINUM	NA	NA	NA	NA	NA	NA	NA	NA
ANTIMONY	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	NA	NA	NA	NA	NA	NA	NA	NA
BARIUM	NA	NA	NA	NA	NA	NA	NA	NA
BERYLLIUM	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	NA	NA	NA	NA	NA	NA	NA	NA
CALCIUM	NA	NA	NA	NA	NA	NA	NA	NA
CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA
COBALT	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	NA	NA	NA	NA	NA	NA	NA	NA
IRON	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	NA	NA	NA	NA	NA	NA	NA	NA
MAGNESIUM	NA	NA	NA	NA	NA	NA	NA	NA
MANGANESE	NA	NA	NA	NA	NA	NA	NA	NA
MERCURY	NA	NA	NA	NA	NA	NA	NA	NA
NICKEL	NA	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	NA	NA	NA	NA	NA	NA	NA	NA
SILVER	NA	NA	NA	NA	NA	NA	NA	NA
SODIUM	NA	NA	NA	NA	NA	NA	NA	NA
THALLIUM	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM	NA	NA	NA	NA	NA	NA	NA	NA

LOCATION	11SB55	11SB56		11SB57		11SB58		11SB59
SAMPLE ID	11SB55-0607	11SB56-0406	11SB56-0708	11SB57-0406	11SB57-0607	11SB58-0305	11SB58-0506	11SB59-0204
SAMPLE DATE	20121030	20121030	20121030	20121030	20121030	20121030	20121030	20121030
TOP DEPTH	6	4	7	4	6	3	5	2
BOTTOM DEPTH	7	6	8	6	7	5	6	4
ZINC	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (MG/KG)								
CYANIDE	NA	NA	NA	NA	NA	NA	NA	NA
PCBS (UG/KG)								
AROCLOR-1016	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1221	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1232	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1242	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1248	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1254	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1260	NA	NA	NA	NA	NA	NA	NA	NA
PESTICIDES (UG/KG)								
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-BHC	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA
BETA-BHC	NA	NA	NA	NA	NA	NA	NA	NA
DELTA-BHC	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN II	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN KETONE	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA	NA
METHOXYCHLOR	NA	NA	NA	NA	NA	NA	NA	NA
TOXAPHENE	NA	NA	NA	NA	NA	NA	NA	NA
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)								
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	NA	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/KG)								
1,1-BIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA

LOCATION	11SB55	11SB56		11SB57		11SB58		11SB59
SAMPLE ID	11SB55-0607	11SB56-0406	11SB56-0708	11SB57-0406	11SB57-0607	11SB58-0305	11SB58-0506	11SB59-0204
SAMPLE DATE	20121030	20121030	20121030	20121030	20121030	20121030	20121030	20121030
TOP DEPTH	6	4	7	4	6	3	5	2
BOTTOM DEPTH	7	6	8	6	7	5	6	4
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROANILINE	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	NA	NA	NA	NA	NA	NA	NA	NA
4-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
ACETOPHENONE	NA	NA	NA	NA	NA	NA	NA	NA
ATRAZINE	NA	NA	NA	NA	NA	NA	NA	NA
BENZALDEHYDE	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
BUTYL BENZYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
CAPROLACTAM	NA	NA	NA	NA	NA	NA	NA	NA
CARBAZOLE	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-OCTYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBUTADIENE	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA
ISOPHORONE	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	NA	NA	NA	NA	NA	NA	NA	NA
VOLATILES (UG/KG)								
1,1,1-TRICHLOROETHANE	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U	3.02 U
1,1,2,2-TETRACHLOROETHANE	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U	3.02 U
1,1,2-TRICHLOROETHANE	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U	3.02 U
1,1,2-TRICHLOROTRIFLUOROETHANE	4.89 U	4.74 U	5.39 U	6.17 U	5.3 U	4.98 U	4.82 U	6.03 U
1,1-DICHLOROETHANE	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U	3.02 U

TABLE F-1
ANALYTICAL RESULTS FOR SOIL
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION	**11SB55**	**11SB56**		**11SB57**		**11SB58**		**11SB59**
SAMPLE ID	**11SB55-0607**	**11SB56-0406**	**11SB56-0708**	**11SB57-0406**	**11SB57-0607**	**11SB58-0305**	**11SB58-0506**	**11SB59-0204**
SAMPLE DATE	**20121030**	**20121030**	**20121030**	**20121030**	**20121030**	**20121030**	**20121030**	**20121030**
TOP DEPTH	**6**	**4**	**7**	**4**	**6**	**3**	**5**	**2**
BOTTOM DEPTH	**7**	**6**	**8**	**6**	**7**	**5**	**6**	**4**
1,1-DICHLOROETHENE	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U	3.02 U
1,2,3-TRICHLOROBENZENE	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U	3.02 U
1,2,4-TRICHLOROBENZENE	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U	3.02 U
1,2-DIBROMO-3-CHLOROPROPANE	4.89 U	4.74 U	5.39 U	6.17 U	5.3 U	4.98 U	4.82 U	6.03 U
1,2-DIBROMOETHANE	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U	3.02 U
1,2-DICHLOROBENZENE	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U	3.02 U
1,2-DICHLOROETHANE	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U	3.02 U
1,2-DICHLOROPROPANE	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U	3.02 U
1,3-DICHLOROBENZENE	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U	3.02 U
1,4-DICHLOROBENZENE	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U	3.02 U
2-BUTANONE	4.89 U	4.74 U	3.93 J	9.34 J	5.3 U	4.98 U	4.82 U	6.03 U
2-HEXANONE	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U	3.02 U
4-METHYL-2-PENTANONE	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 UJ	2.41 UJ	3.02 UJ
ACETONE	9.77 UJ	4.87 J	26.3 J	36.7 J	15.2 J	9.96 UJ	9.65 UJ	12.1 UJ
BENZENE	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U	3.02 U
BROMOCHLOROMETHANE	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U	3.02 U
BROMODICHLOROMETHANE	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U	3.02 U
BROMOFORM	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U	3.02 U
BROMOMETHANE	4.89 UJ	4.74 UJ	5.39 UJ	6.17 UJ	5.3 UJ	4.98 UJ	4.82 UJ	6.03 UJ
CARBON DISULFIDE	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U	3.02 U
CARBON TETRACHLORIDE	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U	3.02 U
CHLOROBENZENE	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U	3.02 U
CHLORODIBROMOMETHANE	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U	3.02 U
CHLOROETHANE	4.89 U	4.74 U	5.39 U	6.17 U	5.3 U	4.98 U	4.82 U	6.03 U
CHLOROFORM	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U	3.02 U
CHLOROMETHANE	4.89 U	4.74 U	5.39 U	6.17 U	5.3 U	4.98 U	4.82 U	6.03 U
CIS-1,2-DICHLOROETHENE	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U	3.02 U
CIS-1,3-DICHLOROPROPENE	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U	3.02 U
CYCLOHEXANE	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U	3.02 U
DICHLORODIFLUOROMETHANE	4.89 UJ	4.74 UJ	5.39 UJ	6.17 UJ	5.3 UJ	4.98 UJ	4.82 UJ	6.03 UJ
ETHYLBENZENE	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U	3.02 U
ISOPROPYLBENZENE	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U	3.02 U
METHYL ACETATE	4.89 U	4.74 U	5.39 U	6.17 U	5.3 U	4.98 U	4.82 U	6.03 U
METHYL CYCLOHEXANE	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U	3.02 U
METHYL TERT-BUTYL ETHER	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U	3.02 U
METHYLENE CHLORIDE	4.89 U	4.74 U	5.39 U	6.17 U	5.3 U	4.98 U	4.82 U	6.03 U
STYRENE	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U	3.02 U
TETRACHLOROETHENE	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U	3.02 U
TOLUENE	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U	3.02 U
TOTAL XYLENES	7.33 U	7.11 U	8.09 U	9.25 U	7.96 U	7.47 U	7.23 U	9.05 U
TRANS-1,2-DICHLOROETHENE	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U	3.02 U
TRANS-1,3-DICHLOROPROPENE	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U	3.02 U
TRICHLOROETHENE	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U	3.02 U
TRICHLOROFLUOROMETHANE	4.89 U	4.74 U	5.39 U	6.17 U	5.3 U	4.98 U	4.82 U	6.03 U
VINYL CHLORIDE	2.44 U	2.37 U	2.7 U	3.08 U	2.65 U	2.49 U	2.41 U	3.02 U

LOCATION	11SB60			11SB61		11SB62		11SB63
SAMPLE ID	11SB60-0204	11SB60-0204-D	11SB60-0405	11SB61-0810	11SB61-1011	11SB62-0911	11SB62-1112	11SB63-0911
SAMPLE DATE	20121129	20121129	20121129	20121129	20121129	20121129	20121129	20121129
TOP DEPTH	2	2	4	8	10	9	11	9
BOTTOM DEPTH	4	4	5	10	11	11	12	11
DIOXINS/FURANS (NG/KG)								
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDF	NA	NA	NA	NA	NA	NA	NA	NA
TEQ BIRD	NA	NA	NA	NA	NA	NA	NA	NA
TEQ BIRD HALFND	NA	NA	NA	NA	NA	NA	NA	NA
TEQ EQUIVALENTS	NA	NA	NA	NA	NA	NA	NA	NA
TEQ EQUIVALENTS- HALFND	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDF	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDF	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDF	NA	NA	NA	NA	NA	NA	NA	NA
METALS (MG/KG)								
ALUMINUM	NA	NA	NA	NA	NA	NA	NA	NA
ANTIMONY	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	NA	NA	NA	NA	NA	NA	NA	NA
BARIUM	NA	NA	NA	NA	NA	NA	NA	NA
BERYLLIUM	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	NA	NA	NA	NA	NA	NA	NA	NA
CALCIUM	NA	NA	NA	NA	NA	NA	NA	NA
CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA
COBALT	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	NA	NA	NA	NA	NA	NA	NA	NA
IRON	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	NA	NA	NA	NA	NA	NA	NA	NA
MAGNESIUM	NA	NA	NA	NA	NA	NA	NA	NA
MANGANESE	NA	NA	NA	NA	NA	NA	NA	NA
MERCURY	NA	NA	NA	NA	NA	NA	NA	NA
NICKEL	NA	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	NA	NA	NA	NA	NA	NA	NA	NA
SILVER	NA	NA	NA	NA	NA	NA	NA	NA
SODIUM	NA	NA	NA	NA	NA	NA	NA	NA
THALLIUM	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM	NA	NA	NA	NA	NA	NA	NA	NA

LOCATION	11SB60			11SB61		11SB62		11SB63
SAMPLE ID	11SB60-0204	11SB60-0204-D	11SB60-0405	11SB61-0810	11SB61-1011	11SB62-0911	11SB62-1112	11SB63-0911
SAMPLE DATE	20121129	20121129	20121129	20121129	20121129	20121129	20121129	20121129
TOP DEPTH	2	2	4	8	10	9	11	9
BOTTOM DEPTH	4	4	5	10	11	11	12	11
ZINC	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (MG/KG)								
CYANIDE	NA	NA	NA	NA	NA	NA	NA	NA
PCBS (UG/KG)								
AROCLOR-1016	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1221	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1232	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1242	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1248	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1254	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1260	NA	NA	NA	NA	NA	NA	NA	NA
PESTICIDES (UG/KG)								
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-BHC	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA
BETA-BHC	NA	NA	NA	NA	NA	NA	NA	NA
DELTA-BHC	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN II	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN KETONE	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA	NA
METHOXYCHLOR	NA	NA	NA	NA	NA	NA	NA	NA
TOXAPHENE	NA	NA	NA	NA	NA	NA	NA	NA
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)								
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	NA	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/KG)								
1,1-BIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA

LOCATION	11SB60			11SB61		11SB62		11SB63
SAMPLE ID	11SB60-0204	11SB60-0204-D	11SB60-0405	11SB61-0810	11SB61-1011	11SB62-0911	11SB62-1112	11SB63-0911
SAMPLE DATE	20121129	20121129	20121129	20121129	20121129	20121129	20121129	20121129
TOP DEPTH	2	2	4	8	10	9	11	9
BOTTOM DEPTH	4	4	5	10	11	11	12	11
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROANILINE	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	NA	NA	NA	NA	NA	NA	NA	NA
4-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
ACETOPHENONE	NA	NA	NA	NA	NA	NA	NA	NA
ATRAZINE	NA	NA	NA	NA	NA	NA	NA	NA
BENZALDEHYDE	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
BUTYL BENZYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
CAPROLACTAM	NA	NA	NA	NA	NA	NA	NA	NA
CARBAZOLE	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-OCTYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBUTADIENE	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA
ISOPHORONE	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	NA	NA	NA	NA	NA	NA	NA	NA
VOLATILES (UG/KG)								
1,1,1-TRICHLOROETHANE	2.36 U	2.47 U	2.23 U	2.4 U	2.54 U	2.37 U	2.53 U	130 U
1,1,2,2-TETRACHLOROETHANE	2.36 U	2.47 U	2.23 U	2.4 U	2.54 U	2.37 U	2.53 U	130 U
1,1,2-TRICHLOROETHANE	2.36 U	2.47 U	2.23 U	2.4 U	2.54 U	2.37 U	2.53 U	130 U
1,1,2-TRICHLOROTRIFLUOROETHANE	4.73 U	4.93 U	4.46 U	4.79 U	5.09 U	4.74 U	5.06 U	260 U
1,1-DICHLOROETHANE	2.36 U	2.47 U	2.23 U	2.4 U	2.54 U	2.37 U	2.53 U	130 U

TABLE F-1
ANALYTICAL RESULTS FOR SOIL
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION	11SB60			11SB61		11SB62		11SB63
SAMPLE ID	**11SB60-0204**	**11SB60-0204-D**	**11SB60-0405**	**11SB61-0810**	**11SB61-1011**	**11SB62-0911**	**11SB62-1112**	**11SB63-0911**
SAMPLE DATE	**20121129**	**20121129**	**20121129**	**20121129**	**20121129**	**20121129**	**20121129**	**20121129**
TOP DEPTH	**2**	**2**	**4**	**8**	**10**	**9**	**11**	**9**
BOTTOM DEPTH	**4**	**4**	**5**	**10**	**11**	**11**	**12**	**11**
1,1-DICHLOROETHENE	2.36 U	2.47 U	2.23 U	2.4 U	2.54 U	2.37 U	2.53 U	130 U
1,2,3-TRICHLOROBENZENE	2.36 U	2.47 U	2.23 U	2.4 U	2.54 U	2.37 U	2.53 U	130 U
1,2,4-TRICHLOROBENZENE	2.36 U	2.47 U	2.23 U	2.4 U	2.54 U	2.37 U	2.53 U	130 U
1,2-DIBROMO-3-CHLOROPROPANE	4.73 U	4.93 U	4.46 U	4.79 U	5.09 U	4.74 U	5.06 U	260 U
1,2-DIBROMOETHANE	2.36 U	2.47 U	2.23 U	2.4 U	2.54 U	2.37 U	2.53 U	130 U
1,2-DICHLOROBENZENE	2.36 U	2.47 U	2.23 U	1.51 J	6.93	2.37 U	24.9	1190
1,2-DICHLOROETHANE	2.36 U	2.47 U	2.23 U	2.4 U	2.54 U	2.37 U	2.53 U	130 U
1,2-DICHLOROPROPANE	2.36 U	2.47 U	2.23 U	2.4 U	2.54 U	2.37 U	2.53 U	130 U
1,3-DICHLOROBENZENE	2.36 U	2.47 U	2.23 U	2.4 U	2.54 U	2.37 U	2.53 U	130 U
1,4-DICHLOROBENZENE	2.36 U	2.47 U	2.23 U	2.4 U	2.54 U	2.37 U	2.53 U	130 U
2-BUTANONE	4.73 U	4.93 U	4.46 U	4.79 U	5.09 U	4.74 U	5.06 U	260 U
2-HEXANONE	4.73 UJ	4.93 UJ	4.46 UJ	4.79 UJ	5.09 UJ	4.74 UJ	5.06 UJ	260 UJ
4-METHYL-2-PENTANONE	4.73 UJ	4.93 UJ	4.46 UJ	4.79 UJ	5.09 UJ	4.74 UJ	5.06 UJ	260 UJ
ACETONE	9.45 U	9.87 U	8.92 U	90.3	10.2 U	28.4	10.1 U	521 UJ
BENZENE	2.36 U	2.47 U	2.23 U	2.4 U	2.54 U	2.37 U	2.53 U	130 U
BROMOCHLOROMETHANE	2.36 U	2.47 U	2.23 U	2.4 U	2.54 U	2.37 U	2.53 U	130 U
BROMODICHLOROMETHANE	2.36 U	2.47 U	2.23 U	2.4 U	2.54 U	2.37 U	2.53 U	130 U
BROMOFORM	2.36 U	2.47 U	2.23 U	2.4 U	2.54 U	2.37 U	2.53 U	130 U
BROMOMETHANE	4.73 U	4.93 U	4.46 U	4.79 U	5.09 U	4.74 U	5.06 U	260 U
CARBON DISULFIDE	2.36 U	2.47 U	2.23 U	2.4 U	2.54 U	2.37 U	2.53 U	130 U
CARBON TETRACHLORIDE	2.36 U	2.47 U	2.23 U	2.4 U	2.54 U	2.37 U	2.53 U	130 U
CHLOROBENZENE	2.36 U	2.47 U	2.23 U	2.4 U	2.54 U	2.37 U	2.53 U	130 U
CHLORODIBROMOMETHANE	2.36 U	2.47 U	2.23 U	2.4 U	2.54 U	2.37 U	2.53 U	130 U
CHLOROETHANE	4.73 U	4.93 U	4.46 U	4.79 U	5.09 U	4.74 U	5.06 U	260 U
CHLOROFORM	2.36 U	2.47 U	2.23 U	2.4 U	2.54 U	2.37 U	2.53 U	130 U
CHLOROMETHANE	4.73 U	4.93 U	4.46 U	4.79 U	5.09 U	4.74 U	5.06 U	260 U
CIS-1,2-DICHLOROETHENE	2.36 U	2.47 U	2.23 U	9.98	15.2	6.69	40.9	141 J
CIS-1,3-DICHLOROPROPENE	2.36 U	2.47 U	2.23 U	2.4 U	2.54 U	2.37 U	2.53 U	130 U
CYCLOHEXANE	2.36 U	2.47 U	2.23 U	2.4 U	2.54 U	2.37 U	2.53 U	130 U
DICHLORODIFLUOROMETHANE	4.73 U	4.93 U	4.46 U	4.79 U	5.09 U	4.74 U	5.06 U	260 U
ETHYLBENZENE	2.36 U	2.47 U	2.23 U	2.4 U	2.54 U	2.37 U	2.53 U	130 U
ISOPROPYLBENZENE	2.36 U	2.47 U	2.23 U	2.4 U	2.54 U	2.37 U	2.53 U	130 U
METHYL ACETATE	4.73 U	4.93 U	4.46 U	4.79 U	5.09 U	4.74 U	5.06 U	260 U
METHYL CYCLOHEXANE	2.36 U	2.47 U	2.23 U	2.4 U	2.54 U	2.37 U	2.53 U	130 U
METHYL TERT-BUTYL ETHER	2.36 U	2.47 U	2.23 U	2.4 U	2.54 U	2.37 U	2.53 U	130 U
METHYLENE CHLORIDE	4.73 U	4.93 U	4.46 U	4.79 U	5.09 U	4.74 U	5.06 U	205 J
STYRENE	2.36 U	2.47 U	2.23 U	2.4 U	2.54 U	2.37 U	2.53 U	130 U
TETRACHLOROETHENE	2.36 U	2.47 U	2.23 U	2.4 U	15.2	2.91 J	117	130 U
TOLUENE	2.36 U	2.47 U	2.23 U	2.4 U	2.54 U	2.37 U	2.53 U	130 U
TOTAL XYLENES	7.09 U	7.4 U	6.69 U	7.19 U	7.63 U	7.11 U	7.6 U	391 U
TRANS-1,2-DICHLOROETHENE	2.36 U	2.47 U	2.23 U	2.08 J	2.54 U	1.66 J	2.53 U	130 U
TRANS-1,3-DICHLOROPROPENE	2.36 U	2.47 U	2.23 U	2.4 U	2.54 U	2.37 U	2.53 U	130 U
TRICHLOROETHENE	2.36 U	2.47 U	2.23 U	14.5	7.72	21.5	65	172 J
TRICHLOROFLUOROMETHANE	4.73 U	4.93 U	4.46 U	4.79 U	5.09 U	4.74 U	5.06 U	260 U
VINYL CHLORIDE	2.36 U	2.47 U	2.23 U	2.4 U	1.58 J	2.37 U	2.48 J	130 U

LOCATION	11SB63	11SB64		11SB65		11SB66		
SAMPLE ID	11SB63-1112	11SB64-0911	11SB64-1112	11SB65-0911	11SB65-1112	11SB66-1315	11SB66-1516	11SB66-1516-D
SAMPLE DATE	20121129	20121129	20121129	20121129	20121129	20130123	20130123	20130123
TOP DEPTH	11	9	11	9	11	13	15	15
BOTTOM DEPTH	12	11	12	11	12	15	16	16
DIOXINS/FURANS (NG/KG)								
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDF	NA	NA	NA	NA	NA	NA	NA	NA
TEQ BIRD	NA	NA	NA	NA	NA	NA	NA	NA
TEQ BIRD HALFND	NA	NA	NA	NA	NA	NA	NA	NA
TEQ EQUIVALENTS	NA	NA	NA	NA	NA	NA	NA	NA
TEQ EQUIVALENTS- HALFND	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDF	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDF	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDF	NA	NA	NA	NA	NA	NA	NA	NA
METALS (MG/KG)								
ALUMINUM	NA	NA	NA	NA	NA	NA	NA	NA
ANTIMONY	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	NA	NA	NA	NA	NA	NA	NA	NA
BARIUM	NA	NA	NA	NA	NA	NA	NA	NA
BERYLLIUM	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	NA	NA	NA	NA	NA	NA	NA	NA
CALCIUM	NA	NA	NA	NA	NA	NA	NA	NA
CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA
COBALT	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	NA	NA	NA	NA	NA	NA	NA	NA
IRON	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	NA	NA	NA	NA	NA	NA	NA	NA
MAGNESIUM	NA	NA	NA	NA	NA	NA	NA	NA
MANGANESE	NA	NA	NA	NA	NA	NA	NA	NA
MERCURY	NA	NA	NA	NA	NA	NA	NA	NA
NICKEL	NA	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	NA	NA	NA	NA	NA	NA	NA	NA
SILVER	NA	NA	NA	NA	NA	NA	NA	NA
SODIUM	NA	NA	NA	NA	NA	NA	NA	NA
THALLIUM	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM	NA	NA	NA	NA	NA	NA	NA	NA

LOCATION	11SB63	11SB64		11SB65		11SB66		
SAMPLE ID	11SB63-1112	11SB64-0911	11SB64-1112	11SB65-0911	11SB65-1112	11SB66-1315	11SB66-1516	11SB66-1516-D
SAMPLE DATE	20121129	20121129	20121129	20121129	20121129	20130123	20130123	20130123
TOP DEPTH	11	9	11	9	11	13	15	15
BOTTOM DEPTH	12	11	12	11	12	15	16	16
ZINC	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (MG/KG)								
CYANIDE	NA	NA	NA	NA	NA	NA	NA	NA
PCBS (UG/KG)								
AROCLOR-1016	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1221	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1232	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1242	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1248	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1254	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1260	NA	NA	NA	NA	NA	NA	NA	NA
PESTICIDES (UG/KG)								
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-BHC	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA
BETA-BHC	NA	NA	NA	NA	NA	NA	NA	NA
DELTA-BHC	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN II	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN KETONE	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA	NA
METHOXYCHLOR	NA	NA	NA	NA	NA	NA	NA	NA
TOXAPHENE	NA	NA	NA	NA	NA	NA	NA	NA
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)								
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	NA	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/KG)								
1,1-BIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA

LOCATION	11SB63	11SB64		11SB65		11SB66		
SAMPLE ID	11SB63-1112	11SB64-0911	11SB64-1112	11SB65-0911	11SB65-1112	11SB66-1315	11SB66-1516	11SB66-1516-D
SAMPLE DATE	20121129	20121129	20121129	20121129	20121129	20130123	20130123	20130123
TOP DEPTH	11	9	11	9	11	13	15	15
BOTTOM DEPTH	12	11	12	11	12	15	16	16
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROANILINE	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	NA	NA	NA	NA	NA	NA	NA	NA
4-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
ACETOPHENONE	NA	NA	NA	NA	NA	NA	NA	NA
ATRAZINE	NA	NA	NA	NA	NA	NA	NA	NA
BENZALDEHYDE	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
BUTYL BENZYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
CAPROLACTAM	NA	NA	NA	NA	NA	NA	NA	NA
CARBAZOLE	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-OCTYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBUTADIENE	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA
ISOPHORONE	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	NA	NA	NA	NA	NA	NA	NA	NA
VOLATILES (UG/KG)								
1,1,1-TRICHLOROETHANE	161 U	2.43 U	2.47 U	2.4 U	2.44 U	2.46 U	2.92 U	2.83 U
1,1,2,2-TETRACHLOROETHANE	161 U	2.43 U	2.47 U	2.4 U	2.44 U	2.46 U	2.92 U	2.83 U
1,1,2-TRICHLOROETHANE	161 U	2.43 U	2.47 U	2.4 U	2.44 U	2.46 U	2.92 U	2.83 U
1,1,2-TRICHLOROTRIFLUOROETHANE	322 U	4.86 U	4.94 U	4.8 U	4.87 U	4.93 U	5.84 U	5.67 U
1,1-DICHLOROETHANE	161 U	2.43 U	2.47 U	2.4 U	2.44 UJ	2.46 U	2.92 U	2.83 U

LOCATION	11SB63	11SB64		11SB65		11SB66		
SAMPLE ID	11SB63-1112	11SB64-0911	11SB64-1112	11SB65-0911	11SB65-1112	11SB66-1315	11SB66-1516	11SB66-1516-D
SAMPLE DATE	20121129	20121129	20121129	20121129	20121129	20130123	20130123	20130123
TOP DEPTH	11	9	11	9	11	13	15	15
BOTTOM DEPTH	12	11	12	11	12	15	16	16
1,1-DICHLOROETHENE	161 U	2.43 U	2.47 U	2.4 U	2.44 U	2.46 U	2.92 U	2.83 U
1,2,3-TRICHLOROBENZENE	161 U	2.43 U	2.47 U	2.4 U	2.44 UJ	2.46 U	2.92 U	2.83 U
1,2,4-TRICHLOROBENZENE	161 U	2.43 U	2.47 U	2.4 U	2.44 UJ	2.46 U	2.92 U	2.83 U
1,2-DIBROMO-3-CHLOROPROPANE	322 U	4.86 U	4.94 U	4.8 U	4.87 U	4.93 U	5.84 U	5.67 U
1,2-DIBROMOETHANE	161 U	2.43 U	2.47 U	2.4 U	2.44 UJ	2.46 U	2.92 U	2.83 U
1,2-DICHLOROBENZENE	2120	176 J	253	2.4 U	3.85 J	6.36	8.55	11.5
1,2-DICHLOROETHANE	161 U	2.43 U	2.47 U	2.4 U	2.44 UJ	2.46 U	2.92 U	2.83 U
1,2-DICHLOROPROPANE	161 U	2.43 U	2.47 U	2.4 U	2.44 UJ	2.46 UJ	2.92 U	2.83 U
1,3-DICHLOROBENZENE	161 U	2.43 U	2.47 U	2.4 U	2.44 UJ	2.46 UJ	2.92 U	2.83 U
1,4-DICHLOROBENZENE	161 U	8.85	8.57	2.4 U	2.44 UJ	2.46 UJ	2.92 U	2.83 U
2-BUTANONE	322 U	4.86 U	4.94 UJ	4.8 U	4.87 U	4.93 U	5.84 U	5.67 U
2-HEXANONE	322 UJ	4.86 UJ	2.47 U	4.8 UJ	4.87 UJ	4.93 U	5.84 U	5.67 U
4-METHYL-2-PENTANONE	322 UJ	4.86 UJ	2.47 UJ	4.8 UJ	4.87 UJ	4.93 U	5.84 U	5.67 U
ACETONE	643 UJ	31	8.99 J	50.8	9.74 UJ	16.2 J	11.7 UJ	11.3 UJ
BENZENE	161 U	1.61 J	1.3 J	2.4 U	2.44 UJ	2.46 U	2.92 U	2.83 U
BROMOCHLOROMETHANE	161 U	2.43 U	2.47 U	2.4 U	2.44 UJ	2.46 U	2.92 U	2.83 U
BROMODICHLOROMETHANE	161 U	2.43 U	2.47 U	2.4 U	2.44 UJ	2.46 U	2.92 U	2.83 U
BROMOFORM	161 U	2.43 U	2.47 U	2.4 U	2.44 U	2.46 U	2.92 U	2.83 U
BROMOMETHANE	322 U	4.86 U	4.94 U	4.8 U	4.87 U	4.93 U	5.84 U	5.67 U
CARBON DISULFIDE	161 U	2.43 U	2.47 U	2.4 U	2.44 U	2.46 U	2.92 U	2.83 U
CARBON TETRACHLORIDE	161 U	2.43 U	2.47 U	2.4 U	2.44 U	2.46 U	2.92 U	2.83 U
CHLOROBENZENE	81.7 J	18.8	20.8	2.4 U	2.44 UJ	2.46 UJ	2.92 U	2.83 U
CHLORODIBROMOMETHANE	161 U	2.43 U	2.47 U	2.4 U	2.44 UJ	2.46 U	2.92 U	2.83 U
CHLOROETHANE	322 U	4.86 U	4.94 U	4.8 U	4.87 U	4.93 U	5.84 U	5.67 U
CHLOROFORM	161 U	2.43 U	2.47 U	2.4 U	2.44 U	2.46 U	2.92 U	2.83 U
CHLOROMETHANE	322 U	4.86 U	4.94 U	4.8 U	4.87 U	4.93 U	5.84 U	5.67 U
CIS-1,2-DICHLOROETHENE	186 J	92.4 J	156	39.2	16.6	18.5	25.1	20
CIS-1,3-DICHLOROPROPENE	161 U	2.43 U	2.47 U	2.4 U	2.44 U	2.46 U	2.92 U	2.83 U
CYCLOHEXANE	161 U	2.43 U	2.47 U	2.4 U	2.44 U	2.46 U	2.92 U	2.83 U
DICHLORODIFLUOROMETHANE	322 U	4.86 U	4.94 U	4.8 U	4.87 U	4.93 U	5.84 U	5.67 U
ETHYLBENZENE	161 U	2.43 U	2.47 U	2.4 U	2.44 UJ	2.46 U	2.92 U	2.83 U
ISOPROPYLBENZENE	161 U	2.43 U	2.47 U	2.4 U	2.44 UJ	2.46 U	2.92 U	2.83 U
METHYL ACETATE	322 U	4.86 U	4.94 U	4.8 U	4.87 U	4.93 U	5.84 U	5.67 U
METHYL CYCLOHEXANE	161 U	2.43 U	2.47 U	6.93	2.44 U	2.46 U	2.92 U	2.83 U
METHYL TERT-BUTYL ETHER	161 U	2.43 U	2.47 U	2.4 U	2.44 U	2.46 U	2.92 U	2.83 U
METHYLENE CHLORIDE	250 J	4.86 U	4.94 U	4.8 U	4.87 U	4.93 U	5.84 U	5.67 U
STYRENE	161 U	2.43 U	2.47 U	2.4 U	2.44 UJ	2.46 U	2.92 U	2.83 U
TETRACHLOROETHENE	122 J	2.43 U	114	2.4 U	6.1	12.9	33.9	26.4
TOLUENE	161 U	2.9 J	2.47 U	2.4 U	2.44 UJ	2.46 U	2.92 U	2.83 U
TOTAL XYLENES	482 U	7.3 U	7.41 U	7.2 U	7.31 UJ	7.39 UJ	8.76 U	8.5 U
TRANS-1,2-DICHLOROETHENE	161 U	75.6	3.98 J	3.54 J	2.44 U	2.46 U	2.92 U	2.83 U
TRANS-1,3-DICHLOROPROPENE	161 U	2.43 U	2.47 U	2.4 U	2.44 U	2.46 U	2.92 U	2.83 U
TRICHLOROETHENE	152 J	51.6	111	3.99 J	7.78	9.45	16.3	13.7
TRICHLOROFLUOROMETHANE	322 U	4.86 U	4.94 U	4.8 U	4.87 U	4.93 U	5.84 U	5.67 U
VINYL CHLORIDE	161 U	3.54 J	4.34 J	5.04	2.42 J	4.34 J	5.21 J	4.25 J

LOCATION	11SB67		11SB68		11SB69		11SB70	
SAMPLE ID	11SB67-1416	11SB67-1617	11SB68-1315	11SB68-1516	11SB69-1416	11SB69-1617	11SB70-1315	11SB70-1516
SAMPLE DATE	20130123	20130123	20130123	20130123	20130123	20130123	20130123	20130123
TOP DEPTH	14	16	13	15	14	16	13	15
BOTTOM DEPTH	16	17	15	16	16	17	15	16
DIOXINS/FURANS (NG/KG)								
1,2,3,4,6,7,8,9-OCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8,9-OCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HPCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,4,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8,9-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDD	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,6,7,8-HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
2,3,4,7,8-PECDF	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDD	NA	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TCDF	NA	NA	NA	NA	NA	NA	NA	NA
TEQ BIRD	NA	NA	NA	NA	NA	NA	NA	NA
TEQ BIRD HALFND	NA	NA	NA	NA	NA	NA	NA	NA
TEQ EQUIVALENTS	NA	NA	NA	NA	NA	NA	NA	NA
TEQ EQUIVALENTS- HALFND	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HPCDF	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL HXCDF	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PECDF	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDD	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL TCDF	NA	NA	NA	NA	NA	NA	NA	NA
METALS (MG/KG)								
ALUMINUM	NA	NA	NA	NA	NA	NA	NA	NA
ANTIMONY	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	NA	NA	NA	NA	NA	NA	NA	NA
BARIUM	NA	NA	NA	NA	NA	NA	NA	NA
BERYLLIUM	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	NA	NA	NA	NA	NA	NA	NA	NA
CALCIUM	NA	NA	NA	NA	NA	NA	NA	NA
CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA
COBALT	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	NA	NA	NA	NA	NA	NA	NA	NA
IRON	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	NA	NA	NA	NA	NA	NA	NA	NA
MAGNESIUM	NA	NA	NA	NA	NA	NA	NA	NA
MANGANESE	NA	NA	NA	NA	NA	NA	NA	NA
MERCURY	NA	NA	NA	NA	NA	NA	NA	NA
NICKEL	NA	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	NA	NA	NA	NA	NA	NA	NA	NA
SILVER	NA	NA	NA	NA	NA	NA	NA	NA
SODIUM	NA	NA	NA	NA	NA	NA	NA	NA
THALLIUM	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM	NA	NA	NA	NA	NA	NA	NA	NA

LOCATION	11SB67		11SB68		11SB69		11SB70	
SAMPLE ID	11SB67-1416	11SB67-1617	11SB68-1315	11SB68-1516	11SB69-1416	11SB69-1617	11SB70-1315	11SB70-1516
SAMPLE DATE	20130123	20130123	20130123	20130123	20130123	20130123	20130123	20130123
TOP DEPTH	14	16	13	15	14	16	13	15
BOTTOM DEPTH	16	17	15	16	16	17	15	16
ZINC	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (MG/KG)								
CYANIDE	NA	NA	NA	NA	NA	NA	NA	NA
PCBS (UG/KG)								
AROCLOR-1016	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1221	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1232	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1242	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1248	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1254	NA	NA	NA	NA	NA	NA	NA	NA
AROCLOR-1260	NA	NA	NA	NA	NA	NA	NA	NA
PESTICIDES (UG/KG)								
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-BHC	NA	NA	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA
BETA-BHC	NA	NA	NA	NA	NA	NA	NA	NA
DELTA-BHC	NA	NA	NA	NA	NA	NA	NA	NA
DIELDRIN	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN II	NA	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	NA	NA	NA
ENDRIN KETONE	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA	NA	NA
GAMMA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA	NA
METHOXYCHLOR	NA	NA	NA	NA	NA	NA	NA	NA
TOXAPHENE	NA	NA	NA	NA	NA	NA	NA	NA
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)								
2-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	NA	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/KG)								
1,1-BIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA

LOCATION	11SB67		11SB68		11SB69		11SB70	
SAMPLE ID	11SB67-1416	11SB67-1617	11SB68-1315	11SB68-1516	11SB69-1416	11SB69-1617	11SB70-1315	11SB70-1516
SAMPLE DATE	20130123	20130123	20130123	20130123	20130123	20130123	20130123	20130123
TOP DEPTH	14	16	13	15	14	16	13	15
BOTTOM DEPTH	16	17	15	16	16	17	15	16
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLORONAPHTHALENE	NA	NA	NA	NA	NA	NA	NA	NA
2-CHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA
2-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	NA	NA	NA	NA	NA	NA	NA	NA
3-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROANILINE	NA	NA	NA	NA	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	NA	NA	NA	NA	NA	NA	NA	NA
4-METHYLPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROANILINE	NA	NA	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
ACETOPHENONE	NA	NA	NA	NA	NA	NA	NA	NA
ATRAZINE	NA	NA	NA	NA	NA	NA	NA	NA
BENZALDEHYDE	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	NA	NA	NA	NA	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
BUTYL BENZYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
CAPROLACTAM	NA	NA	NA	NA	NA	NA	NA	NA
CARBAZOLE	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	NA	NA	NA	NA	NA	NA	NA	NA
DIETHYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
DIMETHYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-BUTYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
DI-N-OCTYL PHTHALATE	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBUTADIENE	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROETHANE	NA	NA	NA	NA	NA	NA	NA	NA
ISOPHORONE	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA
N-NITROSODIPHENYLAMINE	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	NA	NA	NA	NA	NA	NA	NA	NA
PHENOL	NA	NA	NA	NA	NA	NA	NA	NA
VOLATILES (UG/KG)								
1,1,1-TRICHLOROETHANE	130 U	121 U	103 U	112 U	2.19 U	2.18 U	1.98 U	2.63 U
1,1,2,2-TETRACHLOROETHANE	130 U	121 U	103 U	112 U	2.19 U	2.18 U	1.98 U	2.63 U
1,1,2-TRICHLOROETHANE	130 U	121 U	103 U	112 U	2.19 U	2.18 U	1.98 U	2.63 U
1,1,2-TRICHLOROTRIFLUOROETHANE	260 U	242 U	206 U	223 U	4.38 U	4.37 U	3.96 U	5.26 U
1,1-DICHLOROETHANE	130 U	121 U	103 U	112 U	2.19 U	2.18 U	1.98 U	2.63 U

TABLE F-1
ANALYTICAL RESULTS FOR SOIL
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION	11SB67		11SB68		11SB69		11SB70	
SAMPLE ID	11SB67-1416	11SB67-1617	11SB68-1315	11SB68-1516	11SB69-1416	11SB69-1617	11SB70-1315	11SB70-1516
SAMPLE DATE	20130123	20130123	20130123	20130123	20130123	20130123	20130123	20130123
TOP DEPTH	14	16	13	15	14	16	13	15
BOTTOM DEPTH	16	17	15	16	16	17	15	16
1,1-DICHLOROETHENE	130 U	121 U	103 U	112 U	2.19 U	2.18 U	1.98 U	2.63 U
1,2,3-TRICHLOROBENZENE	130 U	121 U	103 U	112 U	2.19 U	2.18 U	1.98 U	2.63 U
1,2,4-TRICHLOROBENZENE	130 U	121 U	103 U	112 U	2.19 U	2.18 U	1.98 U	2.63 U
1,2-DIBROMO-3-CHLOROPROPANE	260 U	242 U	206 U	223 U	4.38 U	4.37 U	3.96 U	5.26 U
1,2-DIBROMOETHANE	130 U	121 U	103 U	112 U	2.19 U	2.18 U	1.98 U	2.63 U
1,2-DICHLOROBENZENE	173 J	70.1 J	2750	3900	10.5	10.8	1.98 U	2.63 U
1,2-DICHLOROETHANE	130 U	121 U	103 U	112 U	2.19 U	2.18 U	1.98 U	2.63 U
1,2-DICHLOROPROPANE	130 U	121 U	103 U	112 U	2.19 U	2.18 U	1.98 U	2.63 U
1,3-DICHLOROBENZENE	130 U	121 U	103 U	112 U	2.19 U	2.18 U	1.98 U	2.63 U
1,4-DICHLOROBENZENE	130 U	121 U	103 U	112 U	2.19 U	2.18 U	1.98 U	2.63 U
2-BUTANONE	260 U	242 U	206 U	223 U	4.38 U	4.37 U	3.96 U	5.26 U
2-HEXANONE	260 U	242 U	206 U	223 U	4.38 U	4.37 U	3.96 U	5.26 U
4-METHYL-2-PENTANONE	260 U	242 U	206 U	223 U	4.38 U	4.37 U	3.96 U	5.26 U
ACETONE	520 UJ	483 UJ	412 UJ	447 UJ	17.7 J	8.73 UJ	13.2 J	10.5 UJ
BENZENE	130 U	121 U	103 U	112 U	2.19 U	2.18 U	1.98 U	2.63 U
BROMOCHLOROMETHANE	130 U	121 U	103 U	112 U	2.19 U	2.18 U	1.98 U	2.63 U
BROMODICHLOROMETHANE	130 U	121 U	103 U	112 U	2.19 U	2.18 U	1.98 U	2.63 U
BROMOFORM	130 U	121 U	103 U	112 U	2.19 U	2.18 U	1.98 U	2.63 U
BROMOMETHANE	260 U	242 U	206 U	223 U	4.38 U	4.37 U	3.96 U	5.26 U
CARBON DISULFIDE	130 U	121 U	103 U	112 U	2.19 U	2.18 U	1.98 U	2.63 U
CARBON TETRACHLORIDE	130 U	121 U	103 U	112 U	2.19 U	2.18 U	1.98 U	2.63 U
CHLOROBENZENE	130 U	121 U	57.3 J	88.9 J	10.5	7.12	1.02 J	2.63 U
CHLORODIBROMOMETHANE	130 U	121 U	103 U	112 U	2.19 U	2.18 U	1.98 U	2.63 U
CHLOROETHANE	260 U	242 U	206 U	223 U	4.38 U	4.37 U	3.96 U	5.26 U
CHLOROFORM	130 U	121 U	103 U	112 U	2.19 U	2.18 U	1.98 U	2.63 U
CHLOROMETHANE	260 U	242 U	206 U	223 U	4.38 U	4.37 U	3.96 U	5.26 U
CIS-1,2-DICHLOROETHENE	640	627	599	706	7.72	17.9	1.98 U	2.63 U
CIS-1,3-DICHLOROPROPENE	130 U	121 U	103 U	112 U	2.19 U	2.18 U	1.98 U	2.63 U
CYCLOHEXANE	130 U	121 U	103 U	112 U	2.19 U	2.18 U	1.98 U	2.63 U
DICHLORODIFLUOROMETHANE	260 U	242 U	206 U	223 U	4.38 U	4.37 U	3.96 U	5.26 U
ETHYLBENZENE	130 U	121 U	103 U	112 U	2.19 U	2.18 U	1.98 U	2.63 U
ISOPROPYLBENZENE	130 U	121 U	103 U	112 U	2.19 U	2.18 U	1.98 U	2.63 U
METHYL ACETATE	260 U	242 U	206 U	223 U	4.38 U	4.37 U	3.96 U	5.26 U
METHYL CYCLOHEXANE	130 U	121 U	103 U	112 U	2.19 U	1.59 J	1.98 U	2.63 U
METHYL TERT-BUTYL ETHER	130 U	121 U	103 U	112 U	2.19 U	2.18 U	1.98 U	2.63 U
METHYLENE CHLORIDE	260 U	242 U	206 U	223 U	4.38 U	4.37 U	3.96 U	5.26 U
STYRENE	130 U	121 U	103 U	112 U	2.19 U	2.18 U	1.98 U	2.63 U
TETRACHLOROETHENE	803	847	427	336	2.19 U	15.9	1.98 U	2.63 U
TOLUENE	130 U	121 U	103 U	112 U	2.19 U	2.18 U	1.98 U	2.63 U
TOTAL XYLENES	390 U	362 U	309 U	335 U	6.57 U	6.55 U	5.94 U	7.88 U
TRANS-1,2-DICHLOROETHENE	130 U	121 U	103 U	112 U	2.19 U	2.18 U	1.98 U	2.63 U
TRANS-1,3-DICHLOROPROPENE	130 U	121 U	103 U	112 U	2.19 U	2.18 U	1.98 U	2.63 U
TRICHLOROETHENE	783	555	1290	813	1.59 J	10.8	1.98 U	2.63 U
TRICHLOROFLUOROMETHANE	260 U	242 U	206 U	223 U	4.38 U	4.37 U	3.96 U	5.26 U
VINYL CHLORIDE	124 J	116 J	103 U	112 U	4.59 J	4.54 J	1.98 U	2.63 U

NA - Not Analyzed
J - Estimated Value
U - Not detected
UJ - Not detected, estimated value

TABLE F-2
ANALYTICAL RESULTS FOR SEDIMENT
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION	11SD01		11SD02			11SD03	
SAMPLE ID	11SD010006	11SD010612	11SD020006	11SD020006-D	11SD020612	11SD030006	11SD030612
SAMPLE DATE	20110428	20110428	20110428	20110428	20110428	20110428	20110428
TOP DEPTH	0	0.5	0	0	0.5	0	0.5
BOTTOM DEPTH	0.5	1	0.5	0.5	1	0.5	1
DIOXINS/FURANS (NG/KG)							
1,2,3,4,6,7,8,9-OCDD	NA	NA	2240	1500	2710	NA	NA
1,2,3,4,6,7,8,9-OCDF	NA	NA	192 J	106 J	219	NA	NA
1,2,3,4,6,7,8-HPCDD	NA	NA	243 J	134 J	260	NA	NA
1,2,3,4,6,7,8-HPCDF	NA	NA	35.3 J	19.4 J	37.2	NA	NA
1,2,3,4,7,8,9-HPCDF	NA	NA	2.15 J	3.26 U	2.75 J	NA	NA
1,2,3,4,7,8-HXCDD	NA	NA	4.87	1.92 J	4.48 J	NA	NA
1,2,3,4,7,8-HXCDF	NA	NA	1.09 J	3.26 U	1.2 J	NA	NA
1,2,3,6,7,8-HXCDD	NA	NA	7.26	4.58 J	8.28	NA	NA
1,2,3,6,7,8-HXCDF	NA	NA	1.01 J	0.778 J	1.07 J	NA	NA
1,2,3,7,8,9-HXCDD	NA	NA	4.47 J	2.88 J	4.62 J	NA	NA
1,2,3,7,8,9-HXCDF	NA	NA	3.04 U	3.26 U	3.26 U	NA	NA
1,2,3,7,8-PECDD	NA	NA	1.38 J	0.833 J	1.08 J	NA	NA
1,2,3,7,8-PECDF	NA	NA	1.02 J	0.78 J	0.562 J	NA	NA
2,3,4,6,7,8-HXCDF	NA	NA	1.36 J	0.948 J	1.15 J	NA	NA
2,3,4,7,8-PECDF	NA	NA	0.559 J	3.26 U	0.48 J	NA	NA
2,3,7,8-TCDD	NA	NA	0.494 J	0.651 U	0.65 U	NA	NA
2,3,7,8-TCDF	NA	NA	0.689 U	0.754 U	0.576 U	NA	NA
TEQ FISH	NA	NA	5.9635	2.5678	5.0115	NA	NA
TEQ FISH HALFND	NA	NA	6.132725	4.06945	5.5139	NA	NA
TEQ EQUIVALENTS	NA	NA	7.6124	3.9828	7.19906	NA	NA
TEQ EQUIVALENTS - HALFND	NA	NA	7.79885	5.1773	7.71586	NA	NA
TOTAL HPCDD	NA	NA	487 J	255 J	489	NA	NA
TOTAL HPCDF	NA	NA	147 J	74.7 J	150	NA	NA
TOTAL HXCDD	NA	NA	71.6 J	35.8 J	67.5	NA	NA
TOTAL HXCDF	NA	NA	31.8 J	19.5 J	33.7	NA	NA
TOTAL PECDD	NA	NA	9.64 J	5.13 J	9.47	NA	NA
TOTAL PECDF	NA	NA	9.89 J	3.31 J	7.86	NA	NA
TOTAL TCDD	NA	NA	0.607 U	0.651 U	0.65 U	NA	NA
TOTAL TCDF	NA	NA	2.1 U	0.754 U	1.94 U	NA	NA
METALS (MG/KG)							
ALUMINUM	7560	7950	6800 J	11400 J	11300	6500	11100
ANTIMONY	1.15 UJ	0.637 J	1.04 U	1.01 U	0.971 U	1.05 U	0.929 U
ARSENIC	18.5	15.2	20.6	20.9	15.1	14.3	15
BARIUM	163	109	129	89.6	89.1	104	66.3
BERYLLIUM	0.551 J	0.558	0.804	1.19	0.894	0.786	0.989
CADMIUM	2.6 J	2.48 J	0.95 J	0.401 J	0.338 J	0.554 J	0.195 J
CALCIUM	55500	33900	46000 J	1640 J	1880	5160	3360
CHROMIUM	85.1	132	67.4	52	44.9	66.7	42.3
COBALT	18.6	17.3	17.6	13.9	13.5	14.4	14.7
COPPER	26.6	26.7	12	12.4	10.1	13.4	10.3
IRON	17700	18000	22200 J	48700 J	31000	16300	31500
LEAD	139	148	79.6 J	35.6 J	28.2	40.8	21.3
MAGNESIUM	3050	3760	1580 J	813 J	837	998	820
MANGANESE	2030 J	1060 J	2190 J	685 J	915	1510	597
MERCURY	0.115	0.153	0.056	0.0395	0.0591	0.0558	0.0337 J
NICKEL	12.6	13.2	11.7	15.4	14.5	10.7	14.4
POTASSIUM	435 J	442 J	338 J	377 J	423 J	335 J	418 J
SELENIUM	0.722 J	0.774	0.447 J	0.63 U	0.607 U	0.568 J	0.451 J
SILVER	0.287 U	0.139 U	0.26 U	0.252 U	0.243 U	0.263 U	0.232 U
SODIUM	215 J	93.4 J	390 U	378 U	364 U	394 U	348 U
THALLIUM	0.656 J	0.278 U	0.742 J	0.504 U	0.485 U	0.516 J	0.464 U
VANADIUM	19.7 J	20.9 J	25.8 J	45.6 J	39.1	23.4	43.1

TABLE F-2
ANALYTICAL RESULTS FOR SEDIMENT
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION	11SD01		11SD02			11SD03	
SAMPLE ID	11SD010006	11SD010612	11SD020006	11SD020006-D	11SD020612	11SD030006	11SD030612
SAMPLE DATE	20110428	20110428	20110428	20110428	20110428	20110428	20110428
TOP DEPTH	0	0.5	0	0	0.5	0	0.5
BOTTOM DEPTH	0.5	1	0.5	0.5	1	0.5	1
ZINC	357	392	220 J	95.5 J	88	105	54.2
MISCELLANEOUS PARAMETERS (MG/KG)							
CYANIDE	0.383 UJ	0.349 U	0.395 J	0.179 J	0.201 J	0.266 J	0.298 U
TOTAL ORGANIC CARBON	14400	7560	11000	10600	7070	23500	15600
PCBS (UG/KG)							
AROCLOR-1016	11.5 U	11.1 U	10.3 U	9.91 U	10.2 U	10.9 U	9.47 U
AROCLOR-1221	11.5 U	11.1 U	10.3 U	9.91 U	10.2 U	10.9 U	9.47 U
AROCLOR-1232	11.5 U	11.1 U	10.3 U	9.91 U	10.2 U	10.9 U	9.47 U
AROCLOR-1242	11.5 U	11.1 U	10.3 U	9.91 U	10.2 U	10.9 U	9.47 U
AROCLOR-1248	11.5 U	11.1 U	10.3 U	9.91 U	10.2 U	10.9 U	9.47 U
AROCLOR-1254	11.5 U	11.1 U	10.3 U	9.91 U	10.2 U	10.9 U	9.47 U
AROCLOR-1260	48.5	11.1 U	12.7 J	7.17 J	7.95 J	10.3 J	9.47 U
PESTICIDES (UG/KG)							
4,4'-DDD	0.328 J	1.13 J	0.422 U	0.404 U	0.418 U	0.445 U	0.386 U
4,4'-DDE	0.47 U	3.09 J	0.422 U	0.404 U	0.418 U	0.445 U	0.386 U
4,4'-DDT	0.47 U	1.45 J	0.422 U	0.404 U	0.418 U	0.445 U	0.386 U
ALDRIN	0.47 U	0.454 U	0.422 U	0.404 U	0.418 U	0.445 U	0.386 U
ALPHA-BHC	2.39	2.02 J	0.422 U	2.47	0.418 U	2.2	1.46
ALPHA-CHLORDANE	0.47 U	0.454 U	0.422 U	0.404 U	0.418 U	0.445 U	0.386 U
BETA-BHC	0.47 U	0.454 U	0.422 U	0.404 U	0.418 U	0.445 U	0.386 U
DELTA-BHC	0.47 U	0.454 U	0.422 UJ	0.404 UJ	0.418 UJ	0.445 U	0.386 UJ
DIELDRIN	0.488 UJ	0.446 UJ	0.411 UJ	0.399 UJ	0.42 UJ	0.445 UJ	0.379 UJ
ENDOSULFAN I	0.488 UJ	0.446 UJ	0.411 UJ	0.399 UJ	0.42 UJ	0.445 UJ	0.379 UJ
ENDOSULFAN II	0.488 UJ	0.446 UJ	0.411 UJ	0.399 UJ	0.42 UJ	0.445 UJ	0.379 UJ
ENDOSULFAN SULFATE	0.47 U	0.454 U	0.422 U	0.404 U	0.418 U	0.445 U	0.386 U
ENDRIN	0.637 J	0.747 J	0.411 UJ	0.399 UJ	0.42 UJ	0.445 UJ	0.379 UJ
ENDRIN ALDEHYDE	0.488 UJ	0.446 UJ	0.411 UJ	0.399 UJ	0.42 UJ	0.445 UJ	0.379 UJ
ENDRIN KETONE	0.47 U	0.454 U	0.422 U	0.404 U	0.418 U	0.445 U	0.386 U
GAMMA-BHC (LINDANE)	0.47 U	0.454 U	0.422 U	0.404 U	0.418 U	0.445 U	0.386 U
GAMMA-CHLORDANE	1.32	2.3	0.623 J	0.822	0.182 J	0.445 U	0.386 U
HEPTACHLOR	0.47 U	0.454 U	0.422 U	0.404 U	0.418 U	0.445 U	0.386 U
HEPTACHLOR EPOXIDE	0.47 U	0.454 U	0.422 U	0.404 U	0.418 U	0.445 U	0.386 U
METHOXYCHLOR	0.488 UJ	0.446 UJ	0.411 UJ	0.399 UJ	0.42 UJ	0.445 UJ	0.379 UJ
TOXAPHENE	30.4 U	29.4 U	27.3 U	26.2 U	27 U	28.8 U	25 U
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)							
2-METHYLNAPHTHALENE	23.6 U	22.7 U	4.16 U	4.07 U	4.14 U	4.3 U	3.69 U
ACENAPHTHENE	23.6 U	22.7 U	4.16 U	4.07 U	4.14 U	4.3 U	3.69 U
ACENAPHTHYLENE	27 J	22.7 U	7.96 J	2.6 J	6.11 J	6.72 J	3.69 U
ANTHRACENE	28.6 J	20.7 J	8.52	2.68 J	7.63 J	6.96 J	3.69 U
BENZO(A)ANTHRACENE	107	56.3	18.7	7.22 J	21.9	29.6	3.69 U
BENZO(A)PYRENE	136	84.4	32.6 J	9.44 J	30	36.3	5.92 J
BENZO(B)FLUORANTHENE	298	121	84.8 J	14.4 J	48.3	62.8	11.9
BENZO(G,H,I)PERYLENE	121	81.3	45.7 J	12.6 J	28.4	25.8	6.61 J
BENZO(K)FLUORANTHENE	95.1	49.2	27.2 J	7.04 J	23.5	24.7	5.11 J
CHRYSENE	279	99	64.5 J	11.1 J	35.9	40.3	3.69 U
DIBENZO(A,H)ANTHRACENE	29.7 J	22.7 U	14.6	7.39 J	9.83	11.3	3.69 U
FLUORANTHENE	594	183	52.8 J	14.8 J	43.6	46.8	9.72
FLUORENE	23.6 U	22.7 U	4.16 U	4.07 U	4.14 U	4.3 U	3.69 U
INDENO(1,2,3-CD)PYRENE	102	63.6	39.3 J	8.81 J	22.6	26.1	5.41 J
NAPHTHALENE	23.6 U	15.7 J	3.01 J	4.07 U	2.38 J	4.3 U	3.69 U
PHENANTHRENE	153 J	96 J	24.5 J	7.5 J	16.4 J	18.9 J	4.6 J
PYRENE	468	173	46.2 J	14.5 J	42.1	50.1	11
SEMIVOLATILES (UG/KG)							

TABLE F-2
ANALYTICAL RESULTS FOR SEDIMENT
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION	**11SD01**		**11SD02**			**11SD03**	
SAMPLE ID	**11SD010006**	**11SD010612**	**11SD020006**	**11SD020006-D**	**11SD020612**	**11SD030006**	**11SD030612**
SAMPLE DATE	**20110428**	**20110428**	**20110428**	**20110428**	**20110428**	**20110428**	**20110428**
TOP DEPTH	**0**	**0.5**	**0**	**0**	**0.5**	**0**	**0.5**
BOTTOM DEPTH	**0.5**	**1**	**0.5**	**0.5**	**1**	**0.5**	**1**
1,1-BIPHENYL	1180 U	1140 U	208 U	204 U	208 U	216 U	185 U
2,2'-OXYBIS(1-CHLOROPROPANE)	1180 U	1140 UJ	208 U	204 UJ	208 U	216 UJ	185 U
2,4,5-TRICHLOROPHENOL	1180 U	1140 U	208 U	204 U	208 U	216 U	185 U
2,4,6-TRICHLOROPHENOL	1180 U	1140 U	208 U	204 U	208 U	216 U	185 U
2,4-DICHLOROPHENOL	1180 U	1140 U	208 U	204 U	208 U	216 U	185 U
2,4-DIMETHYLPHENOL	4730 U	4540 U	832 U	814 U	830 U	861 U	739 U
2,4-DINITROPHENOL	11800 UJ	11400 UJ	2080 UJ	2040 U	2080 UJ	2160 UJ	1850 UJ
2,4-DINITROTOLUENE	1180 U	1140 U	208 U	204 U	208 U	216 UJ	185 U
2,6-DINITROTOLUENE	1180 U	1140 U	208 U	204 U	208 U	216 U	185 U
2-CHLORONAPHTHALENE	1180 UJ	1140 U	208 UJ	204 UJ	208 UJ	216 UJ	185 UJ
2-CHLOROPHENOL	1180 U	1140 U	208 U	204 U	208 U	216 U	185 U
2-METHYLPHENOL	1180 U	1140 U	208 U	204 U	208 U	216 U	185 U
2-NITROANILINE	4730 U	4540 U	832 U	814 U	830 U	861 U	739 U
2-NITROPHENOL	1180 U	1140 U	208 U	204 U	208 U	216 U	185 U
3,3'-DICHLOROBENZIDINE	1180 U	1140 U	208 U	204 UJ	208 U	216 U	185 U
3-NITROANILINE	4730 U	4540 U	832 U	814 U	830 U	861 U	739 U
4,6-DINITRO-2-METHYLPHENOL	11800 UJ	11400 UJ	2080 UJ	2040 U	2080 UJ	2160 UJ	1850 UJ
4-BROMOPHENYL PHENYL ETHER	1180 U	1140 U	208 U	204 U	208 U	216 U	185 U
4-CHLORO-3-METHYLPHENOL	1180 U	1140 U	208 U	204 U	208 U	216 U	185 U
4-CHLOROANILINE	1180 U	1140 U	208 U	204 U	208 U	216 U	185 U
4-CHLOROPHENYL PHENYL ETHER	1180 UJ	1140 U	208 UJ	204 U	208 UJ	216 U	185 UJ
4-METHYLPHENOL	1180 U	1140 U	208 U	204 U	208 U	216 U	185 U
4-NITROANILINE	4730 UJ	4540 UJ	832 UJ	814 U	830 UJ	861 UJ	739 UJ
4-NITROPHENOL	4730 U	4540 U	832 U	814 U	830 U	861 U	739 U
ACETOPHENONE	1180 U	1140 U	208 U	204 U	208 U	216 U	185 U
ATRAZINE	1180 U	1140 U	208 U	204 U	208 U	216 U	185 U
BENZALDEHYDE	1180 UJ	1140 UJ	208 UJ	204 UJ	208 UJ	216 UJ	185 UJ
BIS(2-CHLOROETHOXY)METHANE	1180 U	1140 U	208 U	204 U	208 U	216 U	185 U
BIS(2-CHLOROETHYL)ETHER	1180 U	1140 U	208 U	204 U	208 U	216 U	185 U
BIS(2-ETHYLHEXYL)PHTHALATE	1180 U	1140 U	208 U	204 U	208 U	216 U	185 U
BUTYL BENZYL PHTHALATE	1180 U	1140 U	208 U	204 U	208 U	216 U	185 U
CAPROLACTAM	1180 U	1140 U	208 U	204 U	208 U	216 U	185 U
CARBAZOLE	1180 U	1140 U	208 U	204 U	208 U	216 U	185 U
DIBENZOFURAN	1180 U	1140 U	208 U	204 U	208 U	216 U	185 U
DIETHYL PHTHALATE	1180 U	1140 U	208 U	204 U	208 U	216 U	185 U
DIMETHYL PHTHALATE	1180 U	1140 U	208 U	204 U	208 U	216 U	185 U
DI-N-BUTYL PHTHALATE	1180 U	1140 U	208 U	204 U	208 U	216 U	185 U
DI-N-OCTYL PHTHALATE	1180 U	1140 U	208 U	204 U	208 U	216 U	185 U
HEXACHLOROBENZENE	1180 U	1140 U	208 U	204 U	208 U	216 U	185 U
HEXACHLOROBUTADIENE	1180 U	1140 U	208 U	204 U	208 U	216 UJ	185 U
HEXACHLOROCYCLOPENTADIENE	1180 UJ	1140 U	208 UJ	204 U	208 UJ	216 UJ	185 UJ
HEXACHLOROETHANE	1180 U	1140 U	208 U	204 U	208 U	216 U	185 U
ISOPHORONE	1180 U	1140 U	208 U	204 U	208 U	216 U	185 U
NITROBENZENE	1180 U	1140 U	208 U	204 U	208 U	216 U	185 U
N-NITROSO-DI-N-PROPYLAMINE	1180 U	1140 UJ	208 U	204 UJ	208 U	216 U	185 U
N-NITROSODIPHENYLAMINE	1180 UJ	1140 UJ	208 UJ	204 U	208 UJ	216 U	185 UJ
PENTACHLOROPHENOL	4730 UJ	4540 UJ	832 UJ	814 U	830 UJ	861 U	739 UJ
PHENOL	1180 U	1140 U	208 U	204 U	208 U	216 U	185 U

TABLE F-2
ANALYTICAL RESULTS FOR SEDIMENT
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION	11SD04		11SD05		11SD06
SAMPLE ID	11SD040006	11SD040612	11SD050006	11SD050006-D	11SD060006
SAMPLE DATE	20110428	20110428	20111117	20111117	20111117
TOP DEPTH	0	0.5	0	0	0
BOTTOM DEPTH	0.5	1	0.5	0.5	0.5
DIOXINS/FURANS (NG/KG)					
1,2,3,4,6,7,8,9-OCDD	NA	NA	480	386	2290
1,2,3,4,6,7,8,9-OCDF	NA	NA	39.4	32.7	176
1,2,3,4,6,7,8-HPCDD	NA	NA	56.5	46.7	290
1,2,3,4,6,7,8-HPCDF	NA	NA	8.87	7.41	35.2
1,2,3,4,7,8,9-HPCDF	NA	NA	3.26 U	3.32 U	1.98 J
1,2,3,4,7,8-HXCDD	NA	NA	3.26 U	3.32 U	3.53 J
1,2,3,4,7,8-HXCDF	NA	NA	3.26 U	3.32 U	3.12 U
1,2,3,6,7,8-HXCDD	NA	NA	2.08 J	1.78 J	8.55
1,2,3,6,7,8-HXCDF	NA	NA	3.26 U	3.32 U	3.12 U
1,2,3,7,8,9-HXCDD	NA	NA	3.26 U	3.32 U	4.42 J
1,2,3,7,8,9-HXCDF	NA	NA	3.26 U	3.32 U	3.12 U
1,2,3,7,8-PECDD	NA	NA	3.26 U	3.32 U	3.12 U
1,2,3,7,8-PECDF	NA	NA	3.26 U	3.32 U	3.12 U
2,3,4,6,7,8-HXCDF	NA	NA	3.26 U	3.32 U	3.12 U
2,3,4,7,8-PECDF	NA	NA	3.26 U	3.32 U	3.12 U
2,3,7,8-TCDD	NA	NA	0.65 U	0.663 U	0.657 J
2,3,7,8-TCDF	NA	NA	0.65 U	0.663 U	0.622 UJ
TEQ FISH	NA	NA	0.21794	0.18047	3.4601
TEQ FISH HALFND	NA	NA	4.58529	4.628745	6.51765
TEQ EQUIVALENTS	NA	NA	1.01752	0.84471	6.3186
TEQ EQUIVALENTS - HALFND	NA	NA	4.53722	4.42976	9.0485
TOTAL HPCDD	NA	NA	111	91.1	622
TOTAL HPCDF	NA	NA	33	29	152
TOTAL HXCDD	NA	NA	13.8	9.14	73.1
TOTAL HXCDF	NA	NA	7.09	6.51	31.3
TOTAL PECDD	NA	NA	3.26 U	3.32 U	2.12 J
TOTAL PECDF	NA	NA	3.26 U	3.32 U	6.42
TOTAL TCDD	NA	NA	0.65 U	0.663 U	1.11
TOTAL TCDF	NA	NA	0.346 J	0.663 U	3.76
METALS (MG/KG)					
ALUMINUM	8000	8830	NA	NA	NA
ANTIMONY	1.09 U	1.09 U	NA	NA	NA
ARSENIC	18.1	27	NA	NA	NA
BARIUM	114	255	NA	NA	NA
BERYLLIUM	0.94	1.21	NA	NA	NA
CADMIUM	0.687 J	0.601 J	NA	NA	NA
CALCIUM	4820	5550	NA	NA	NA
CHROMIUM	47.5	92.3	NA	NA	NA
COBALT	18.8	28.3	NA	NA	NA
COPPER	13	19.7	NA	NA	NA
IRON	18600	37800	NA	NA	NA
LEAD	41.3	44.1	NA	NA	NA
MAGNESIUM	1010	987	NA	NA	NA
MANGANESE	1730	4530	NA	NA	NA
MERCURY	0.0523	0.0388	NA	NA	NA
NICKEL	12.8	16.6	NA	NA	NA
POTASSIUM	370 J	381 J	NA	NA	NA
SELENIUM	0.694 J	3.42 U	NA	NA	NA
SILVER	0.271 U	1.37 U	NA	NA	NA
SODIUM	407 U	410 U	NA	NA	NA
THALLIUM	0.487 J	2.73 U	NA	NA	NA
VANADIUM	24.5	39.9	NA	NA	NA

TABLE F-2
ANALYTICAL RESULTS FOR SEDIMENT
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION	**11SD04**		**11SD05**		**11SD06**
SAMPLE ID	**11SD040006**	**11SD040612**	**11SD050006**	**11SD050006-D**	**11SD060006**
SAMPLE DATE	**20110428**	**20110428**	**20111117**	**20111117**	**20111117**
TOP DEPTH	**0**	**0.5**	**0**	**0**	**0**
BOTTOM DEPTH	**0.5**	**1**	**0.5**	**0.5**	**0.5**
ZINC	144	128	NA	NA	NA
MISCELLANEOUS PARAMETERS (MG/KG)					
CYANIDE	0.357 U	0.462 J	NA	NA	NA
TOTAL ORGANIC CARBON	15000	12500	NA	NA	NA
PCBS (UG/KG)					
AROCLOR-1016	11.2 U	10.9 U	NA	NA	NA
AROCLOR-1221	11.2 U	10.9 U	NA	NA	NA
AROCLOR-1232	11.2 U	10.9 U	NA	NA	NA
AROCLOR-1242	11.2 U	10.9 U	NA	NA	NA
AROCLOR-1248	11.2 U	10.9 U	NA	NA	NA
AROCLOR-1254	11.2 U	10.9 U	NA	NA	NA
AROCLOR-1260	11.2 U	10.9 U	NA	NA	NA
PESTICIDES (UG/KG)					
4,4'-DDD	0.457 U	0.447 U	NA	NA	NA
4,4'-DDE	0.457 U	0.447 U	NA	NA	NA
4,4'-DDT	0.457 U	0.447 U	NA	NA	NA
ALDRIN	0.457 U	0.447 U	NA	NA	NA
ALPHA-BHC	2.02	1.61	NA	NA	NA
ALPHA-CHLORDANE	0.457 U	0.447 U	NA	NA	NA
BETA-BHC	0.457 U	0.447 U	NA	NA	NA
DELTA-BHC	0.457 U	0.447 U	NA	NA	NA
DIELDRIN	0.448 UJ	0.459 UJ	NA	NA	NA
ENDOSULFAN I	0.448 UJ	0.459 UJ	NA	NA	NA
ENDOSULFAN II	0.448 UJ	0.459 UJ	NA	NA	NA
ENDOSULFAN SULFATE	0.457 U	0.447 U	NA	NA	NA
ENDRIN	0.448 UJ	0.459 UJ	NA	NA	NA
ENDRIN ALDEHYDE	0.448 UJ	0.459 UJ	NA	NA	NA
ENDRIN KETONE	0.457 U	0.447 U	NA	NA	NA
GAMMA-BHC (LINDANE)	0.457 U	0.447 U	NA	NA	NA
GAMMA-CHLORDANE	0.457 U	0.447 U	NA	NA	NA
HEPTACHLOR	0.457 U	0.447 U	NA	NA	NA
HEPTACHLOR EPOXIDE	0.457 U	0.447 U	NA	NA	NA
METHOXYCHLOR	0.448 UJ	0.459 UJ	NA	NA	NA
TOXAPHENE	29.6 U	28.9 U	NA	NA	NA
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)					
2-METHYLNAPHTHALENE	4.45 U	2.85 J	NA	NA	NA
ACENAPHTHENE	4.45 U	4.46 U	NA	NA	NA
ACENAPHTHYLENE	4.45 U	4.49 J	NA	NA	NA
ANTHRACENE	4.45 U	4.26 J	NA	NA	NA
BENZO(A)ANTHRACENE	3.34 J	14.8	NA	NA	NA
BENZO(A)PYRENE	5.01 J	19.7	NA	NA	NA
BENZO(B)FLUORANTHENE	7.48 J	38.1	NA	NA	NA
BENZO(G,H,I)PERYLENE	6.85 J	26.5	NA	NA	NA
BENZO(K)FLUORANTHENE	3.9 J	14.4	NA	NA	NA
CHRYSENE	5.68 J	39.3	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	4.45 U	14.5	NA	NA	NA
FLUORANTHENE	6.68 J	32.3	NA	NA	NA
FLUORENE	4.45 U	4.46 U	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	4.76 J	16.2	NA	NA	NA
NAPHTHALENE	4.45 U	4.46 U	NA	NA	NA
PHENANTHRENE	3.25 J	9.75	NA	NA	NA
PYRENE	7.39 J	32.5	NA	NA	NA
SEMIVOLATILES (UG/KG)					

TABLE F-2
ANALYTICAL RESULTS FOR SEDIMENT
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION	11SD04		11SD05		11SD06
SAMPLE ID	**11SD040006**	**11SD040612**	**11SD050006**	**11SD050006-D**	**11SD060006**
SAMPLE DATE	**20110428**	**20110428**	**20111117**	**20111117**	**20111117**
TOP DEPTH	**0**	**0.5**	**0**	**0**	**0**
BOTTOM DEPTH	**0.5**	**1**	**0.5**	**0.5**	**0.5**
1,1-BIPHENYL	223 U	224 U	NA	NA	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	223 UJ	224 UJ	NA	NA	NA
2,4,5-TRICHLOROPHENOL	223 U	224 U	NA	NA	NA
2,4,6-TRICHLOROPHENOL	223 U	224 U	NA	NA	NA
2,4-DICHLOROPHENOL	223 U	224 U	NA	NA	NA
2,4-DIMETHYLPHENOL	891 U	894 U	NA	NA	NA
2,4-DINITROPHENOL	2230 U	2240 U	NA	NA	NA
2,4-DINITROTOLUENE	223 U	224 U	NA	NA	NA
2,6-DINITROTOLUENE	223 U	224 U	NA	NA	NA
2-CHLORONAPHTHALENE	223 UJ	224 UJ	NA	NA	NA
2-CHLOROPHENOL	223 U	224 U	NA	NA	NA
2-METHYLPHENOL	223 U	224 U	NA	NA	NA
2-NITROANILINE	891 U	894 U	NA	NA	NA
2-NITROPHENOL	223 U	224 U	NA	NA	NA
3,3'-DICHLOROBENZIDINE	223 UJ	224 UJ	NA	NA	NA
3-NITROANILINE	891 U	894 U	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	2230 U	2240 U	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	223 U	224 U	NA	NA	NA
4-CHLORO-3-METHYLPHENOL	223 U	224 U	NA	NA	NA
4-CHLOROANILINE	223 U	224 U	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	223 U	224 U	NA	NA	NA
4-METHYLPHENOL	223 U	224 U	NA	NA	NA
4-NITROANILINE	891 U	894 U	NA	NA	NA
4-NITROPHENOL	891 U	894 U	NA	NA	NA
ACETOPHENONE	223 U	224 U	NA	NA	NA
ATRAZINE	223 U	224 U	NA	NA	NA
BENZALDEHYDE	223 UJ	224 UJ	NA	NA	NA
BIS(2-CHLOROETHOXY)METHANE	223 U	224 U	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	223 U	224 U	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	223 U	224 U	NA	NA	NA
BUTYL BENZYL PHTHALATE	223 U	224 U	NA	NA	NA
CAPROLACTAM	223 U	224 U	NA	NA	NA
CARBAZOLE	223 U	224 U	NA	NA	NA
DIBENZOFURAN	223 U	224 U	NA	NA	NA
DIETHYL PHTHALATE	223 U	224 U	NA	NA	NA
DIMETHYL PHTHALATE	223 U	224 U	NA	NA	NA
DI-N-BUTYL PHTHALATE	223 U	224 U	NA	NA	NA
DI-N-OCTYL PHTHALATE	223 U	224 U	NA	NA	NA
HEXACHLOROBENZENE	223 U	224 U	NA	NA	NA
HEXACHLOROBUTADIENE	223 U	224 U	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	223 U	224 U	NA	NA	NA
HEXACHLOROETHANE	223 U	224 U	NA	NA	NA
ISOPHORONE	223 U	224 U	NA	NA	NA
NITROBENZENE	223 U	224 U	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	223 UJ	224 UJ	NA	NA	NA
N-NITROSODIPHENYLAMINE	223 U	224 U	NA	NA	NA
PENTACHLOROPHENOL	891 U	894 U	NA	NA	NA
PHENOL	223 U	224 U	NA	NA	NA

NA - Not Analyzed
J - Estimated Value
U - Not detected
UJ - Not detected, estimated value

TABLE F-3
ANALYTICAL RESULTS FOR GROUNDWATER
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION	11MWT01		11MWT02			11MWT03	
SAMPLE ID	11MWT0101	11MWT0102	11MWT0201	11MWT0201-D	11MWT0202	11MWT0301	11MWT0302
SAMPLE DATE	20111212	20121128	20111214	20111214	20121129	20111214	20121129
DISSOLVED METALS (UG/L)							
ARSENIC	NA	NA	NA	NA	NA	NA	NA
BARIUM	NA	NA	NA	NA	NA	NA	NA
CADMIUM	NA	NA	NA	NA	NA	NA	NA
CHROMIUM	NA	NA	NA	NA	NA	NA	NA
LEAD	NA	NA	NA	NA	NA	NA	NA
MERCURY	NA	NA	NA	NA	NA	NA	NA
SELENIUM	NA	NA	NA	NA	NA	NA	NA
SILVER	NA	NA	NA	NA	NA	NA	NA
FIELD (C)							
TEMPERATURE	NA	NA	NA	NA	NA	NA	NA
FIELD (MG/L)							
DISSOLVED OXYGEN	NA	NA	NA	NA	NA	NA	NA
FIELD (MS/CM)							
SPECIFIC CONDUCTANCE	NA	NA	NA	NA	NA	NA	NA
FIELD (MV)							
OXIDATION REDUCTION POTENTIAL	NA	NA	NA	NA	NA	NA	NA
FIELD (NTU)							
TURBIDITY	NA	NA	NA	NA	NA	NA	NA
FIELD (S.U.)							
PH	NA	NA	NA	NA	NA	NA	NA
METALS (UG/L)							
ARSENIC	NA	NA	NA	NA	NA	NA	NA
BARIUM	NA	NA	NA	NA	NA	NA	NA
CADMIUM	NA	NA	NA	NA	NA	NA	NA
CHROMIUM	NA	NA	NA	NA	NA	NA	NA
LEAD	NA	NA	NA	NA	NA	NA	NA
MERCURY	NA	NA	NA	NA	NA	NA	NA
SELENIUM	NA	NA	NA	NA	NA	NA	NA
SILVER	NA	NA	NA	NA	NA	NA	NA
VOLATILES (UG/L)							
1,1,1-TRICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-TETRACHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-TRICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-TRICHLOROTRIFLUOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-DICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-TRICHLOROBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-TRICHLOROBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-DIBROMO-3-CHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-DIBROMOETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-DICHLOROBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-DICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-DICHLOROPROPANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-DICHLOROBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-DICHLOROBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-BUTANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-HEXANONE	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
4-METHYL-2-PENTANONE	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
ACETONE	5 U	5 U	3.4 J	5 U	5 U	5 U	5 U

TABLE F-3
ANALYTICAL RESULTS FOR GROUNDWATER
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION	**11MWT01**		**11MWT02**			**11MWT03**	
SAMPLE ID	**11MWT0101**	**11MWT0102**	**11MWT0201**	**11MWT0201-D**	**11MWT0202**	**11MWT0301**	**11MWT0302**
SAMPLE DATE	**20111212**	**20121128**	**20111214**	**20111214**	**20121129**	**20111214**	**20121129**
BENZENE	0.5 U	0.5 U	3.23	1.33	0.5 U	1.4	0.5 U
BROMOCHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMODICHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOFORM	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CARBON DISULFIDE	0.394 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CARBON TETRACHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLORODIBROMOMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLOROFORM	0.5 U	0.5 U	0.936 J	0.981 J	0.5 U	1.29	0.63 J
CHLOROMETHANE	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U
CIS-1,2-DICHLOROETHENE	0.5 U	0.5 U	27.6	28.7	5.1	0.5 U	0.5 U
CIS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CYCLOHEXANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DICHLORODIFLUOROMETHANE	1 U	1 UJ	1 U	1 U	1 UJ	1 U	1 UJ
ETHYLBENZENE	0.5 U	0.5 U	0.43 J	0.5 U	0.5 U	0.276 J	0.5 U
ISOPROPYLBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
M+P-XYLENES	NA	NA	NA	NA	NA	NA	NA
METHYL ACETATE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
METHYL CYCLOHEXANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
METHYL TERT-BUTYL ETHER	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
METHYLENE CHLORIDE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
O-XYLENE	NA	NA	NA	NA	NA	NA	NA
STYRENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	0.5 U	0.5 U	25.5	25.6	11	0.5 U	0.5 U
TOLUENE	0.5 U	0.5 U	3.87 J	0.654 J	0.5 U	2.04	0.5 U
TOTAL XYLENES	0.5 U	0.5 U	0.884 J	0.5 U	0.5 U	0.563 J	0.5 U
TRANS-1,2-DICHLOROETHENE	0.5 U	0.5 U	0.361 J	0.369 J	0.5 U	0.5 U	0.5 U
TRANS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRICHLOROETHENE	0.5 U	0.5 U	115	118	25.5	0.255 J	0.5 U
TRICHLOROFLUOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
VINYL CHLORIDE	0.5 U	0.5 U	0.503 J	0.492 J	0.5 U	0.5 U	0.5 U

TABLE F-3
ANALYTICAL RESULTS FOR GROUNDWATER
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION	**11MWT04**	**11MWT05**		**11MWT06**	**18CMWT001**		
SAMPLE ID	**11MWT0401**	**11MWT0501**	**11MWT0501-D**	**11MWT0601**	**18CGWT001**	**18CGWT001-D**	**18CMWT00102**
SAMPLE DATE	**20111215**	**20121127**	**20121127**	**20121127**	**20111217**	**20111217**	**20121128**
DISSOLVED METALS (UG/L)							
ARSENIC	NA	NA	NA	NA	1.62 J	1.42 J	NA
BARIUM	NA	NA	NA	NA	14.3	15.3	NA
CADMIUM	NA	NA	NA	NA	0.5 U	0.5 U	NA
CHROMIUM	NA	NA	NA	NA	2.94	5 U	NA
LEAD	NA	NA	NA	NA	0.75 U	3.75 U	NA
MERCURY	NA	NA	NA	NA	0.2 U	0.2 U	NA
SELENIUM	NA	NA	NA	NA	1.25 U	6.25 U	NA
SILVER	NA	NA	NA	NA	0.5 U	2.5 U	NA
FIELD (C)							
TEMPERATURE	NA	NA	NA	NA	12.41	NA	NA
FIELD (MG/L)							
DISSOLVED OXYGEN	NA	NA	NA	NA	9.92	NA	NA
FIELD (MS/CM)							
SPECIFIC CONDUCTANCE	NA	NA	NA	NA	0.004	NA	NA
FIELD (MV)							
OXIDATION REDUCTION POTENTIAL	NA	NA	NA	NA	82	NA	NA
FIELD (NTU)							
TURBIDITY	NA	NA	NA	NA	334	NA	NA
FIELD (S.U.)							
PH	NA	NA	NA	NA	5.72	NA	NA
METALS (UG/L)							
ARSENIC	NA	NA	NA	NA	1.79 J	1.78 J	NA
BARIUM	NA	NA	NA	NA	14 J	16.4	NA
CADMIUM	NA	NA	NA	NA	1 U	0.283 J	NA
CHROMIUM	NA	NA	NA	NA	2 U	5 U	NA
LEAD	NA	NA	NA	NA	1.5 U	3.75 U	NA
MERCURY	NA	NA	NA	NA	0.2 U	0.2 U	NA
SELENIUM	NA	NA	NA	NA	2.5 U	6.25 U	NA
SILVER	NA	NA	NA	NA	1 U	2.5 U	NA
VOLATILES (UG/L)							
1,1,1-TRICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-TETRACHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-TRICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-TRICHLOROTRIFLUOROETHANE	1 U	1 U	1 U	1 U	0.5 U	0.5 U	1 U
1,1-DICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-TRICHLOROBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-TRICHLOROBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-DIBROMO-3-CHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-DIBROMOETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-DICHLOROBENZENE	0.5 U	0.99 J	1	0.5 U	0.5 U	0.5 U	0.5 U
1,2-DICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-DICHLOROPROPANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-DICHLOROBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-DICHLOROBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-BUTANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-HEXANONE	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
4-METHYL-2-PENTANONE	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
ACETONE	5 U	2.74 J	5 U	3.9 J	5 U	5 U	5 U

TABLE F-3
ANALYTICAL RESULTS FOR GROUNDWATER
SWMU 11 RFI
NSA CRANE, CRANE, INDIANA

LOCATION	**11MWT04**	**11MWT05**		**11MWT06**	**18CMWT001**		
SAMPLE ID	**11MWT0401**	**11MWT0501**	**11MWT0501-D**	**11MWT0601**	**18CGWT001**	**18CGWT001-D**	**18CMWT00102**
SAMPLE DATE	**20111215**	**20121127**	**20121127**	**20121127**	**20111217**	**20111217**	**20121128**
BENZENE	0.5 U	0.5 U	0.26 J	0.5 U	0.5 U	0.5 U	0.5 U
BROMOCHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMODICHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOFORM	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOMETHANE	1 U	1 U	1 U	1 U	0.5 U	0.5 U	1 U
CARBON DISULFIDE	0.5 U	1.32	1.49	0.5 U	0.5 U	0.5 U	0.5 U
CARBON TETRACHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLORODIBROMOMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROETHANE	1 U	1 U	1 U	1 U	0.5 U	0.5 U	1 U
CHLOROFORM	0.5 U	0.5 U	0.5 U	0.32 J	0.5 U	0.5 U	0.5 U
CHLOROMETHANE	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	2.66	0.5 U
CIS-1,2-DICHLOROETHENE	0.5 U	3.05	3.2	0.5 U	0.5 U	0.5 U	0.5 U
CIS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CYCLOHEXANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DICHLORODIFLUOROMETHANE	1 U	1 UJ	1 UJ	1 UJ	0.5 U	0.5 U	1 UJ
ETHYLBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ISOPROPYLBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
M+P-XYLENES	NA	NA	NA	NA	0.5 U	0.5 U	NA
METHYL ACETATE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
METHYL CYCLOHEXANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
METHYL TERT-BUTYL ETHER	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
METHYLENE CHLORIDE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
O-XYLENE	NA	NA	NA	NA	0.5 U	0.5 U	NA
STYRENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	0.5 U	5.54	5.93	0.5 U	0.5 U	0.5 U	0.5 U
TOLUENE	0.286 J	0.42 J	0.46 J	0.5 U	0.5 U	0.5 U	0.5 U
TOTAL XYLENES	0.5 U	0.5 U	0.5 U	0.5 U	1.5 U	1.5 U	0.5 U
TRANS-1,2-DICHLOROETHENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRANS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRICHLOROETHENE	0.5 U	3.35	3.63	0.5 U	0.5 U	0.5 U	0.5 U
TRICHLOROFLUOROMETHANE	1 U	1 U	1 U	1 U	0.5 U	0.5 U	1 U
VINYL CHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

NA - Not Analyzed
J - Estimated Value
U - Not detected
UJ - Not detected, estimated value

APPENDIX G

SUPPORTING HUMAN HEALTH RISK ASSESSMENT DOCUMENTATION AND TABLES

G-1 BACKGROUND STATISTICS INFORMATION
G-2 HHRA SUPPORTING DOCUMENTATION

G-1 BACKGROUND STATISTICS INFORMATION

BACKGROUND COMPARISONS
SWMU 11
NSA CRANE, CRANE, INDIANA

1. INTRODUCTION

SWMU 11 surface soil and sediment were compared to Background Soil Group 3, residual soil from Pennsylvanian bedrock, and subsurface soil was compared to Background Soil Group 8, Pennsylvanian subsurface Clay and Silt, from the Crane Basewide Background Report (Tetra Tech, 2001). The comparative statistical method was used to compare the surface and subsurface SWMU 11 soil and SWMU 11 sediment to the appropriate background data. The comparative method utilizes several statistical techniques to compare site and background data described below.

2. STATISTICAL METHODLOGY

This section describes the graphical displays and hypothesis tests used to compare site data and background data.

The comparative statistical method of site data and background data involved a graphical evaluation and a hypothesis test comparing the central tendency (mean/median) concentrations and a hypothesis test comparing the right tails (largest values). The graphical evaluation consisted of visual inspection of boxplots, normal probability plots, and histograms. The graphical displays are presented at the end of this Appendix. One-half the detection limit was used for non-detected concentrations for the graphical displays; the full detection limit was used for non-detected concentrations for the hypothesis tests. The statistical package R version 2.14.0 was used to conduct the statistical evaluations.

2.1 Graphical Displays

Boxplots show the central tendency, degree of symmetry, range of variation, and potential outliers of a data set. The data set is shown as a rectangular box that represents the middle 50 percent of the data. The upper value of the box represents the 75th percentile and the lower value of the box represents the 25th percentile. The median is represented by the middle line in the box. Box plots for the same analyte were plotted on the same graph. The plots were visually inspected to see which data sets look similar and which ones differed. Particular attention was paid to see if the median from one data set fell within the 75th and 25th percentile range of the other data sets.

Probability plots are a useful first step for visually comparing two data sets in a single graph. If the site and background distributions were exactly identical, the plotted values would lie on a straight line through the origin. Deviations from this line show the differences between the two distributions. If the site and background distributions are similar the scattering of the two data sets will be mixed. If there is grouping of the two data sets then data sets are most likely different.

Histograms are a visual representation of the data collected into groups. The data range is divided into several bins or classes and the data are sorted into the bins. The x-axis displays the chemical concentration range for the bin and the y-axis shows the number of observations that fall within the bin. The histograms of the site and background datasets were plotted on top of each other to be able to compare the shapes of the two distributions, overall concentration ranges, and ranges of concentrations that have the most samples.

2.2 Hypothesis Tests

Two types of hypothesis tests were conducted one comparing the central tendency of the data sets and one comparing the right tails of the data sets. The Two sample T-test, Wilcoxon Rank

Sum test, and Gehan test were used to compare the central tendency (mean/median) of the site and background data sets. The Slippage Test and Quantile test were used to compare the right tails of the site and background datasets. All hypothesis tests were conducted using a five percent significance level meaning that if the p-value associated with the hypothesis test is less than 0.05 there is statistically significant evidence that the null hypothesis (H_o or assumed hypothesis) is false. The p-value of a test can be thought of as the credibility of the null hypothesis; p-values greater than 0.05 indicate that the null hypothesis is credible whereas p-values less than 0.05 indicate otherwise.

The Two Sample T-Test tests for a difference between two populations means when it can be assumed that the data are approximately normally distributed or sample sizes are large enough (m and n at least 30) and the data are all detected. If the variances of the two data sets are not equal than the Two sample T Test with unequal variance was computed. The null and alternative hypotheses were:

H_o: Site Average ≥ Background Average + 2*Background Standard Deviation
H_A: Site Average < Background Average + 2*Background Standard Deviation

The Wilcoxon Rank-Sum (WRS) nonparametric test is used to test for a difference between median concentrations between two independent populations. The WRS test was used when the data were not normally distributed and there were less than three reporting limits if non-detected concentrations were present. The null and alternative hypotheses were:

H_o: Site Median ≥ Background Media + 2*Background Standard Deviation
H_A: Site Median < Background Median + 2*Background Standard Deviation

The Gehan nonparametric test is used to test for a difference between median concentrations between two independent populations. The Gehan test can be used when the background or site datasets contain multiple nondetects with different reporting limits. The Gehan test was used when the nondetects had more than three reporting limits. The null and alternative hypotheses are the same as the null and alternative hypothesis for the WRS test.

The two sample proportion test was used to determine if the proportion of site samples in the top 25 percent of the combined site and background dataset is greater than the proportion of background samples. The proportion test was used when there were between 50 and 90 percent non-detects. The null and alternative hypotheses were:

H_o: Proportion Site < Proportion Background
H_A: Proportion Site ≥ Proportion Background

The Slippage Test and Quantile tests are used to test for a shift to the right in the extreme right-tail of the site versus the background concentrations. This is equivalent to asking if a set of the largest values of the site distribution are larger than the maximum value of the background distribution. If the slippage test found the extreme right tail of the site data to be larger than the background data it was concluded that the site concentrations are greater than background. The null and alternative hypotheses were:

H_o: Right Tail of Site Dataset ≤ Right Tail of the Background Dataset
H_A: Right Tail of the Site Dataset > Right Tail of the Background Dataset

3. STATISTICAL CONCLUSIONS

The results of the statistical analysis for surface soil, subsurface soil, and sediment background comparisons are presented in Tables 1 through 3.

For surface soil, it can be concluded that site concentrations of arsenic, barium, cadmium, chromium, cobalt, lead, manganese, mercury, nickel, potassium, selenium, vanadium, and zinc are consistent with background concentrations while site concentrations of aluminum, calcium, copper, iron, magnesium, mercury, and sodium, are greater than background concentrations. Note, that concentrations of antimony, silver, and thallium were not detected in the site data while concentrations of beryllium were not detected in the background data. Because these chemicals were not detected in at least one of the two data sets it is not appropriate to make formal statistical conclusions about whether site concentrations are similar to background concentrations.

For subsurface soil it can be concluded that site concentrations of aluminum, barium, calcium, cobalt, copper, magnesium, manganese, mercury, nickel, potassium, and zinc are consistent with background concentrations while site concentrations of arsenic, beryllium, chromium, iron, lead, selenium, and vanadium are greater than background concentrations. Note that concentrations of antimony, cadmium, silver, sodium, and thallium were not detected in the site data while concentrations of beryllium were not detected in the background data. Because these chemicals were not detected in at least one of the two data sets it is not appropriate to make formal statistical conclusions about whether site concentrations are similar to background concentrations.

For sediment it can be concluded that site concentrations of aluminum, antimony, manganese, nickel, and potassium, are consistent with background concentrations while site concentrations of arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, mercury, selenium, sodium, thallium, vanadium, and zinc are greater than background concentrations. Note that concentrations of silver were not detected in the site data while concentrations of beryllium were not detected in the background data. Because these chemicals were not detected in at least one of the two data sets it is not appropriate to make formal statistical conclusions about whether site concentrations are similar to background concentrations.

TABLE 1

SURFACE SOIL BACKGROUND COMPARISONS
SWMU 11
NSA CRANE
CRANE, INDIANA

PARAMETER	SITE FOD	BACKGROUND FOD	SITE MAXIMUM DETECT (MG/KG)	BACKGROUND MAXIMUM DETECT (MG/KG)	SITE DISTRIBUTION	BACKGROUND DISTRIBUTION	HYPOTHESIS TEST	HYPOTHESIS TEST P-VALUE	HYPOTHESIS TEST CONCLUSION	SLIPPAGE TEST STATISTIC	SLIPPAGE CONCLUSION	QUANTILE TEST STATISTIC	QUANTILE CONCLUSION	FINAL CONCLUSION
ALUMINUM	22 / 22	15 / 15	19900	17400	Normal	Normal	T-Test	0.6733	Site Consistent with Background	2	Site Consistent with Background	5	Site Greater Background	Site Greater than Background
ANTIMONY	0 / 22	2 / 15	--	5.6	Assumed Nonparametric	Assumed Nonparametric	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	22 / 22	15 / 15	12	10.2	Normal	Normal	T-Test	0.3674	Site Consistent with Background	5	Site Consistent with Background	5	Site Greater than Background	Site Consistent with Background
BARIUM	22 / 22	15 / 15	142	153	Normal	Nonparametric	WRS	1.04E-08	Site Consistent with Background	0	Site Consistent with Background	2	Site Consistent with Background	Site Consistent with Background
BERYLLIUM	22 / 22	0 / 15	1.14	--	Normal	Assumed Nonparametric	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	2 / 22	10 / 15	0.174	3.6	Assumed Nonparametric	Nonparametric	Proportion	1	Site Consistent with Background	0	Site Consistent with Background	0	Site Consistent with Background	Site Consistent with Background
CALCIUM	22 / 22	14 / 15	96200	35300	Nonparametric	Nonparametric	WRS	7.30E-08	Site Consistent with Background	1	Site Consistent with Background	5	Site Greater Background	Site Greater Background
CHROMIUM	22 / 22	15 / 15	27.6	21.7	Normal	Normal	T-Test	0.9965	Site Consistent with Background	2	Site Consistent with Background	4	Site Consistent with Background	Site Consistent with Background
COBALT	22 / 22	15 / 15	26	27.1	Nonparametric	Nonparametric	WRS	5.43E-08	Site Consistent with Background	0	Site Consistent with Background	2	Site Consistent with Background	Site Consistent with Background
COPPER	22 / 22	15 / 15	18.4	17.1	Normal	Nonparametric	WRS	0.1394	Site Greater than Background	4	Site Consistent with Background	5	Site Greater Background	Site Greater than Background
IRON	22 / 22	15 / 15	30100	36200	Normal	Nonparametric	WRS	3.29E-05	Site Consistent with Background	0	Site Consistent with Background	5	Site Greater Background	Site Greater than Background
LEAD	22 / 22	15 / 15	27.7	21.5	Normal	Normal	T-Test	0.1975	Site Consistent with Background	1	Site Consistent with Background	3	Site Consistent with Background	Site Consistent with Background
MAGNESIUM	22 / 22	15 / 15	4260	2250	Nonparametric	Normal	WRS	0.04588	Site Consistent with Background	5	Site Consistent with Background	5	Site Greater than Background	Site Greater than Background
MANGANESE	22 / 22	15 / 15	1070	3040	Nonparametric	Normal	WRS	1.07E-10	Site Consistent with Background	0	Site Consistent with Background	0	Site Consistent with Background	Site Consistent with Background
MERCURY	17 / 22	5 / 15	0.0645	0.05	Normal	Nonparametric	Gehan	0.0877	Site Greater than Background	4	Site Consistent with Background	NA	NA	Site Greater than Background
NICKEL	22 / 22	15 / 15	17.1	20	Normal	Normal	T-Test	0.3876	Site Consistent with Background	0	Site Consistent with Background	4	Site Consistent with Background	Site Consistent with Background
POTASSIUM	22 / 22	15 / 15	1110	1490	Normal	Normal	T-Test	0.09169	Site Consistent with Background	0	Site Consistent with Background	2	Site Consistent with Background	Site Consistent with Background
SELENIUM	8 / 22	5 / 15	0.67	0.64	Nonparametric	Normal	Proportion	1	Site Consistent with Background	NA	NA	NA	NA	Site Consistent with Background
SILVER	0 / 22	15 / 15	--	0.11	Assumed Nonparametric	Nonparametric	NA	NA	NA	NA	NA	NA	NA	NA
SODIUM	6 / 22	5 / 15	397	23.7	Nonparametric	Nonparametric	Proportion	0.003998	Site Greater than Background	6	Site Consistent with Background	NA	NA	Site Greater than Background
THALLIUM	0 / 22	15 / 15	--	0.25	Assumed Nonparametric	Normal	NA	NA	NA	0	NA	NA	NA	NA
VANADIUM	22 / 22	15 / 15	41	40	Normal	Normal	T-Test	0.658	Site Consistent with Background	1	Site Consistent with Background	4	Site Consistent with Background	Site Consistent with Background
ZINC	22 / 22	14 / 15	52.5	60.2	Normal	Normal	WRS	1.70E-07	Site Consistent with Background	0	Site Consistent with Background	4	Site Consistent with Background	Site Consistent with Background

TABLE 2

SUBSURFACE SOIL BACKGROUND COMPARISONS
SWMU 11
NSA CRANE
CRANE, INDIANA

PARAMETER	SITE FOD	BACKGROUND FOD	SITE MAXIMUM DETECT (MG/KG)	BACKGROUND MAXIMUM DETECT (MG/KG)	SITE DISTRIBUTION	BACKGROUND DISTRIBUTION	HYPOTHESIS TEST	HYPOTHESIS TEST P-VALUE	HYPOTHESIS TEST CONCLUSION	SLIPPAGE TEST STATISTIC	SLIPPAGE CONCLUSION	QUANTILE TEST STATISTIC	QUANTILE CONCLUSION	FINAL CONCLUSION
ALUMINUM	4 / 4	9 / 9	15400	16200	Normal	Normal	T-Test	0.003639	Site Consistent with Background	0	Site Consistent with Background	NA	NA	Site Consistent with Background
ANTIMONY	0 / 4	1 / 9	--	11.3	Assumed Nonparametric	Assumed Nonparametric	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	4 / 4	9 / 9	20.4	8.5	Normal	Normal	T-Test	0.3921	Site Greater than Background	1	Site Consistent with Background	NA	NA	Site Greater than Background
BARIUM	4 / 4	9 / 9	60.9	83.4	Normal	Normal	T-Test	0.0001001	Site Consistent with Background	0	Site Consistent with Background	NA	NA	Site Consistent with Background
BERYLLIUM	4 / 4	0 / 9	0.827	--	Normal	Assumed Nonparametric	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	0 / 4	8 / 9	--	0.64	Assumed Nonparametric	Normal	NA	NA	NA	NA	NA	NA	NA	NA
CALCIUM	4 / 4	9 / 9	688	970	Normal	Normal	T-Test	0.001519	Site Consistent with Background	0	Site Consistent with Background	NA	NA	Site Consistent with Background
CHROMIUM	4 / 4	9 / 9	74.9	27.1	Normal	Normal	T-Test	0.6236	Site Greater than Background	2	Site Consistent with Background	NA	NA	Site Greater than Background
COBALT	4 / 4	9 / 9	5.73	12.5	Normal	Normal	T-Test	9.19E-06	Site Consistent with Background	0	Site Consistent with Background	NA	NA	Site Consistent with Background
COPPER	4 / 4	9 / 9	12.7	23.8	Normal	Normal	T-Test	0.0001176	Site Consistent with Background	0	Site Consistent with Background	NA	NA	Site Consistent with Background
IRON	4 / 4	9 / 9	75600	40800	Nonparametric	Normal	WRS	0.0993	Site Greater than Background	1	Site Consistent with Background	NA	NA	Site Greater than Background
LEAD	4 / 4	9 / 9	28.5	14.6	Normal	Normal	T-Test	0.4377	Site Greater than Background	2	Site Consistent with Background	NA	NA	Site Greater than Background
MAGNESIUM	4 / 4	9 / 9	1460	2870	Normal	Normal	T-Test	4.59E-05	Site Consistent with Background	0	Site Consistent with Background	NA	NA	Site Consistent with Background
MANGANESE	4 / 4	9 / 9	593	457	Normal	Normal	T-Test	0.00404	Site Consistent with Background	1	Site Consistent with Background	NA	NA	Site Consistent with Background
MERCURY	2 / 4	1 / 9	0.025	0.14	Assumed Nonparametric	Assumed Nonparametric	Proportion	0.2937	Site Consistent with Background	0	Site Consistent with Background	NA	NA	Site Consistent with Background
NICKEL	4 / 4	9 / 9	9.71	23.7	Normal	Normal	T-Test	9.95E-05	Site Consistent with Background	0	Site Consistent with Background	NA	NA	Site Consistent with Background
POTASSIUM	4 / 4	9 / 9	643	1290	Normal	Normal	T-Test	2.41E-05	Site Consistent with Background	0	Site Consistent with Background	NA	NA	Site Consistent with Background
SELENIUM	1 / 4	8 / 9	1.26	0.88	Assumed Nonparametric	Normal	Gehan	0.5	Site Greater than Background	1	Site Consistent with Background	NA	NA	Site Greater than Background
SILVER	0 / 4	8 / 9	--	0.1	Assumed Nonparametric	Nonparametric	NA	NA	NA	NA	NA	NA	NA	NA
SODIUM	0 / 4	6 / 9	--	191	Assumed Nonparametric	Normal	NA	NA	NA	NA	NA	NA	NA	NA
THALLIUM	0 / 4	9 / 9	--	0.25	Assumed Nonparametric	Normal	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM	4 / 4	9 / 9	86.2	48.5	Normal	Normal	T-Test	0.3142	Site Greater than Background	1	Site Consistent with Background	NA	NA	Site Greater than Background
ZINC	4 / 4	9 / 9	27.1	58.2	Normal	Normal	T-Test	4.77E-05	Site Consistent with Background	0	Site Consistent with Background	NA	NA	Site Consistent with Background

TABLE 3

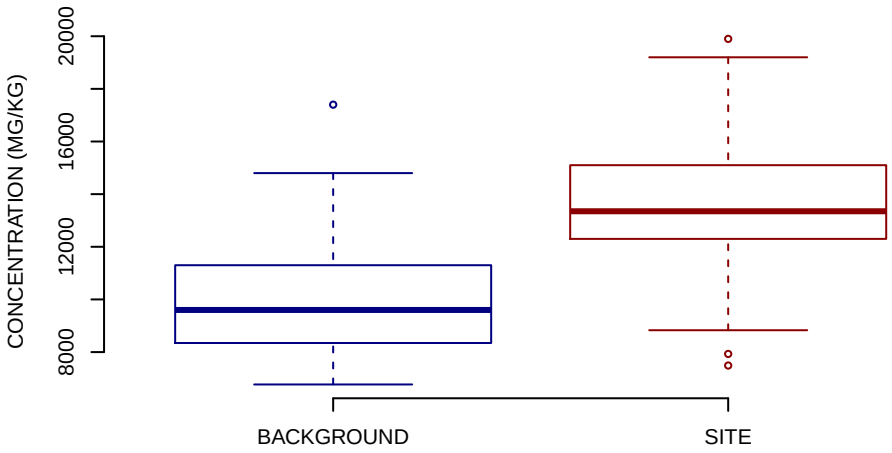
SEDIMENT BACKGROUND COMPARISONS
SWMU 11
NSA CRANE
CRANE, INDIANA

PARAMETER	SITE FOD	BACKGROUND FOD	SITE MAXIMUM DETECT (MG/KG)	BACKGROUND MAXIMUM DETECT (MG/KG)	SITE DISTRIBUTION	BACKGROUND DISTRIBUTION	HYPOTHESIS TEST	HYPOTHESIS TEST P-VALUE	HYPOTHESIS TEST CONCLUSION	SLIPPAGE TEST STATISTIC	SLIPPAGE CONCLUSION	QUANTILE TEST STATISTIC	QUANTILE CONCLUSION	FINAL CONCLUSION
ALUMINUM	8 / 8	15 / 15	11300	17400	Normal	Normal	T-Test	7.06E-07	Site Consistent with Background	0	Site Consistent with Background	0	Site Consistent with Background	Site Consistent with Background
ANTIMONY	1 / 8	2 / 15	0.637	5.6	Assumed Nonparametric	Assumed Nonparametric	Proportion	0.9108	Site Consistent with Background	0	Site Consistent with Background	NA	NA	Site Consistent with Background[1]
ARSENIC	8 / 8	15 / 15	27	10.2	Nonparametric	Normal	WRS	1	Site Greater than Background	8	Site Greater Background	3	Site Greater Background	Site Greater than Background
BARIUM	8 / 8	15 / 15	255	153	Normal	Nonparametric	WRS	0.02003	Site Consistent with Background	2	Site Consistent with Background	2	Site Consistent with Background	Site Consistent with Background
BERYLLIUM	8 / 8	0 / 15	1.21	--	Normal	Assumed Nonparametric	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	8 / 8	10 / 15	2.6	3.6	Nonparametric	Nonparametric	Gehan	0.0694	Site Greater than Background	0	Site Consistent with Background	2	Site Consistent with Background	Site Greater than Background
CALCIUM	8 / 8	14 / 15	55500	35300	Nonparametric	Nonparametric	WRS	0.1469	Site Greater than Background	2	Site Consistent with Background	2	Site Consistent with Background	Site Greater than Background
CHROMIUM	8 / 8	15 / 15	132	21.7	Normal	Normal	T-Test	0.9989	Site Greater than Background	8	Site Greater Background	3	Site Greater Background	Site Greater than Background
COBALT	8 / 8	15 / 15	28.3	27.1	Nonparametric	Nonparametric	WRS	0.01005	Site Consistent with Background	1	Site Consistent with Background	2	Site Consistent with Background	Site Consistent with Background
COPPER	8 / 8	15 / 15	26.7	17.1	Nonparametric	Nonparametric	WRS	0.3612	Site Greater than Background	3	Site Consistent with Background	3	Site Greater Background	Site Greater than Background
IRON	8 / 8	15 / 15	37800	36200	Normal	Nonparametric	WRS	0.06573	Site Greater than Background	1	Site Consistent with Background	2	Site Consistent with Background	Site Greater than Background
LEAD	8 / 8	15 / 15	148	21.5	Nonparametric	Normal	WRS	0.9997	Site Greater than Background	7	Site Greater Background	3	Site Greater Background	Site Greater than Background
MAGNESIUM	8 / 8	15 / 15	3760	2250	Nonparametric	Normal	WRS	0.03288	Site Consistent with Background	2	Site Consistent with Background	2	Site Consistent with Background	Site Consistent with Background
MANGANESE	8 / 8	15 / 15	4530	3040	Normal	Normal	T-Test	0.03017	Site Consistent with Background	1	Site Consistent with Background	2	Site Consistent with Background	Site Consistent with Background
MERCURY	8 / 8	5 / 15	0.153	0.05	Nonparametric	Nonparametric	WRS	0.8868	Site Greater than Background	6	Site Greater Background	3	Site Greater Background	Site Greater Background
NICKEL	8 / 8	15 / 15	16.6	20	Normal	Normal	T-Test	2.51E-05	Site Consistent with Background	0	Site Consistent with Background	1	Site Consistent with Background	Site Consistent with Background
POTASSIUM	8 / 8	15 / 15	442	1490	Normal	Normal	T-Test	3.84E-10	Site Consistent with Background	0	Site Consistent with Background	0	Site Consistent with Background	Site Consistent with Background
SELENIUM	6 / 8	5 / 15	0.774	0.64	Nonparametric	Normal	Proportion	0.9108	Site Consistent with Background	NA	NA	NA	NA	Site Consistent with Background
SILVER	0 / 8	15 / 15	--	0.11	Assumed Nonparametric	Nonparametric	NA	NA	NA	NA	NA	NA	NA	NA
SODIUM	2 / 8	5 / 15	215	23.7	Assumed Nonparametric	Nonparametric	Proportion	0.001664	Site Greater than Background	2	Site Consistent with Background	NA	NA	Site Greater than Background
THALLIUM	4 / 8	15 / 15	0.742	0.25	Normal	Normal	Gehan	0.9785	Site Greater than Background	4	Site Greater Background	NA	NA	Site Greater than Background
VANADIUM	8 / 8	15 / 15	43.1	40	Normal	Normal	T-Test	0.003391	Site Consistent with Background	1	Site Consistent with Background	2	Site Consistent with Background	Site Consistent with Background
ZINC	8 / 8	14 / 15	392	60.2	Normal	Normal	WRS	0.9996	Site Greater than Background	7	Site Greater Background	3	Site Greater Background	Site Greater than Background

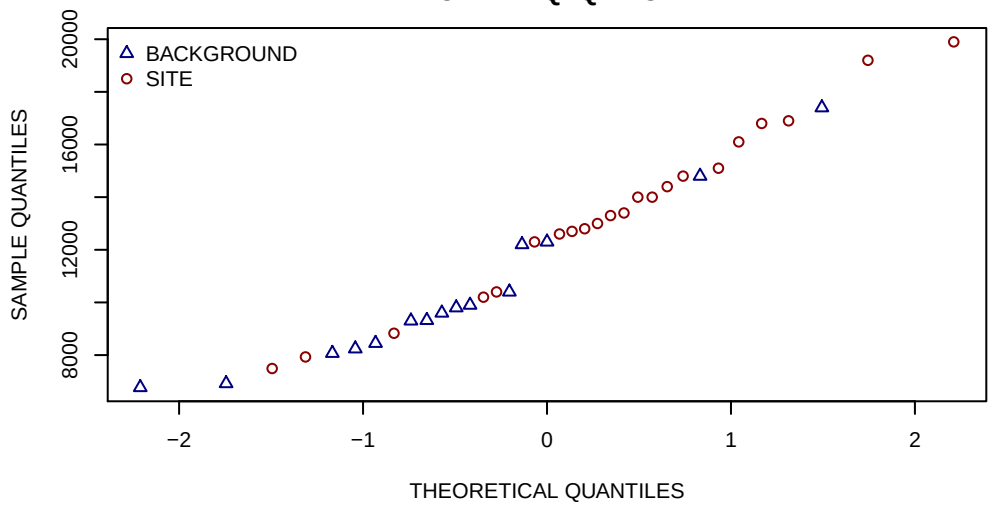
1 - Based on graphical display.

ALUMINUM SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 1 OF 23

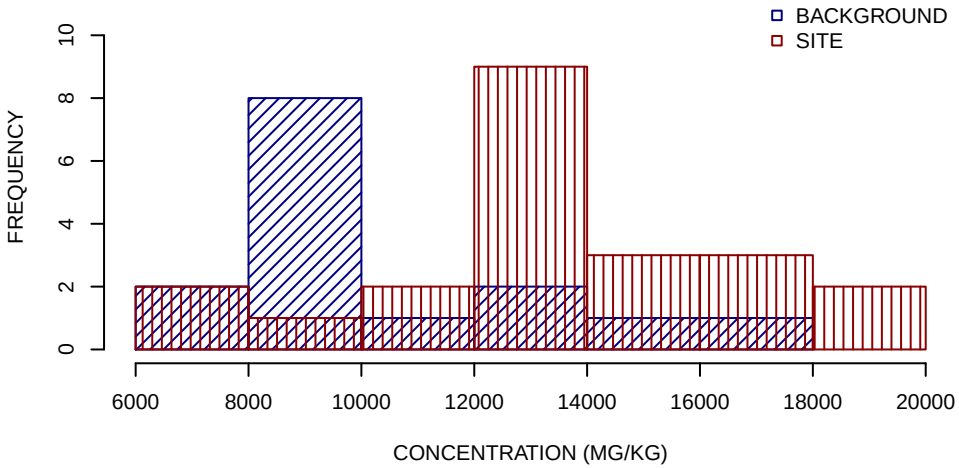
BOXPLOTS



NORMAL Q−Q PLOT



HISTOGRAMS



SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	6800	7500
25TH PERCENTILE	8300	12000
MEDIAN	9600	13000
MEAN	10000	13000
75TH PERCENTILE	11000	15000
MAXIMUM	17000	20000

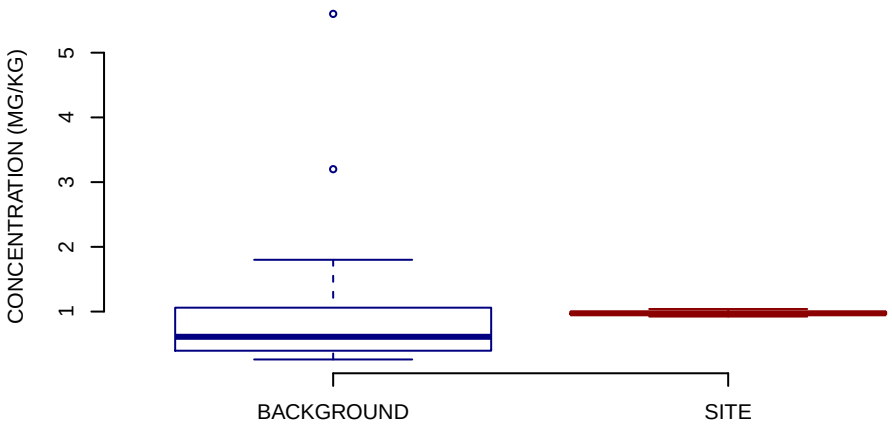
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

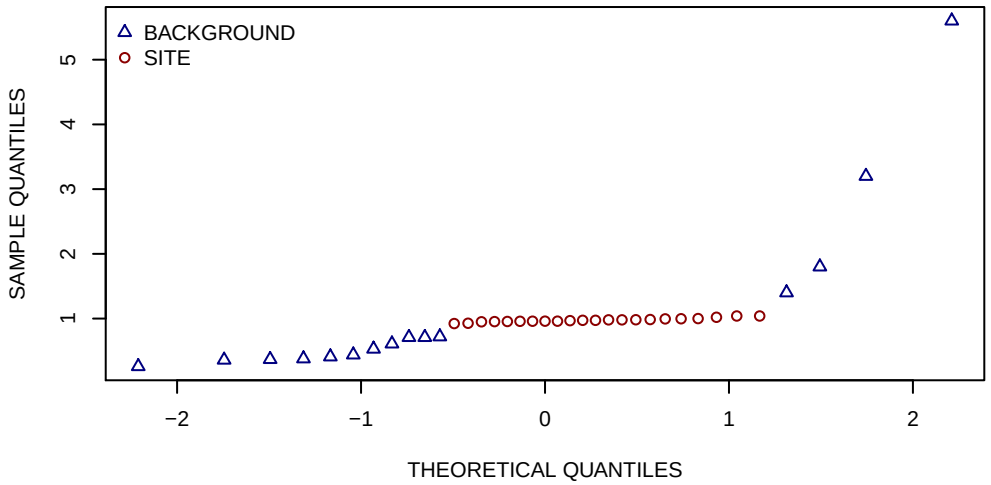
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

ANTIMONY SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 2 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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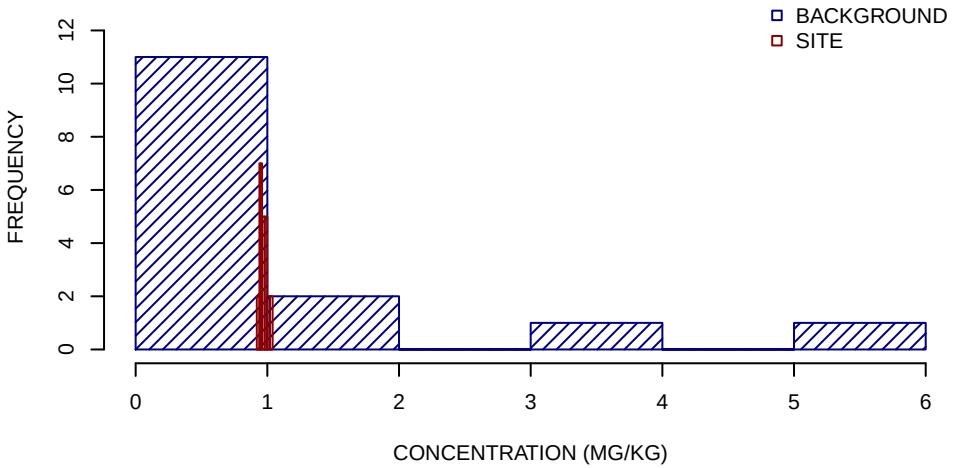


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.26	0.92
25TH PERCENTILE	0.4	0.96
MEDIAN	0.61	0.97
MEAN	1.2	0.98
75TH PERCENTILE	1.1	0.99
MAXIMUM	5.6	1

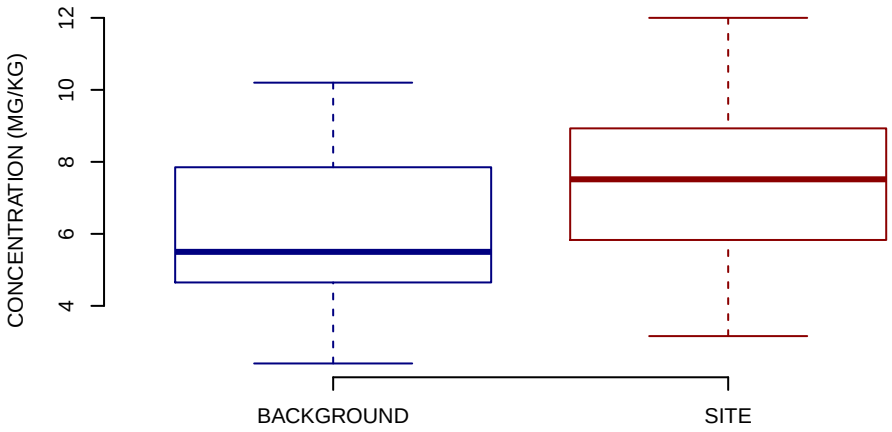
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

ARSENIC SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 3 OF 23

BOXPLOTS



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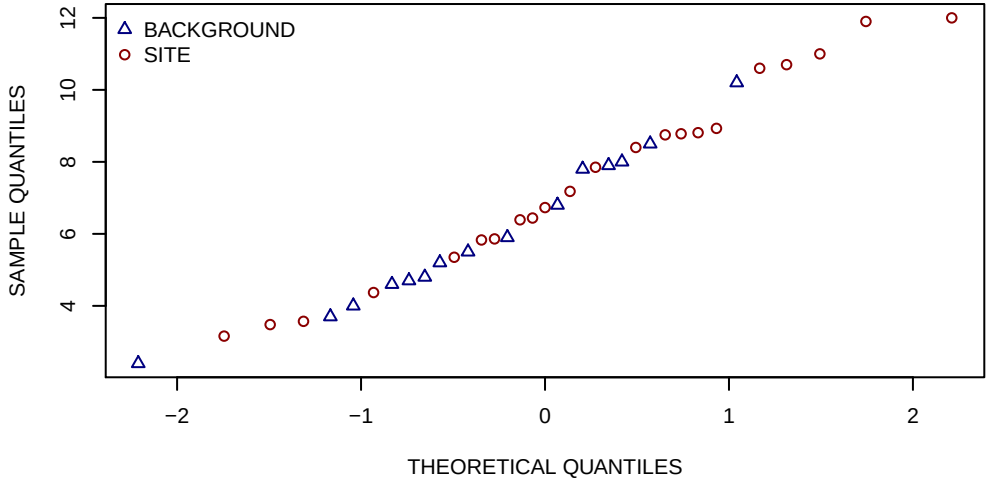

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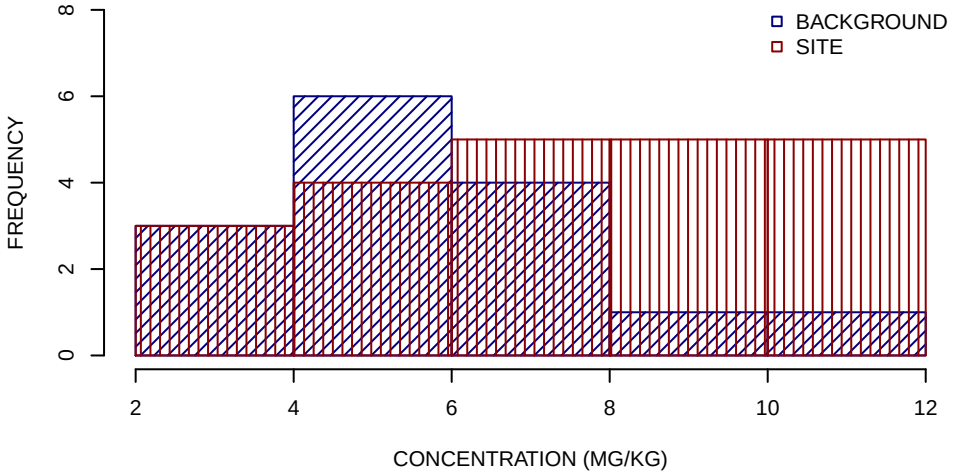


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	2.4	3.2
25TH PERCENTILE	4.6	5.8
MEDIAN	5.5	7.5
MEAN	6	7.5
75TH PERCENTILE	7.8	8.9
MAXIMUM	10	12

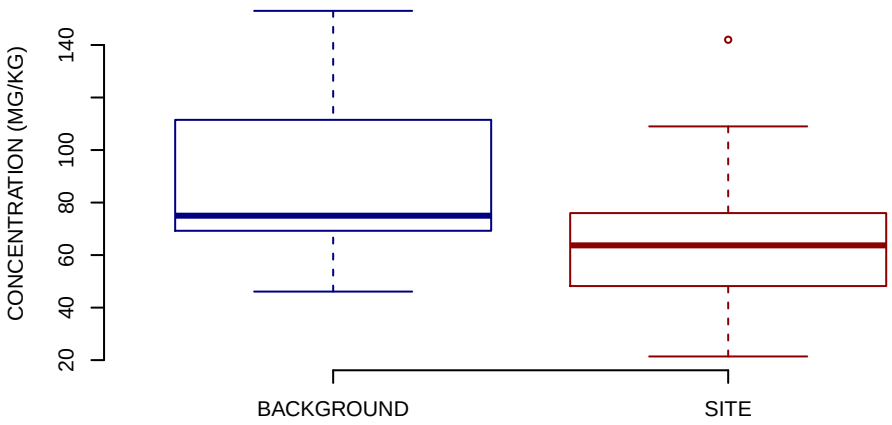
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

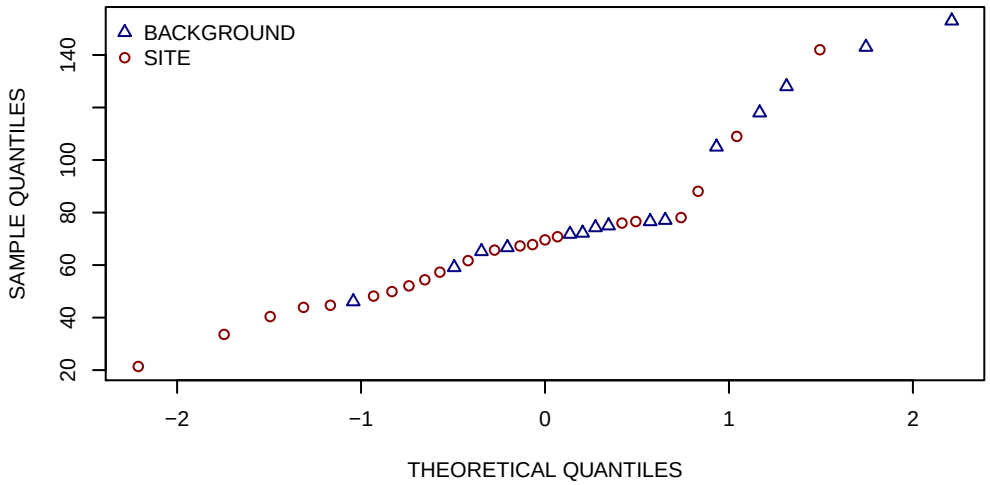
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

BARIUM SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 4 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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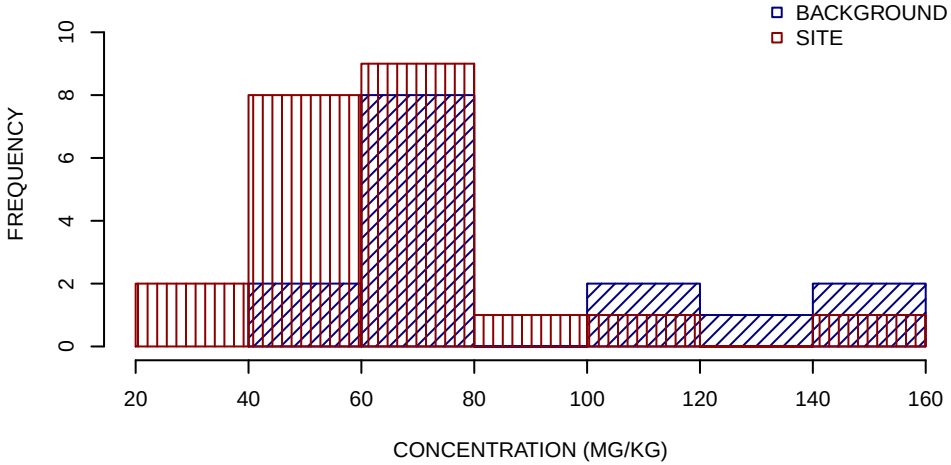


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	46	21
25TH PERCENTILE	69	49
MEDIAN	75	64
MEAN	89	64
75TH PERCENTILE	110	75
MAXIMUM	150	140

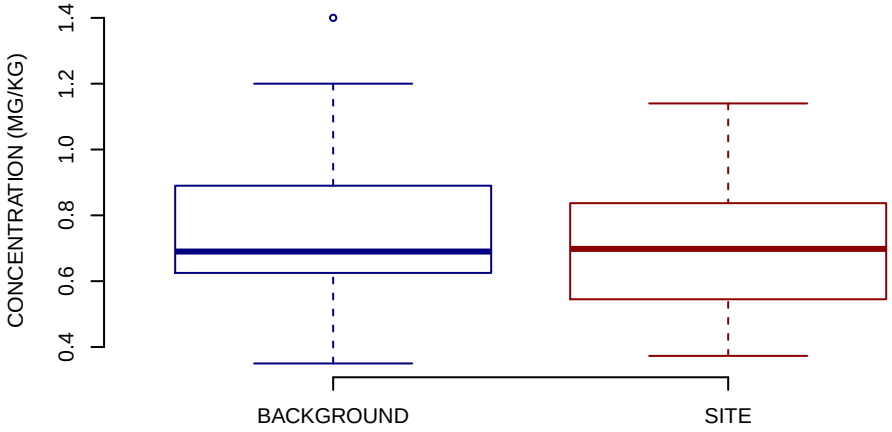
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

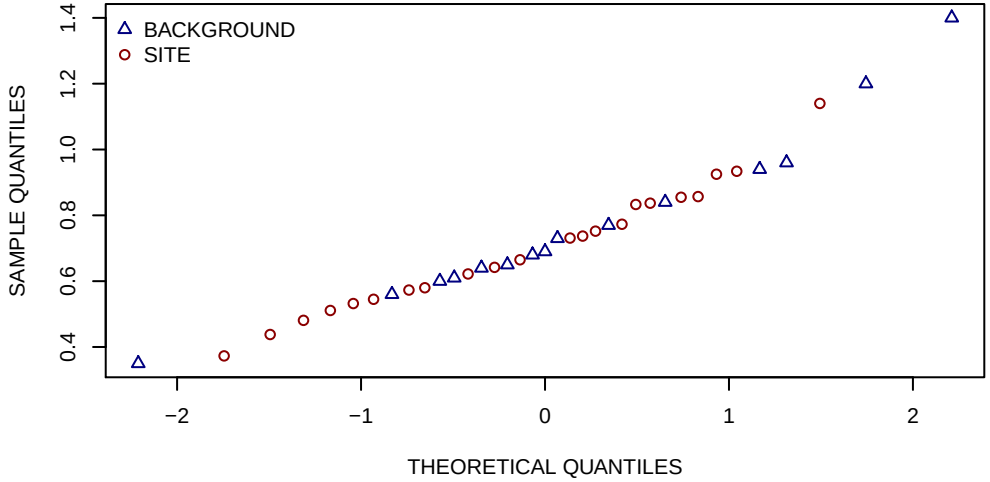
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

BERYLLIUM SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 5 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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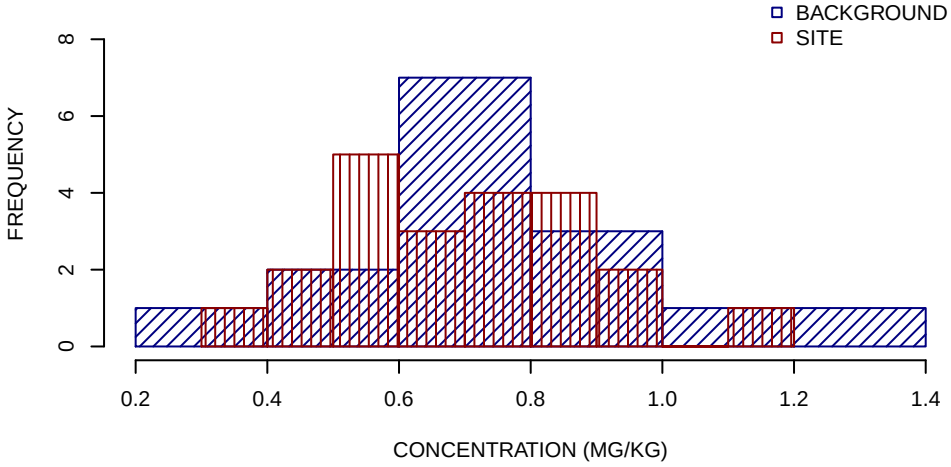


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.35	0.37
25TH PERCENTILE	0.62	0.55
MEDIAN	0.69	0.7
MEAN	0.77	0.7
75TH PERCENTILE	0.89	0.84
MAXIMUM	1.4	1.1

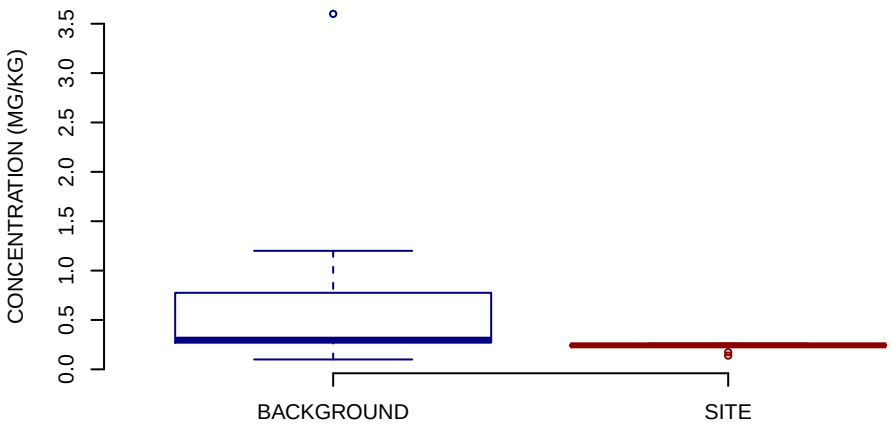
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

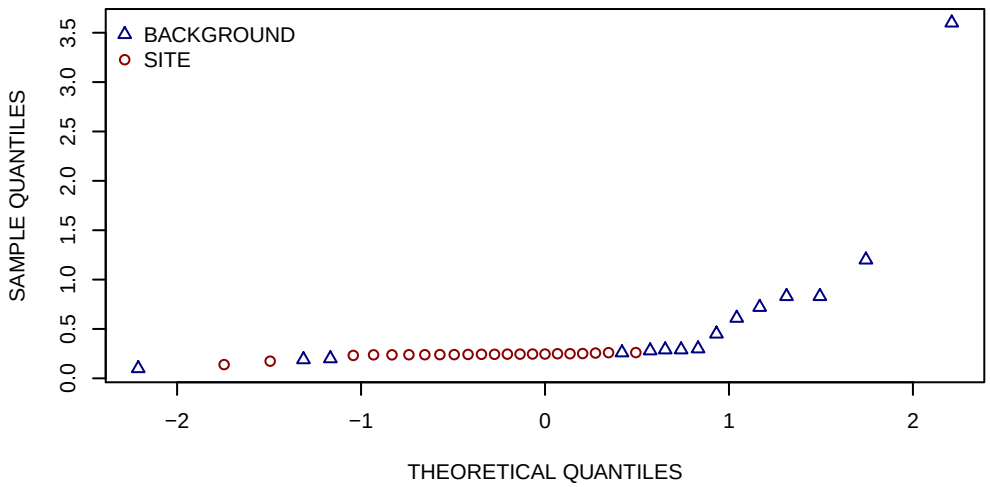
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

CADMIUM SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 6 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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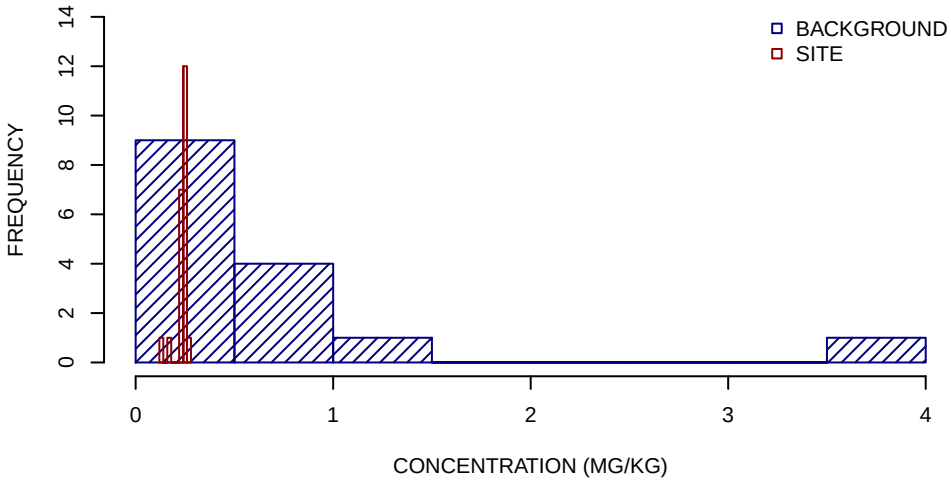


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.1	0.14
25TH PERCENTILE	0.27	0.24
MEDIAN	0.3	0.24
MEAN	0.68	0.24
75TH PERCENTILE	0.78	0.25
MAXIMUM	3.6	0.26

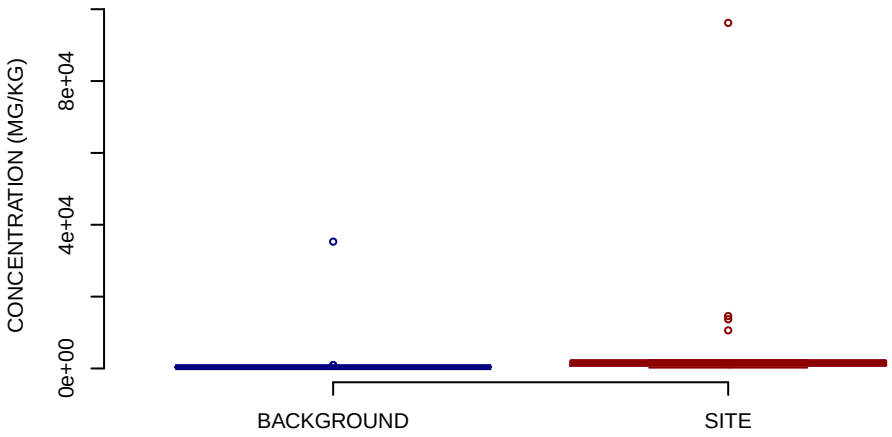
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

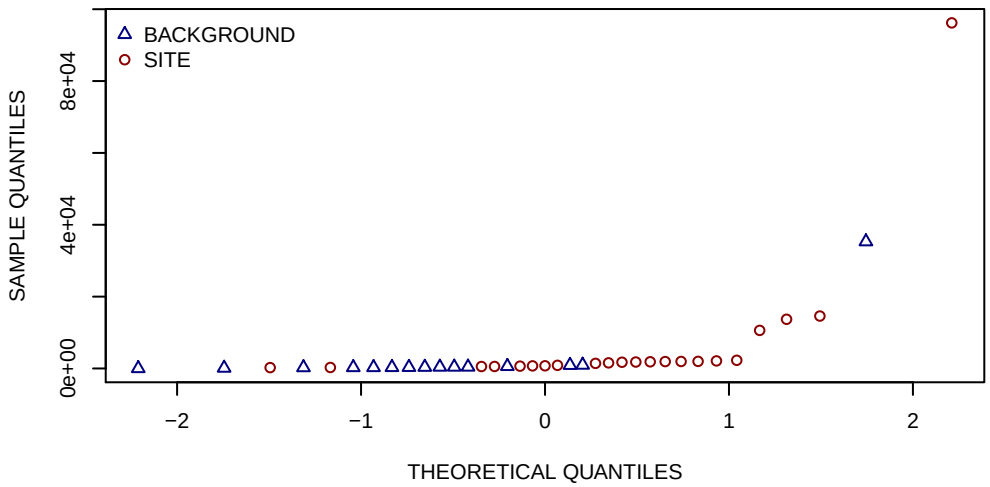
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

CALCIUM SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 7 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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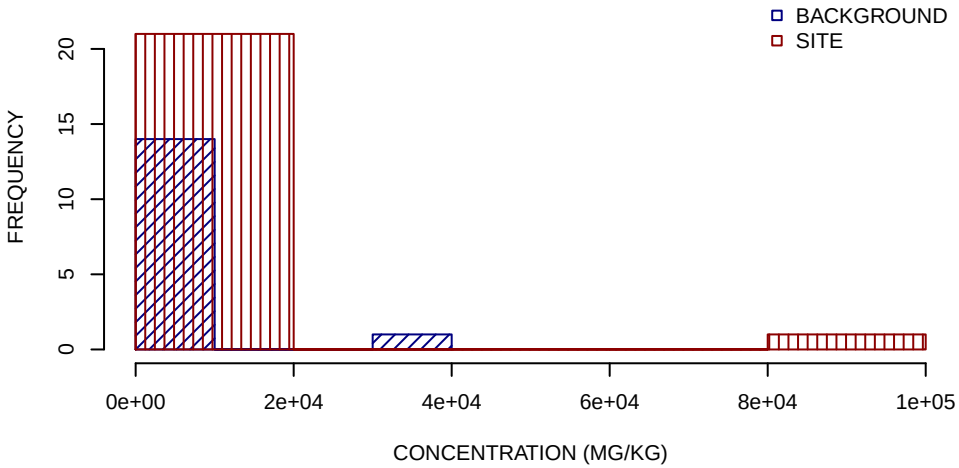


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	5	240
25TH PERCENTILE	280	730
MEDIAN	370	1800
MEAN	2700	7200
75TH PERCENTILE	510	2100
MAXIMUM	35000	96000

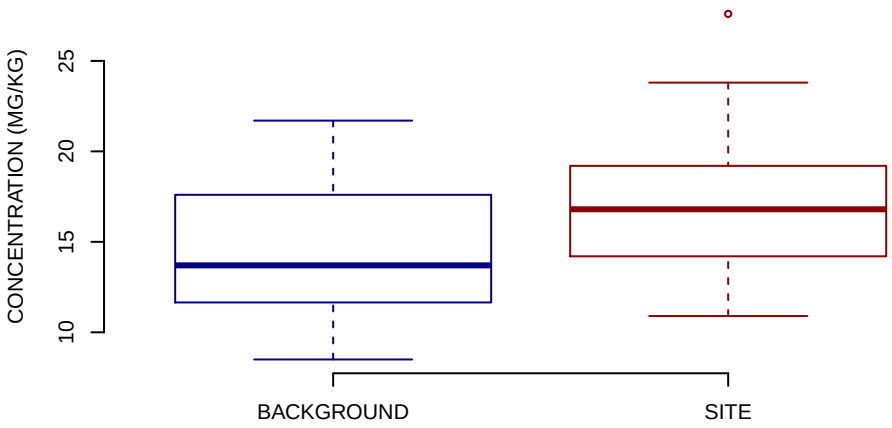
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

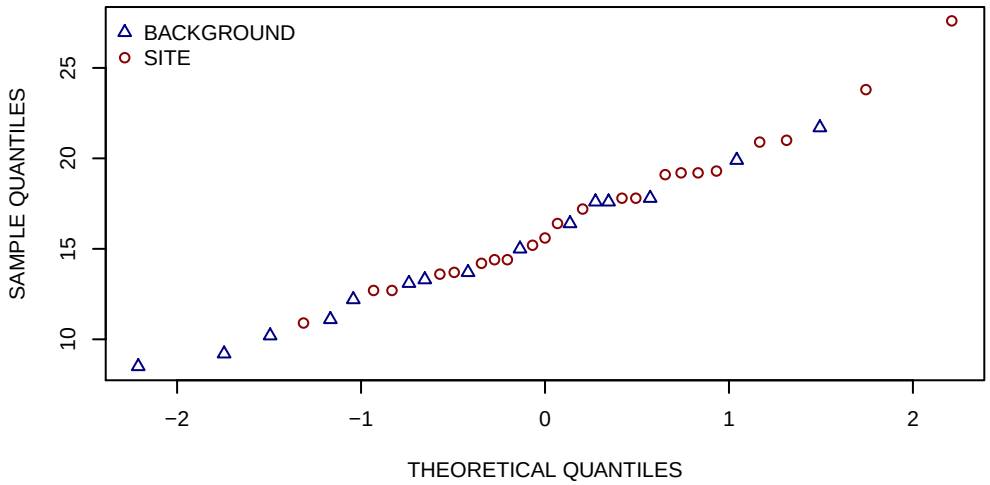
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

CHROMIUM SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 8 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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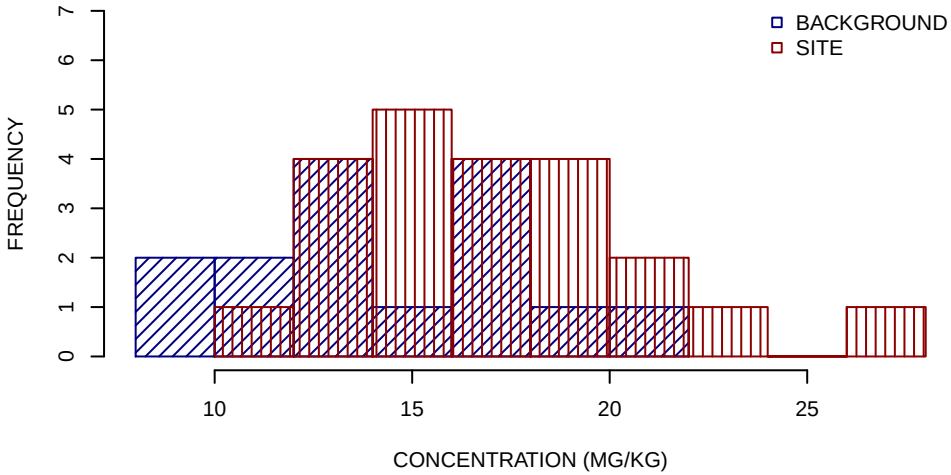


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	8.5	11
25TH PERCENTILE	12	14
MEDIAN	14	17
MEAN	14	17
75TH PERCENTILE	18	19
MAXIMUM	22	28

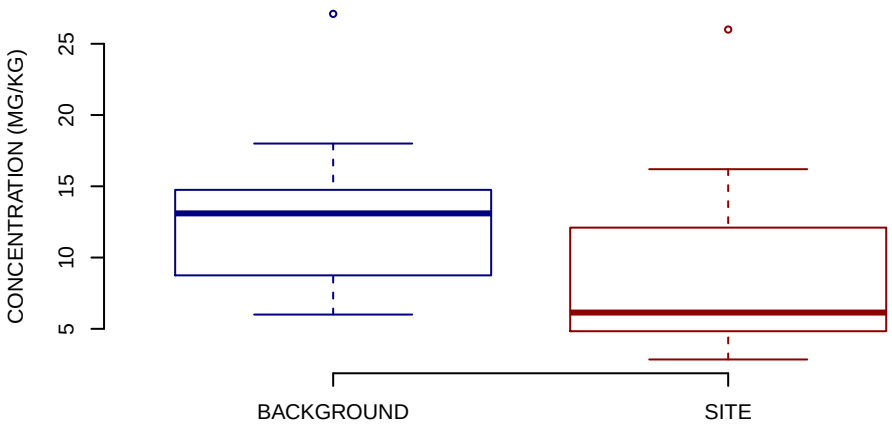
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

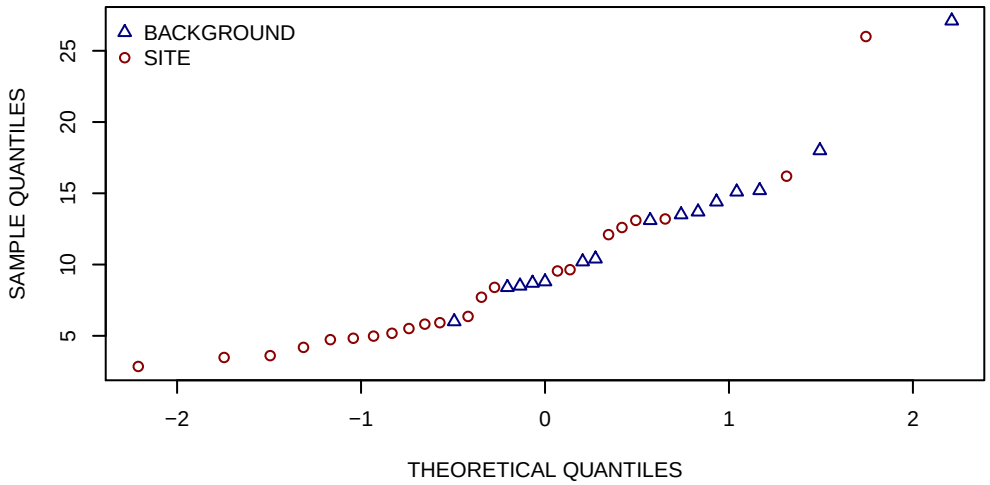
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

COBALT SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 9 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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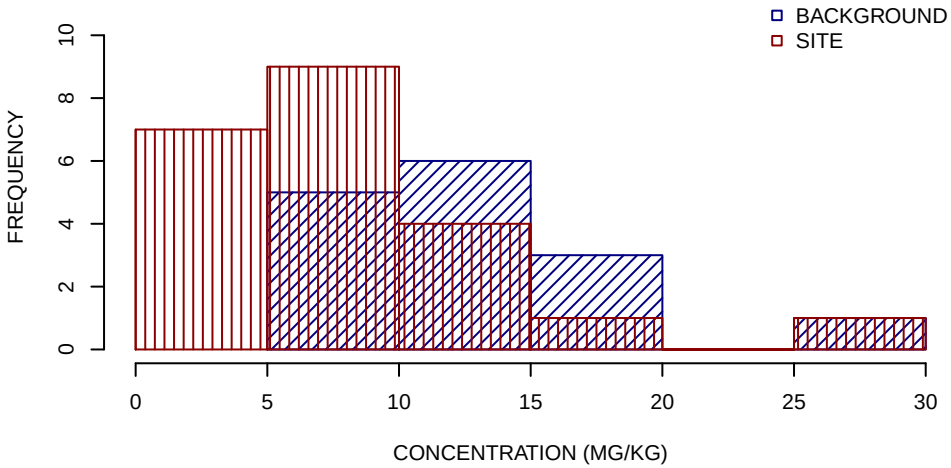


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	6	2.8
25TH PERCENTILE	8.8	4.9
MEDIAN	13	6.1
MEAN	13	8.5
75TH PERCENTILE	15	11
MAXIMUM	27	26

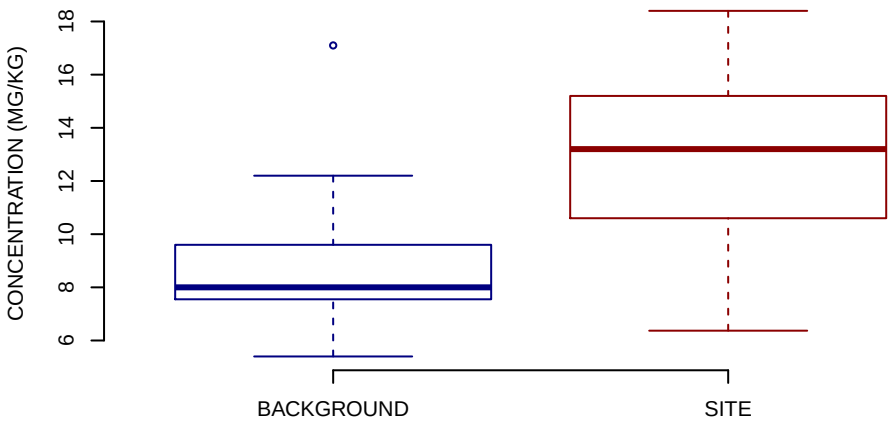
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

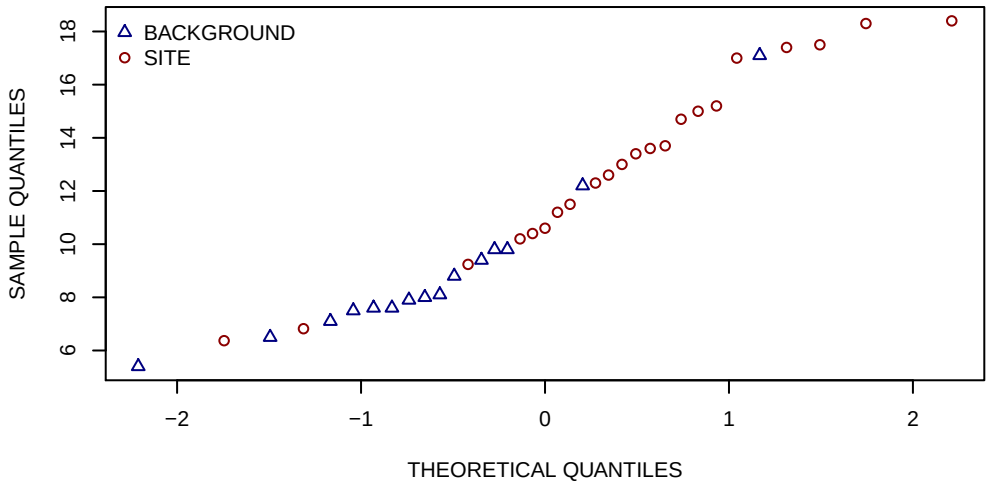
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

COPPER SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 10 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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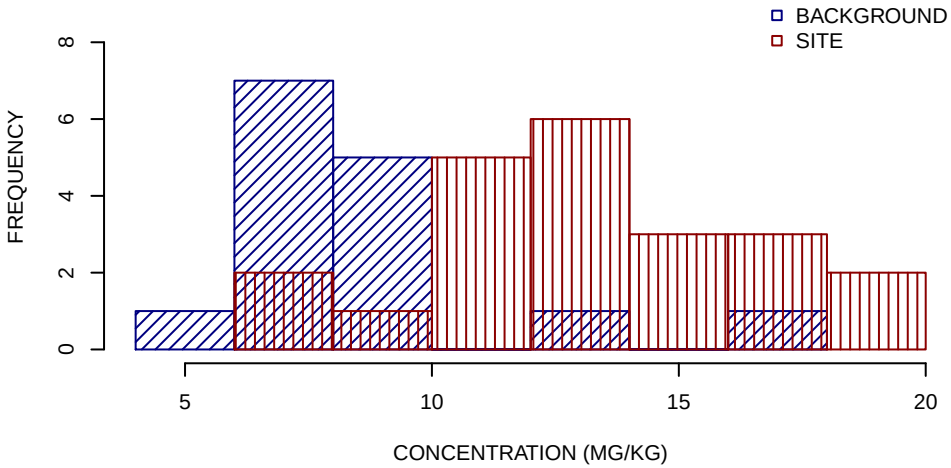


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	5.4	6.4
25TH PERCENTILE	7.6	11
MEDIAN	8	13
MEAN	8.9	13
75TH PERCENTILE	9.6	15
MAXIMUM	17	18

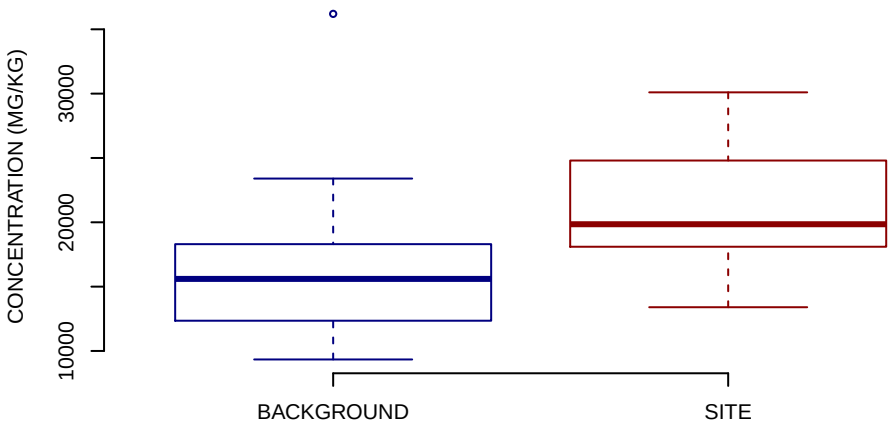
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

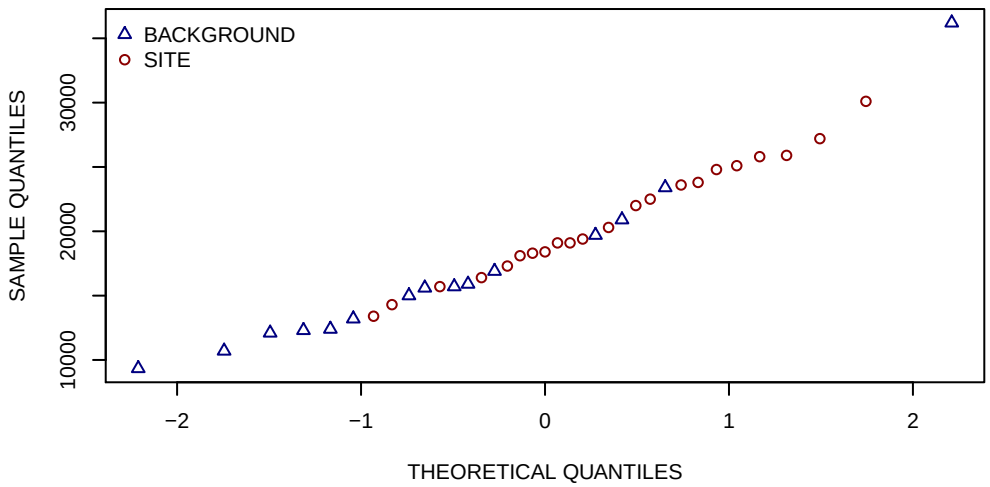
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

IRON SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 11 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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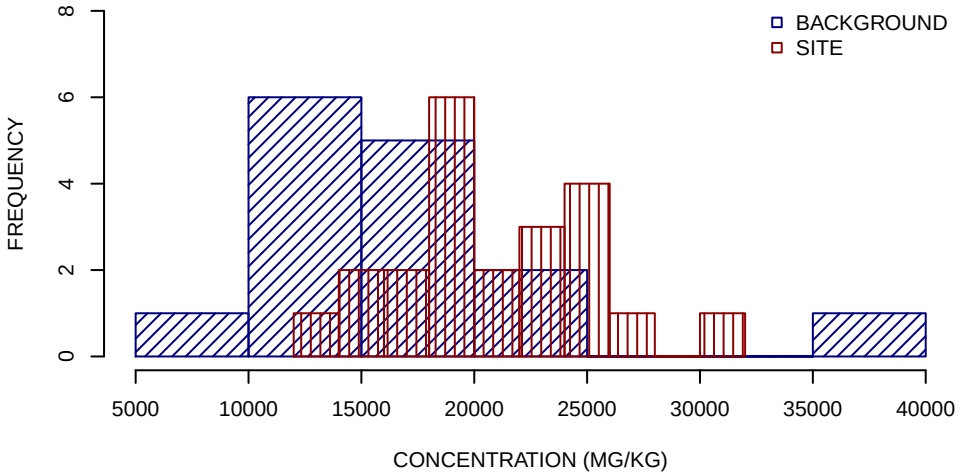


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	9300	13000
25TH PERCENTILE	12000	18000
MEDIAN	16000	20000
MEAN	17000	21000
75TH PERCENTILE	18000	25000
MAXIMUM	36000	30000

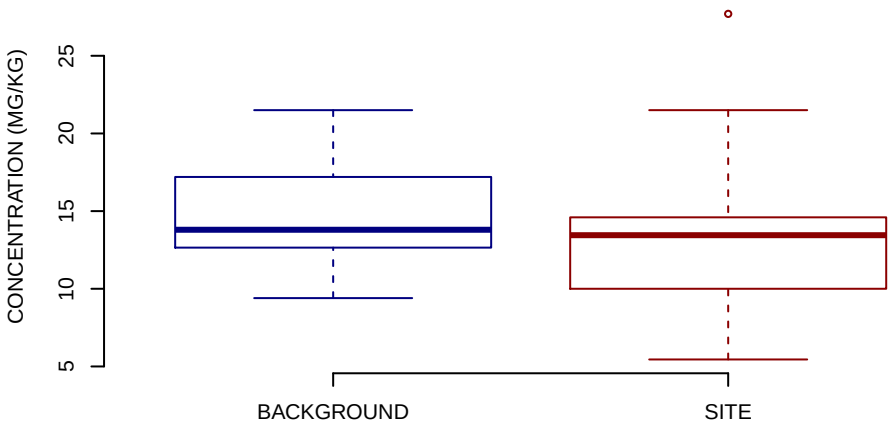
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

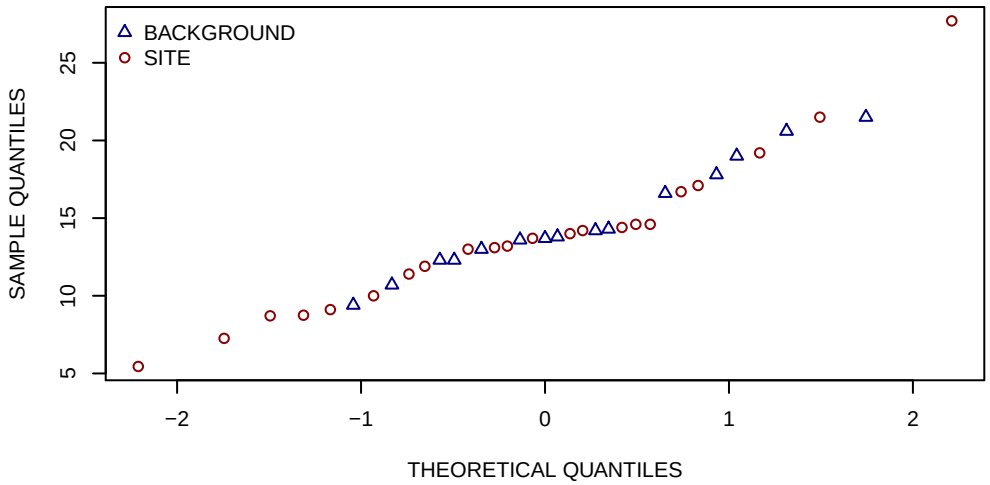
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

LEAD SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 12 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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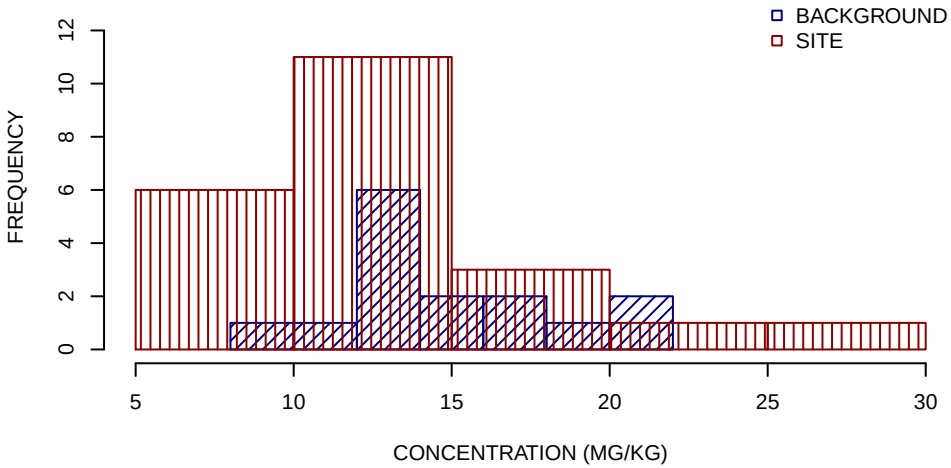


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	9.4	5.4
25TH PERCENTILE	13	10
MEDIAN	14	13
MEAN	15	14
75TH PERCENTILE	17	15
MAXIMUM	22	28

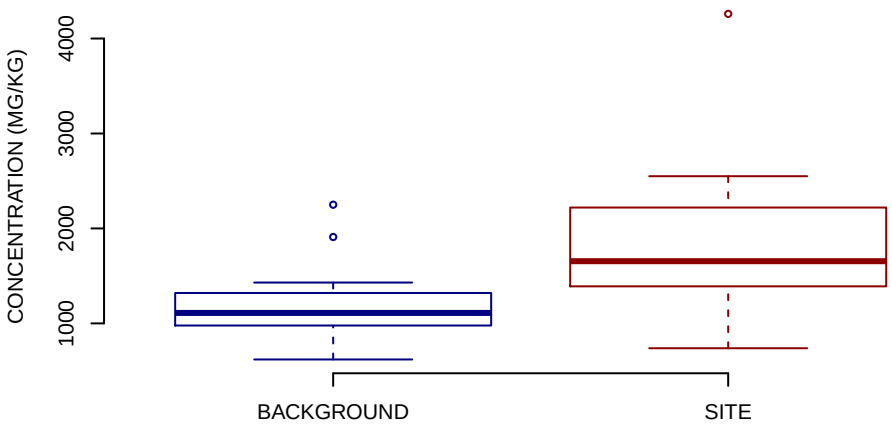
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

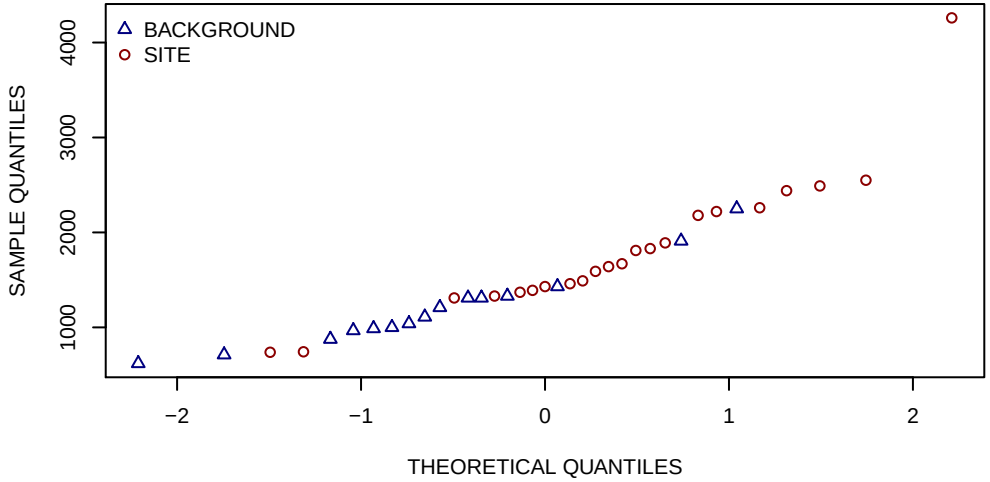
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

MAGNESIUM SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 13 OF 23

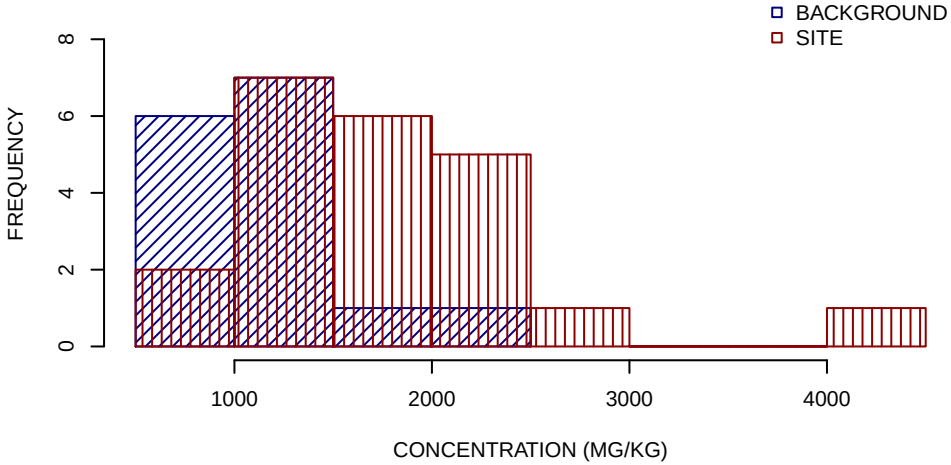
BOXPLOTS



NORMAL Q−Q PLOT



HISTOGRAMS



SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	620	740
25TH PERCENTILE	980	1400
MEDIAN	1100	1700
MEAN	1200	1800
75TH PERCENTILE	1300	2200
MAXIMUM	2200	4300

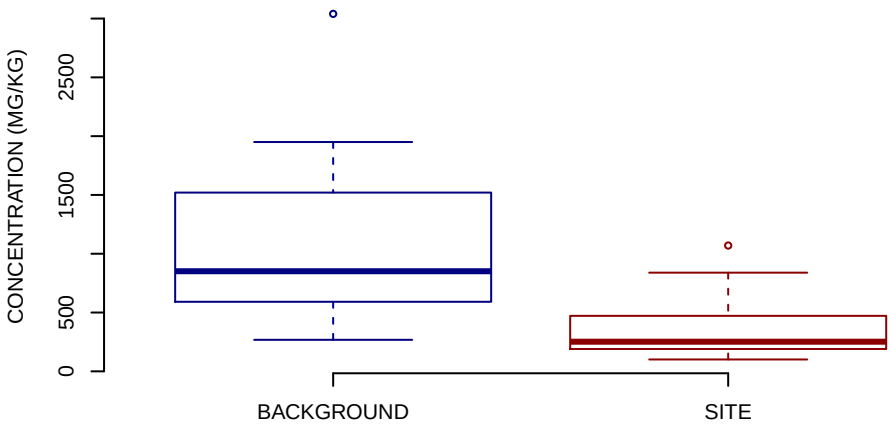
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

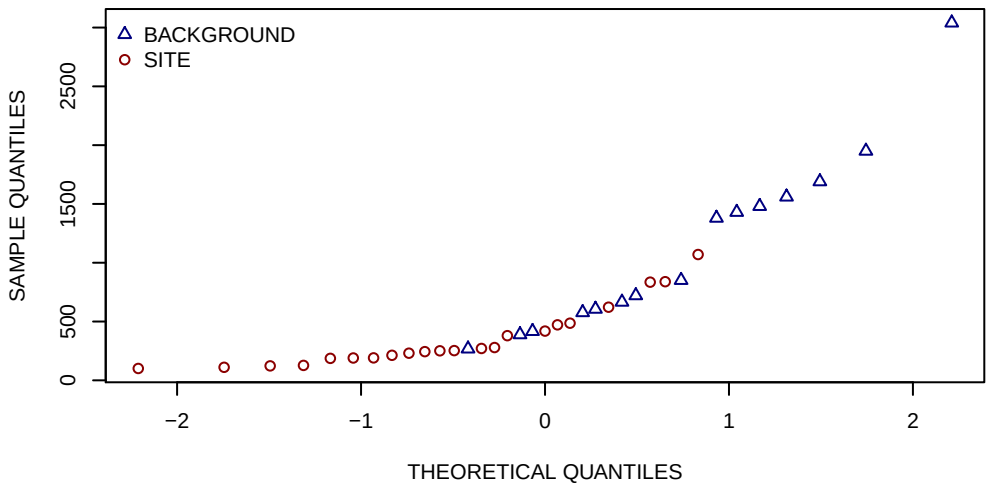
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

MANGANESE SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 14 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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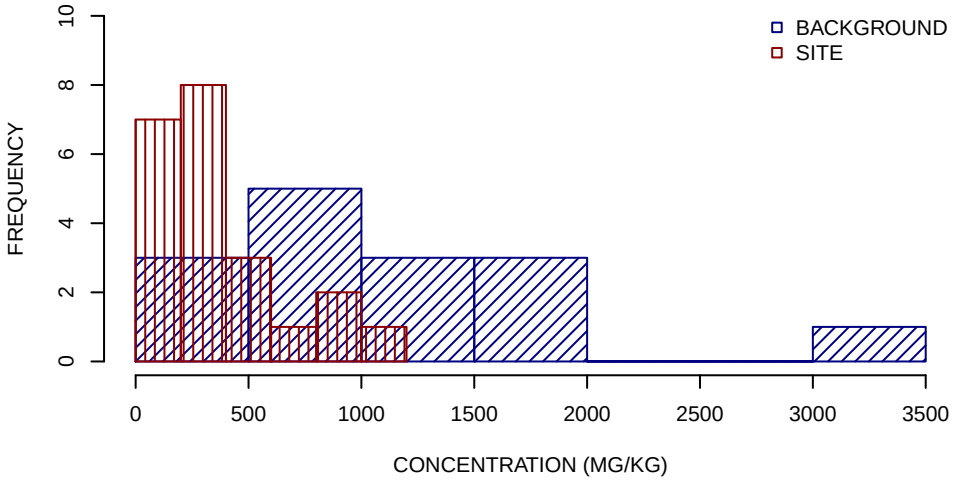


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	270	100
25TH PERCENTILE	590	190
MEDIAN	850	250
MEAN	1100	360
75TH PERCENTILE	1500	460
MAXIMUM	3000	1100

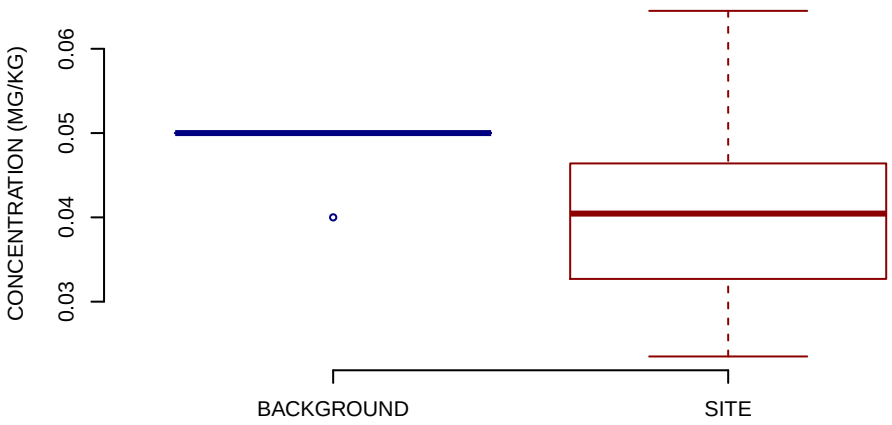
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

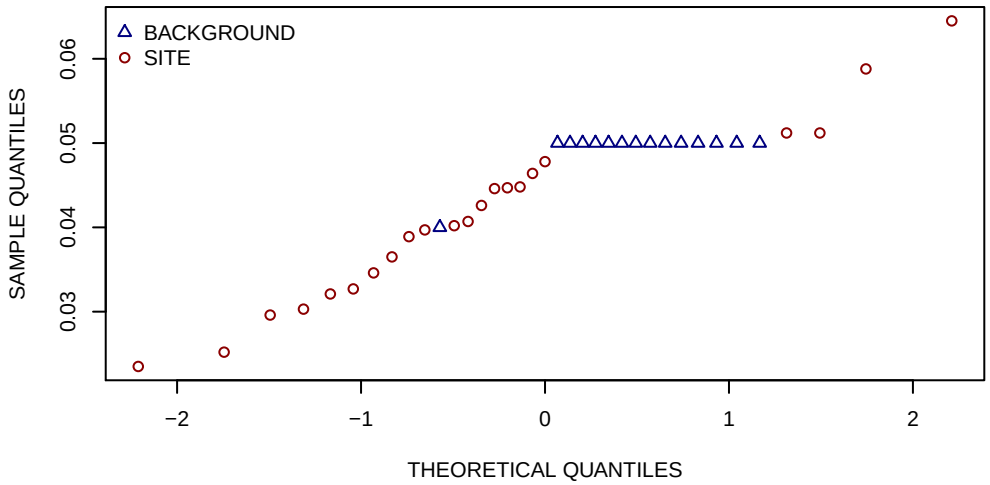
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

MERCURY SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 15 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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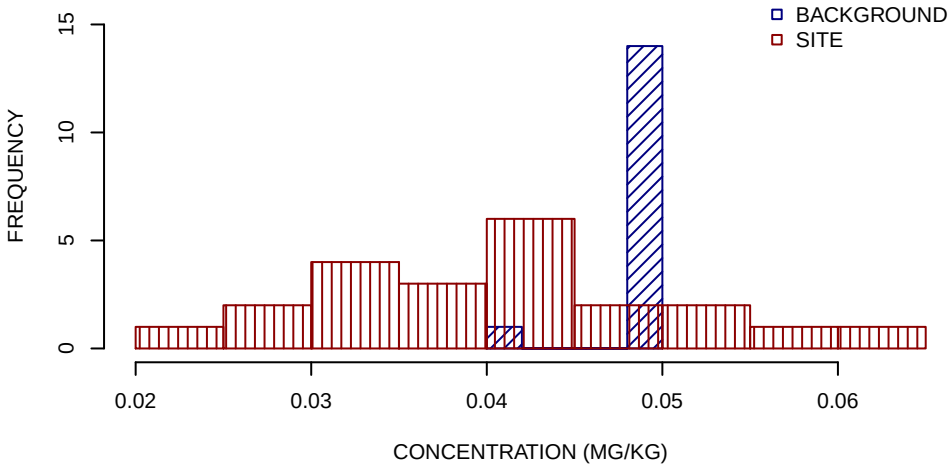


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.04	0.024
25TH PERCENTILE	0.05	0.033
MEDIAN	0.05	0.04
MEAN	0.049	0.041
75TH PERCENTILE	0.05	0.046
MAXIMUM	0.05	0.064

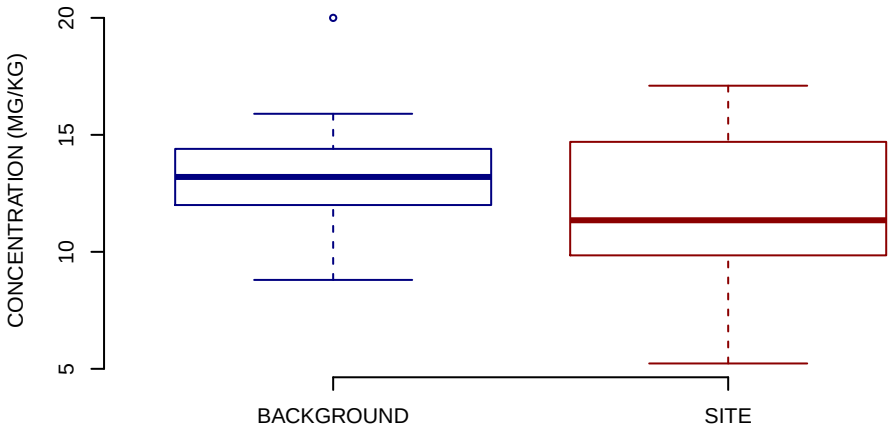
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

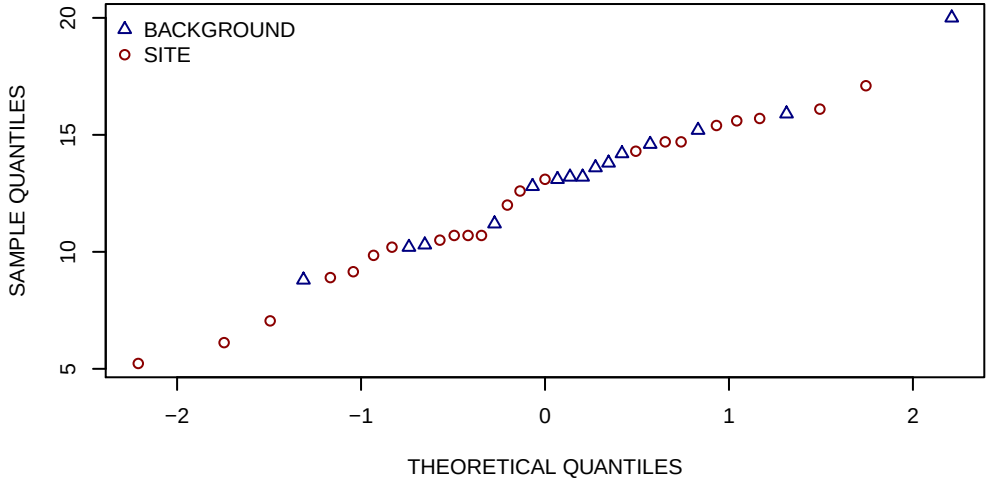
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

NICKEL SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 16 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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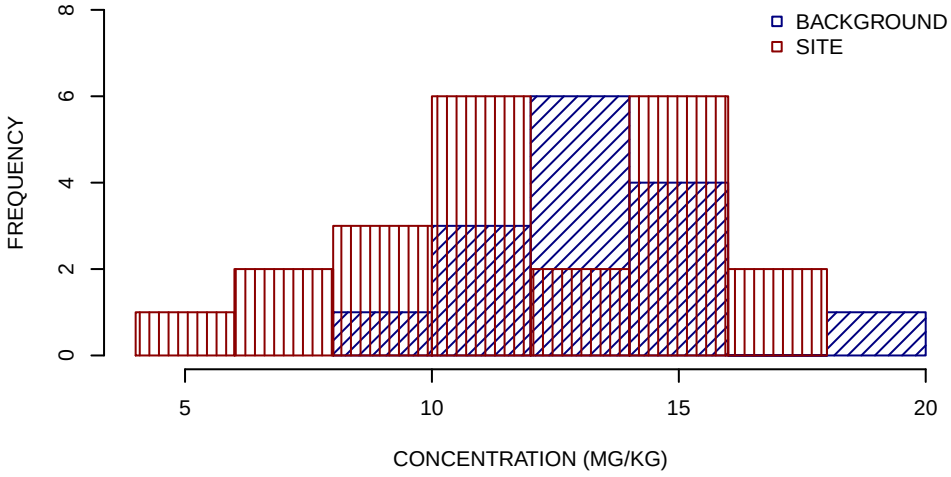


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	8.8	5.2
25TH PERCENTILE	12	9.9
MEDIAN	13	11
MEAN	13	12
75TH PERCENTILE	14	15
MAXIMUM	20	17

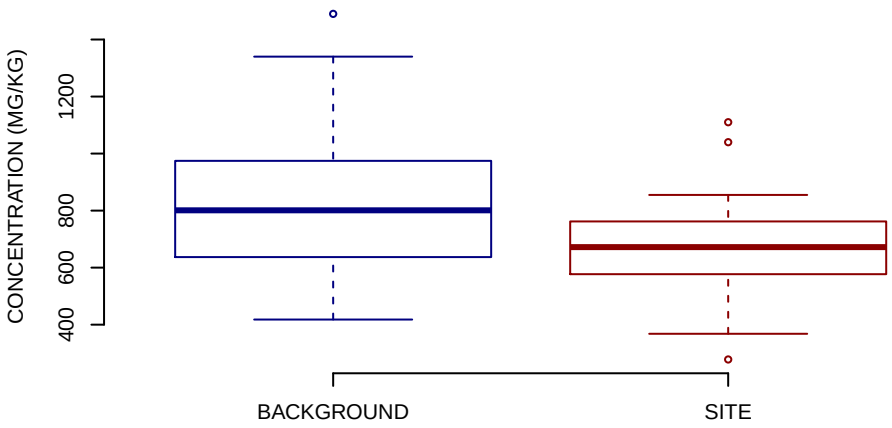
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

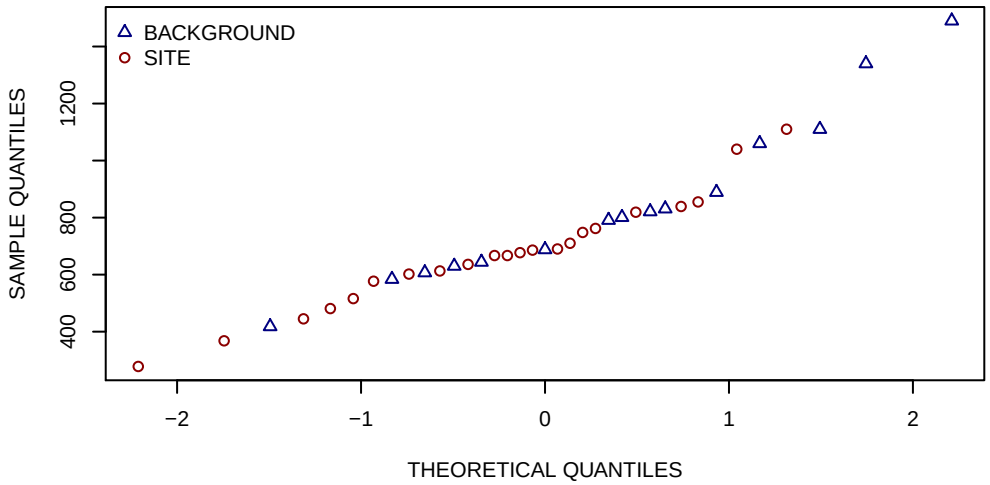
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

POTASSIUM SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 17 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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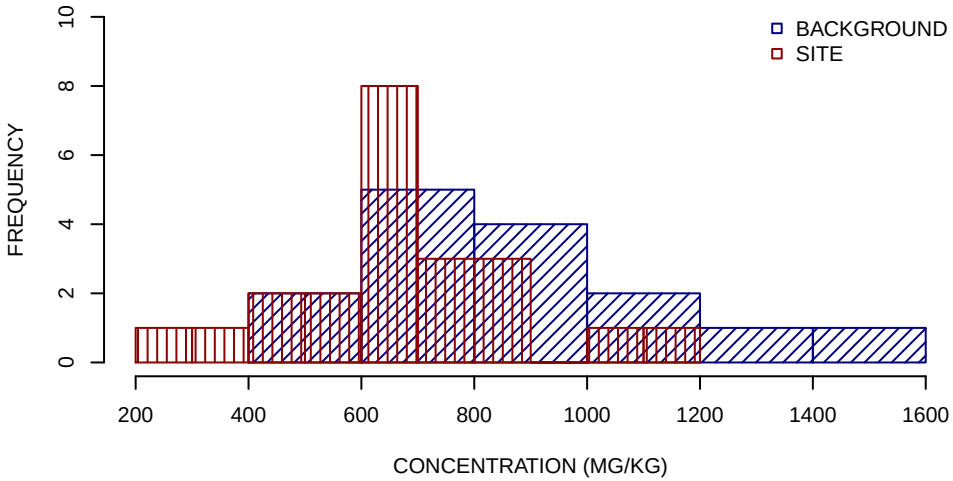


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	420	280
25TH PERCENTILE	640	580
MEDIAN	800	670
MEAN	850	670
75TH PERCENTILE	970	760
MAXIMUM	1500	1100

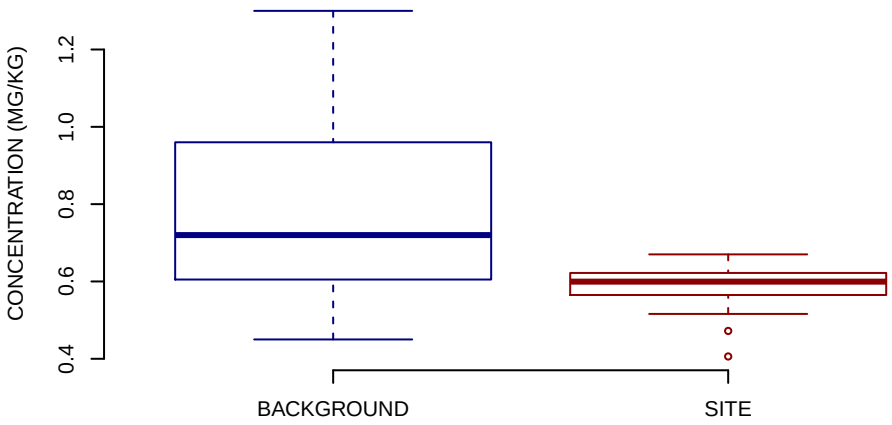
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

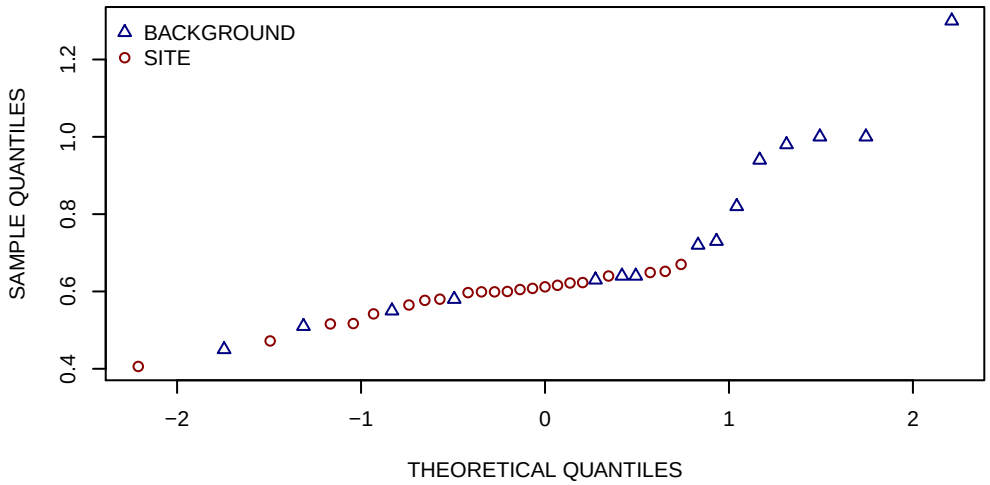
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

SELENIUM SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 18 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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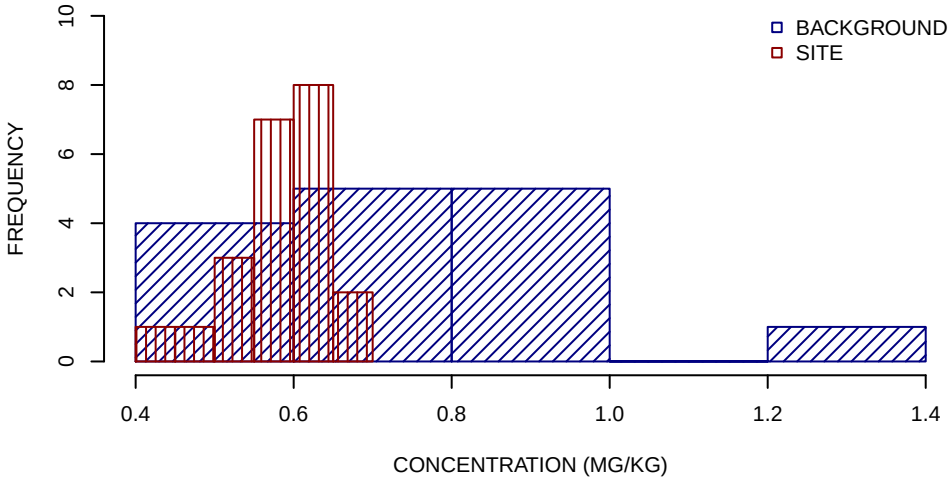


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.45	0.41
25TH PERCENTILE	0.6	0.57
MEDIAN	0.72	0.6
MEAN	0.77	0.58
75TH PERCENTILE	0.96	0.62
MAXIMUM	1.3	0.67

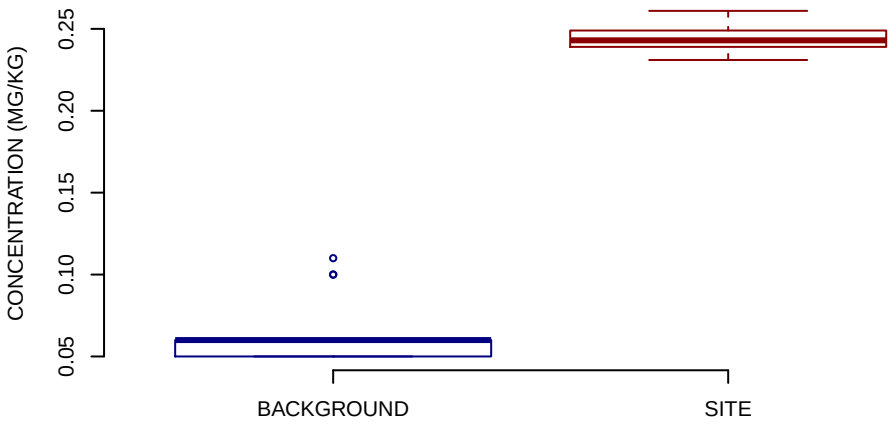
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

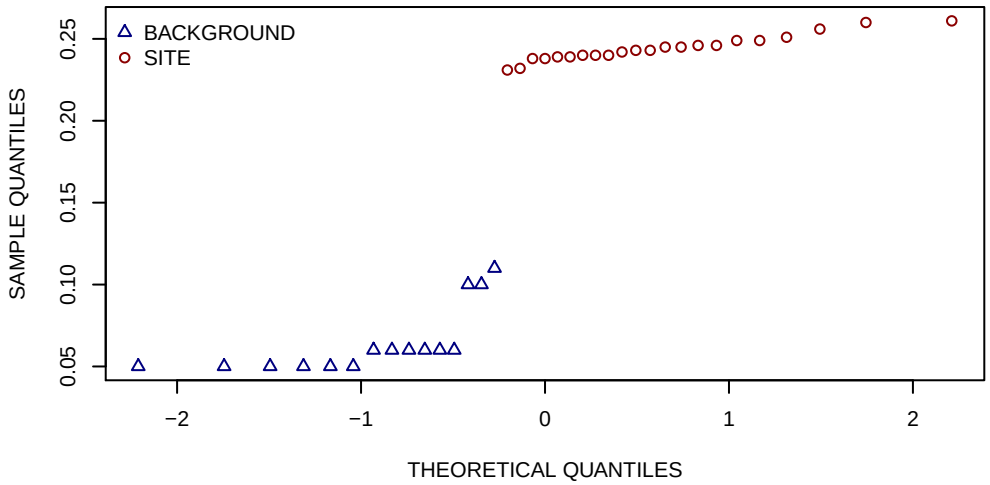
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

SILVER SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 19 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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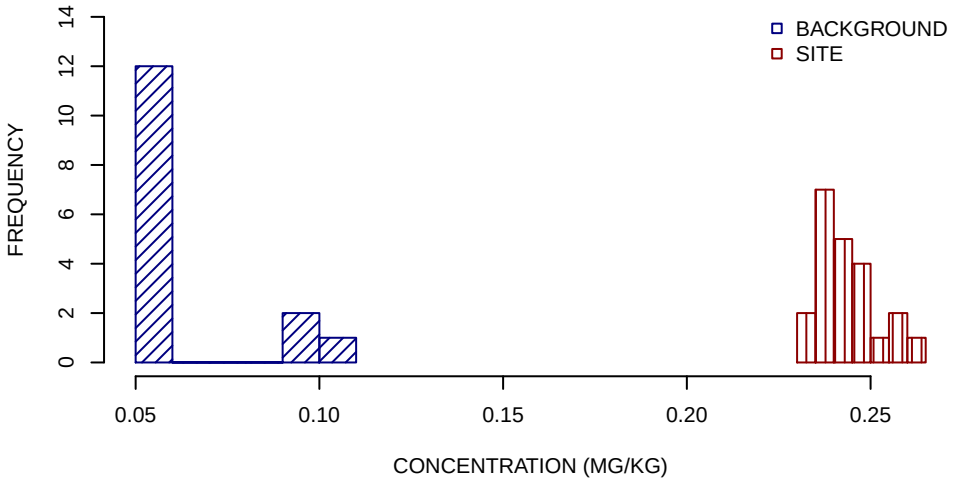


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.05	0.23
25TH PERCENTILE	0.05	0.24
MEDIAN	0.06	0.24
MEAN	0.065	0.24
75TH PERCENTILE	0.06	0.25
MAXIMUM	0.11	0.26

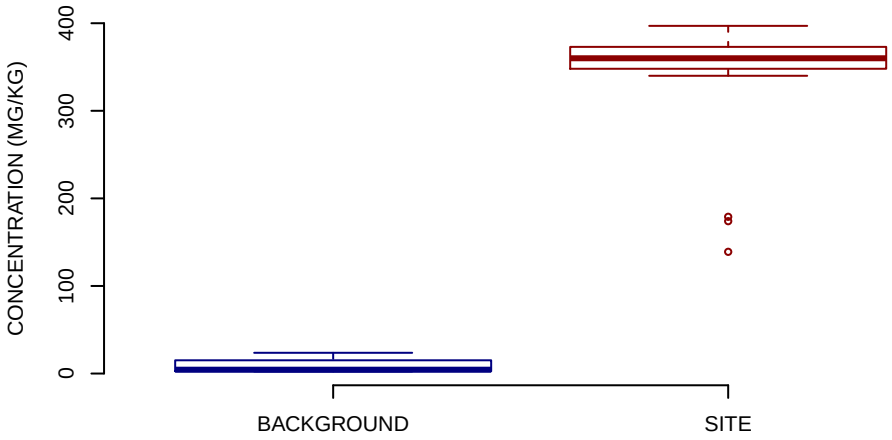
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

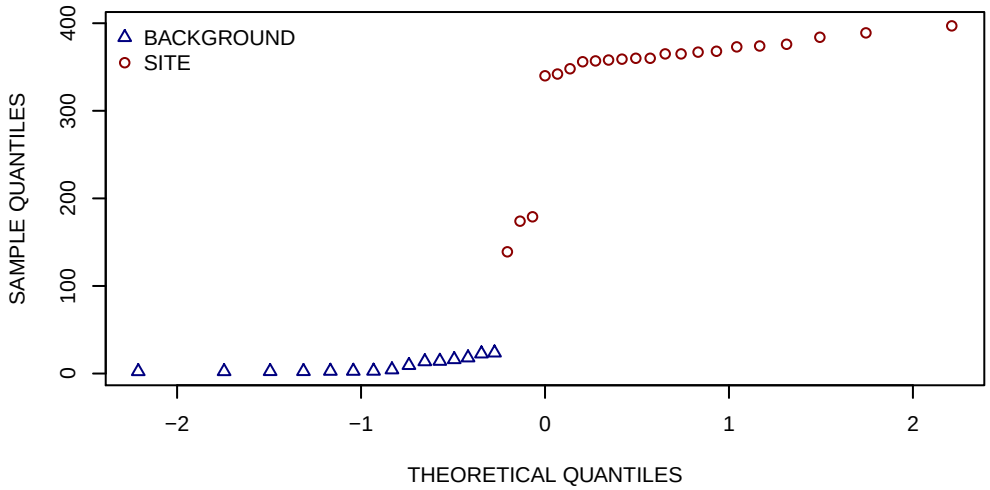
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

SODIUM SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 20 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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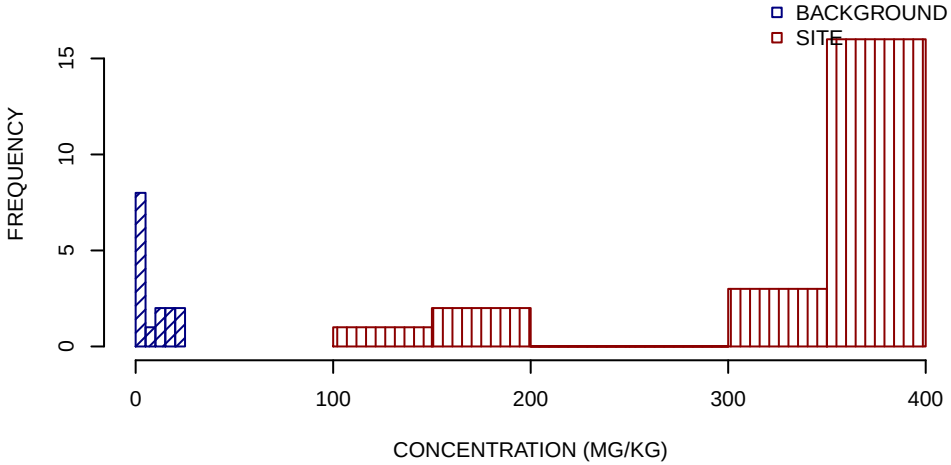


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	2.4	140
25TH PERCENTILE	2.6	350
MEDIAN	4.4	360
MEAN	9.4	340
75TH PERCENTILE	15	370
MAXIMUM	24	400

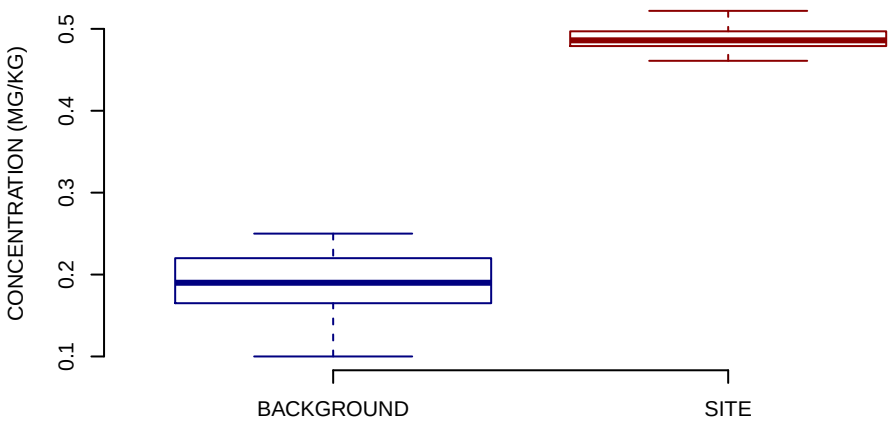
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

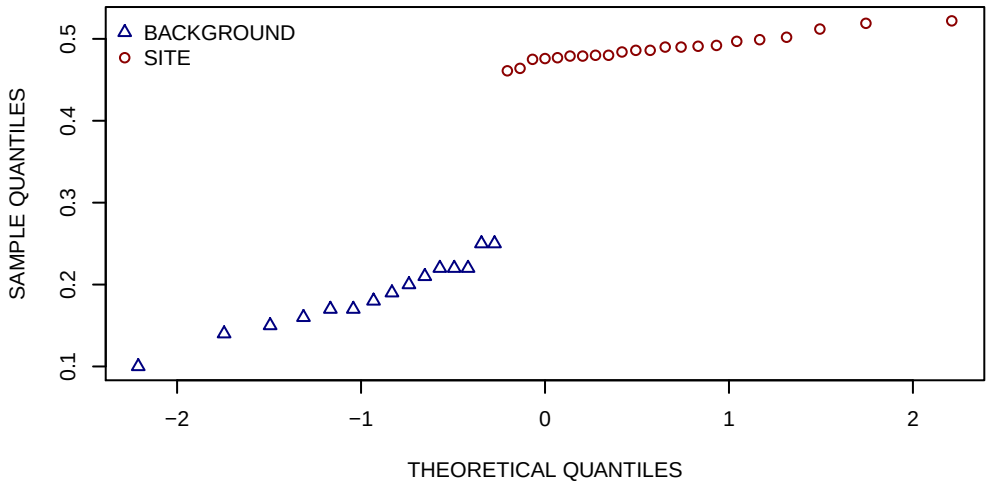
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

THALLIUM SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 21 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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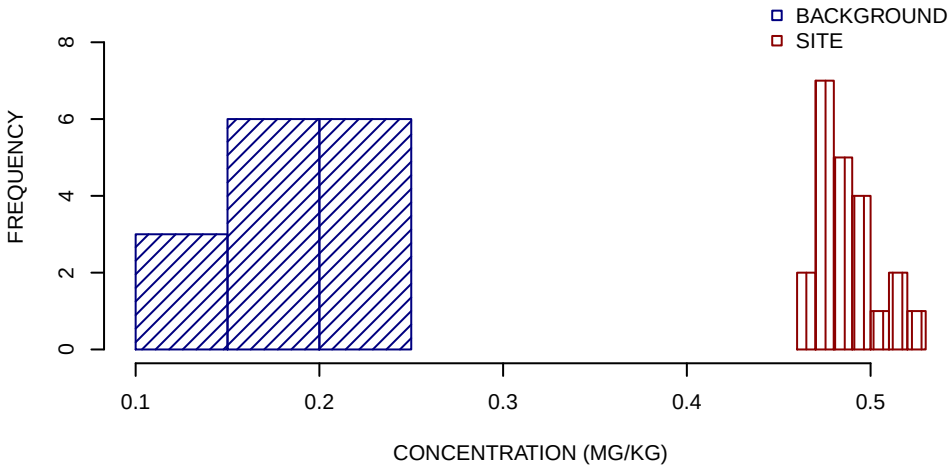


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.1	0.46
25TH PERCENTILE	0.16	0.48
MEDIAN	0.19	0.49
MEAN	0.19	0.49
75TH PERCENTILE	0.22	0.5
MAXIMUM	0.25	0.52

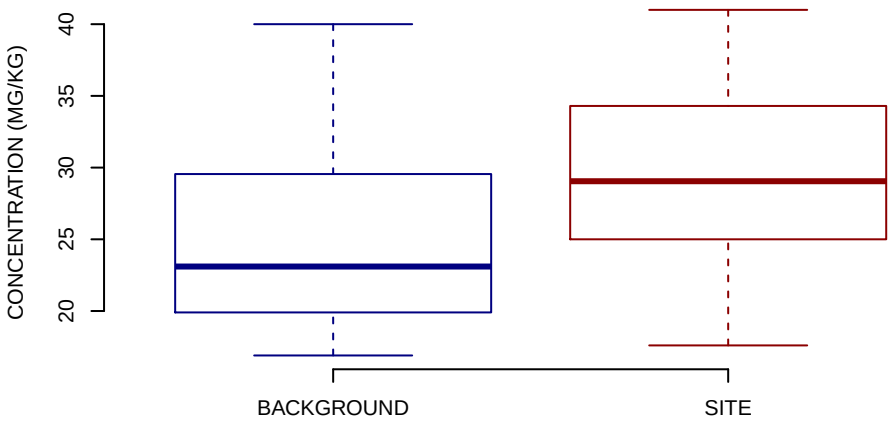
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

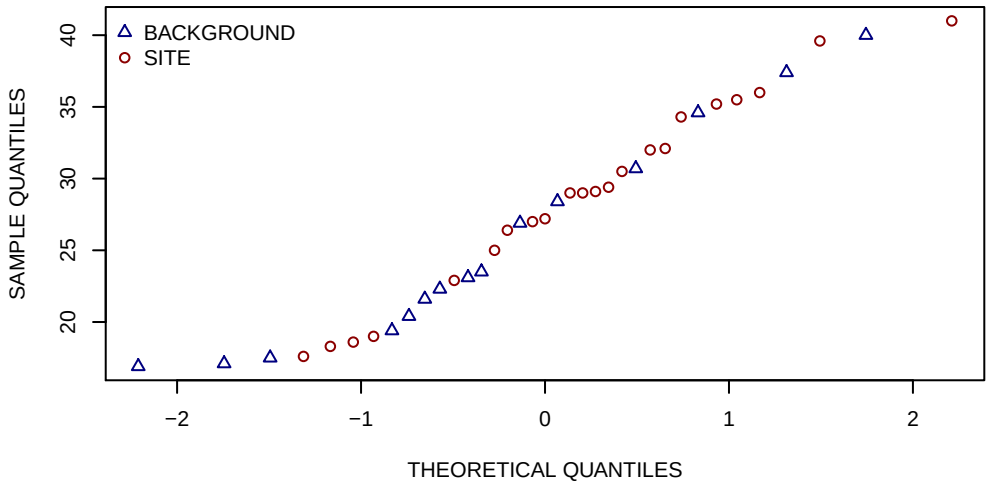
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

VANADIUM SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 22 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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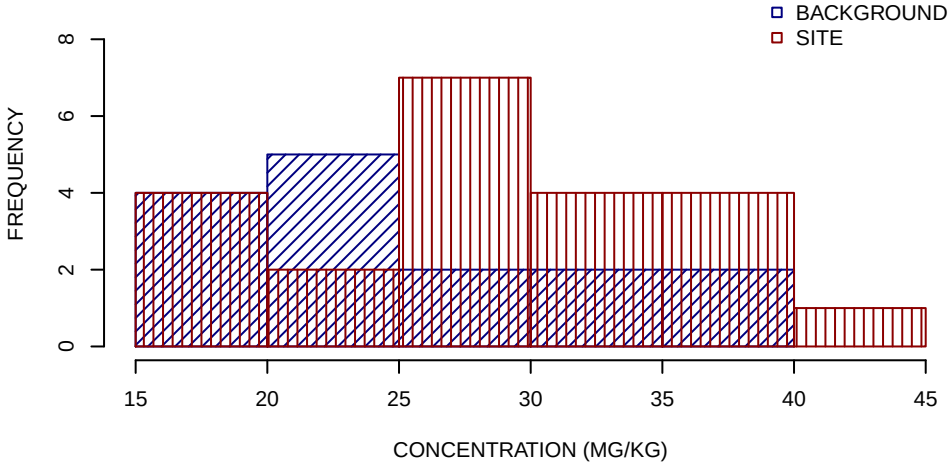


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	17	18
25TH PERCENTILE	20	25
MEDIAN	23	29
MEAN	25	29
75TH PERCENTILE	30	34
MAXIMUM	40	41

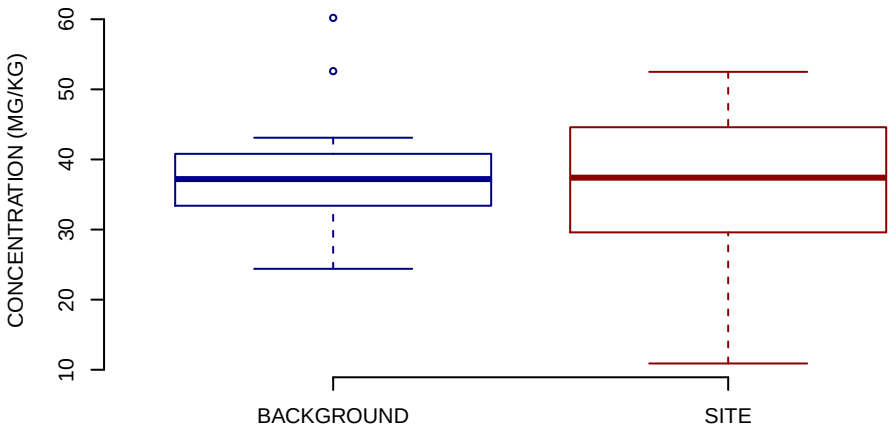
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

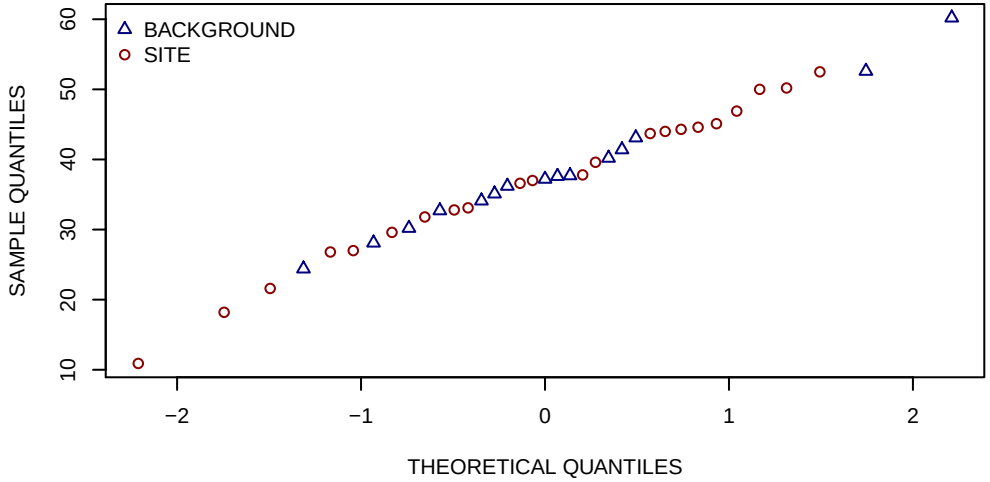
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

ZINC SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 23 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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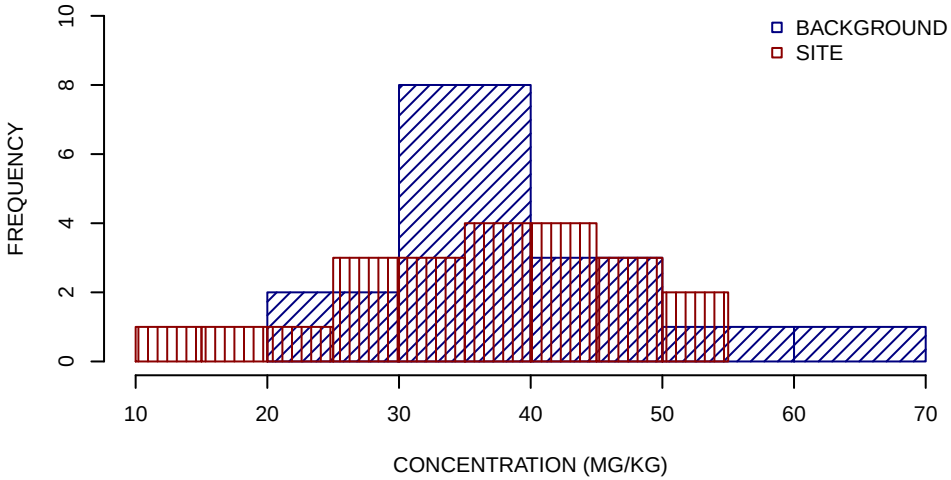


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	24	11
25TH PERCENTILE	33	30
MEDIAN	37	37
MEAN	38	37
75TH PERCENTILE	41	45
MAXIMUM	60	52

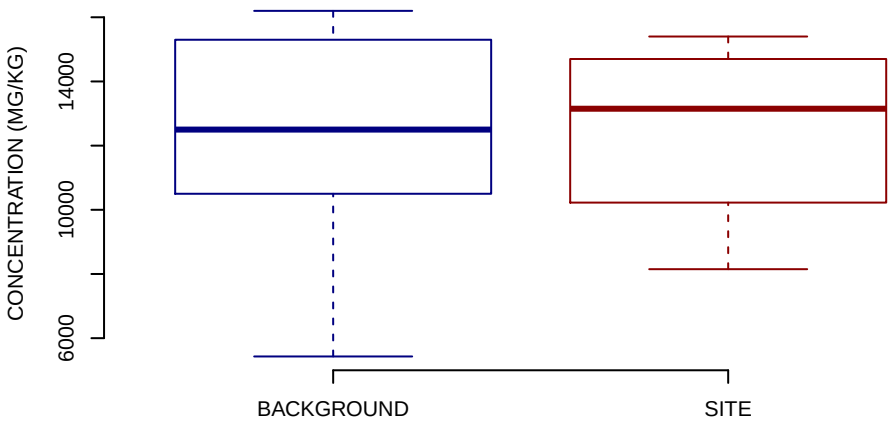
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

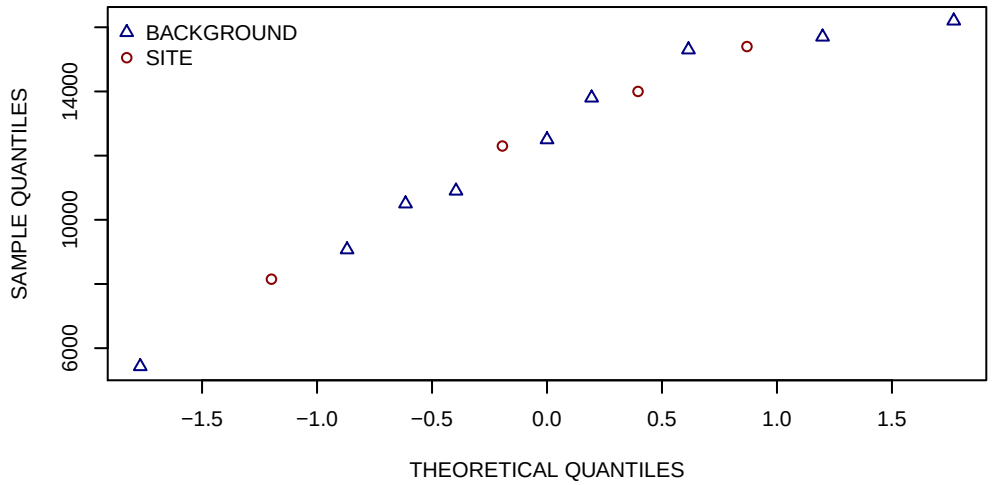
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

ALUMINUM SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 1 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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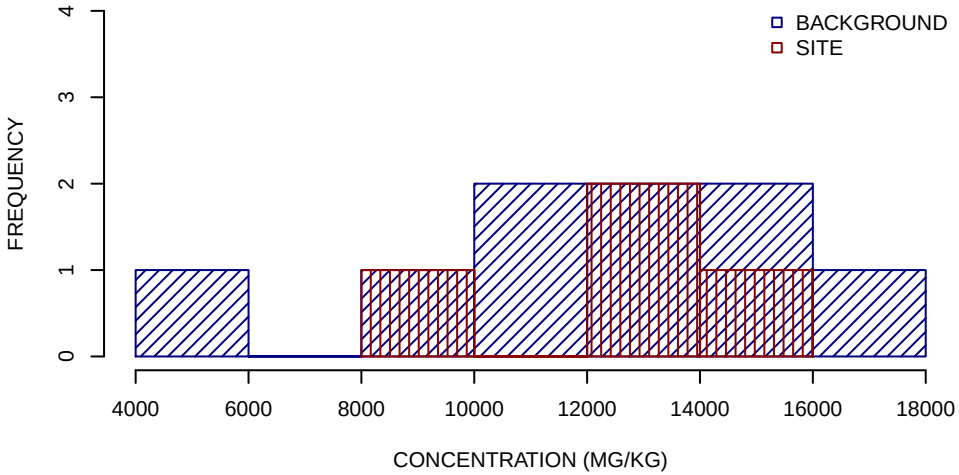


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	5400	8200
25TH PERCENTILE	10000	11000
MEDIAN	12000	13000
MEAN	12000	12000
75TH PERCENTILE	15000	14000
MAXIMUM	16000	15000

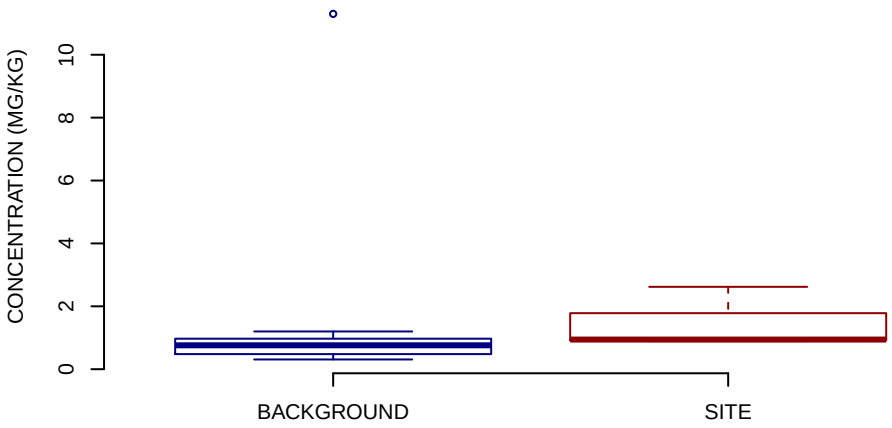
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

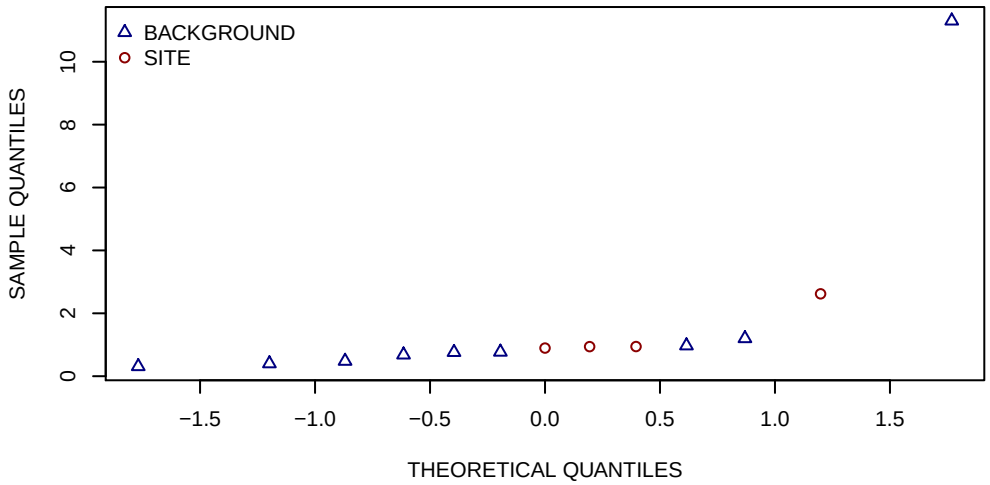
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

ANTIMONY SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 2 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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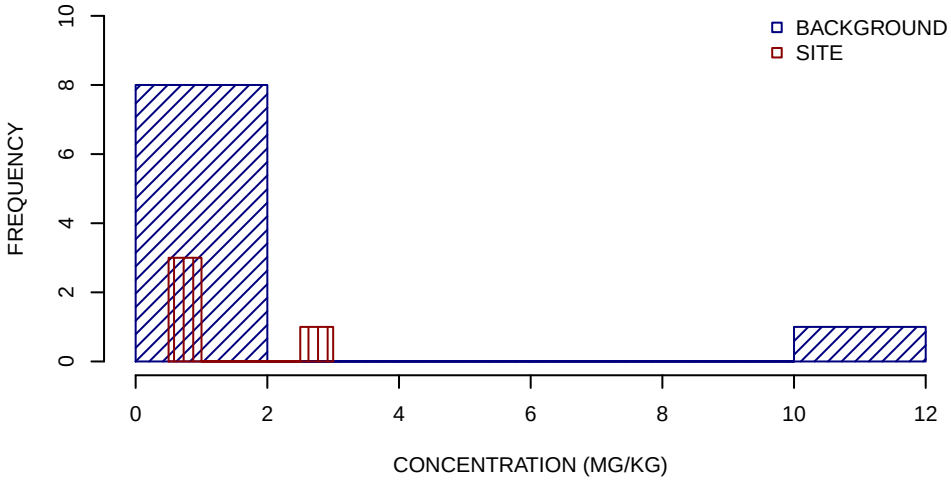


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.31	0.9
25TH PERCENTILE	0.48	0.93
MEDIAN	0.76	0.94
MEAN	1.9	1.4
75TH PERCENTILE	0.97	1.4
MAXIMUM	11	2.6

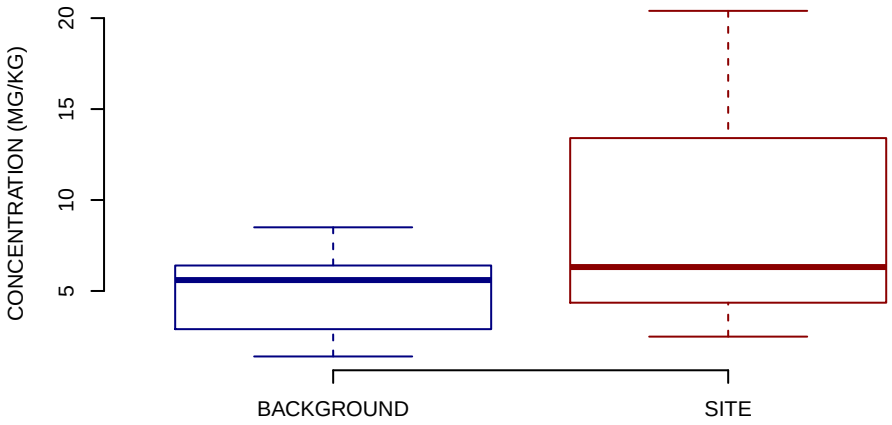
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

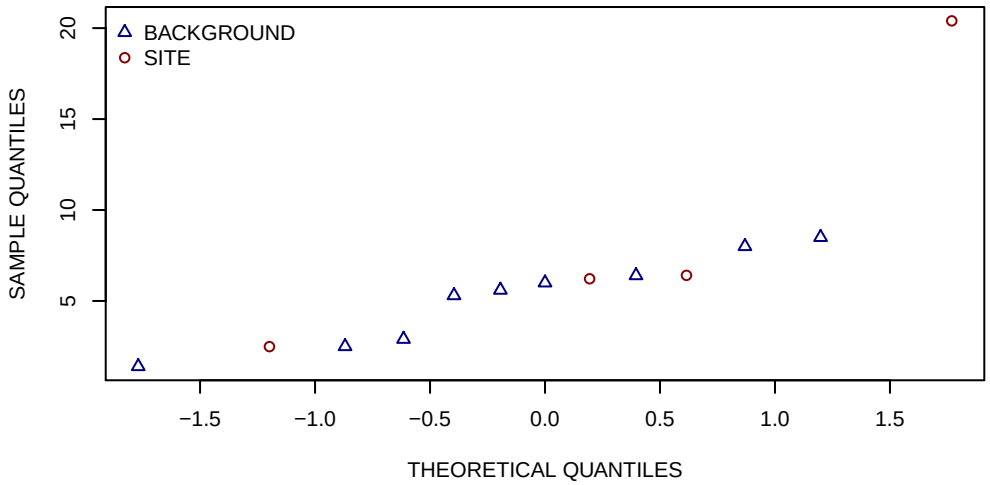
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

ARSENIC SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 3 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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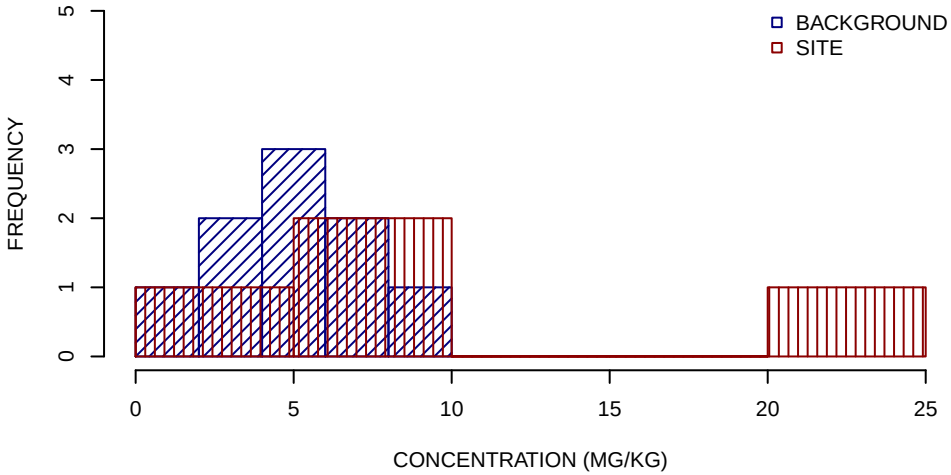


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	1.4	2.5
25TH PERCENTILE	2.9	5.3
MEDIAN	5.6	6.3
MEAN	5.2	8.9
75TH PERCENTILE	6.4	9.9
MAXIMUM	8.5	20

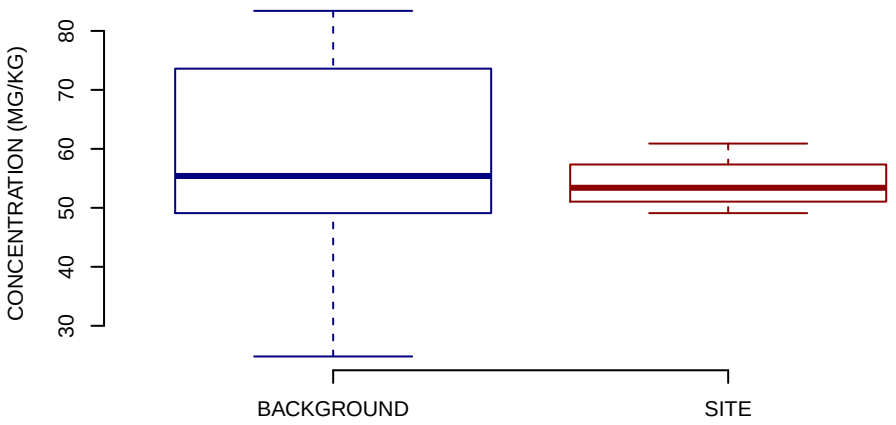
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

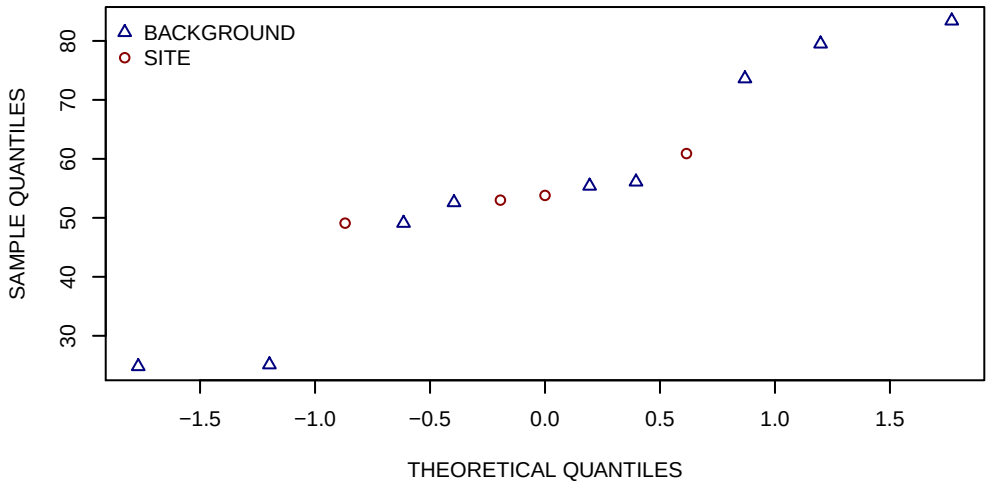
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

BARIUM SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 4 OF 23

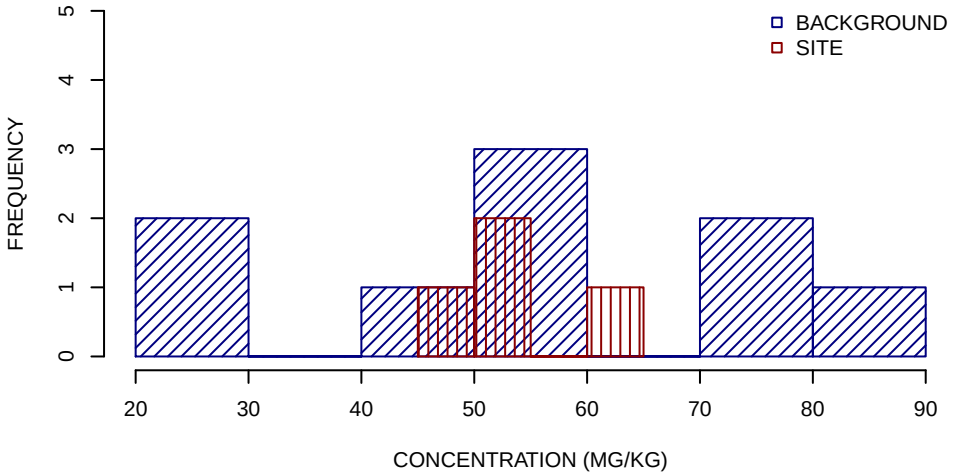
BOXPLOTS



NORMAL Q−Q PLOT



HISTOGRAMS



SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	25	49
25TH PERCENTILE	49	52
MEDIAN	55	53
MEAN	56	54
75TH PERCENTILE	74	56
MAXIMUM	83	61

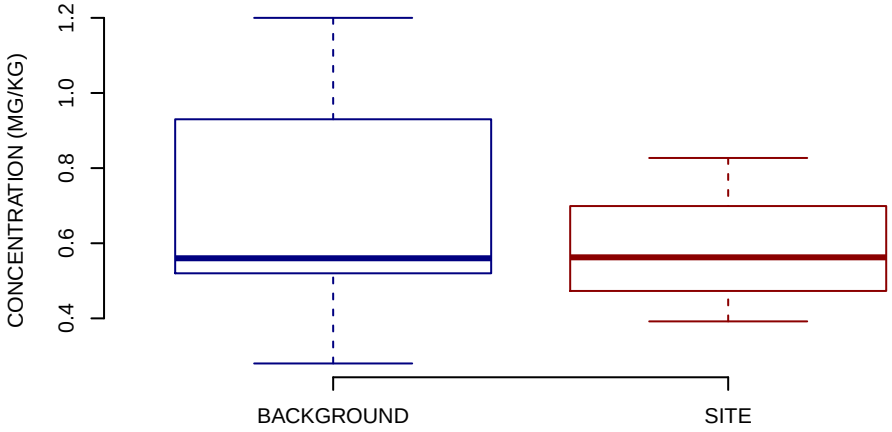
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

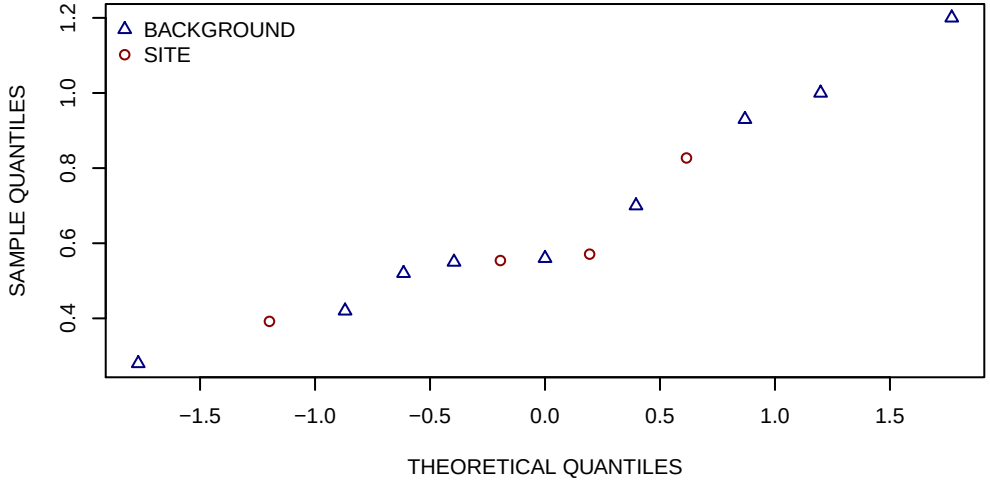
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

BERYLLIUM SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 5 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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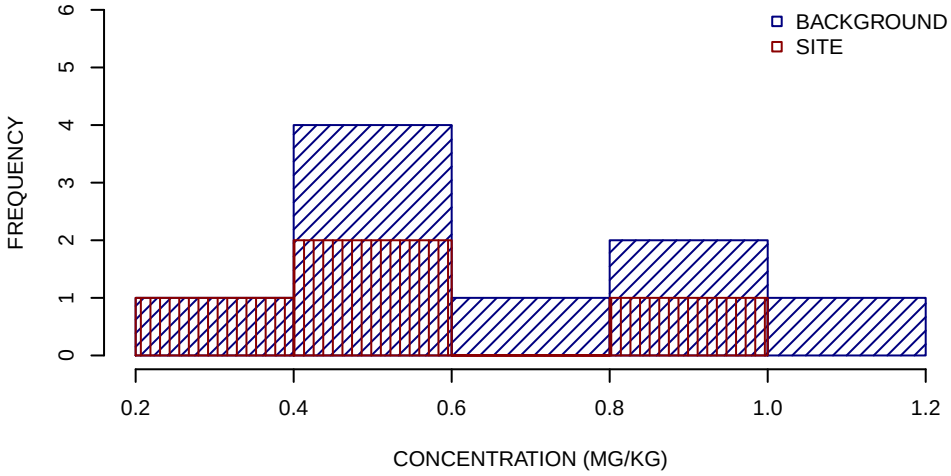


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.28	0.39
25TH PERCENTILE	0.52	0.51
MEDIAN	0.56	0.56
MEAN	0.68	0.59
75TH PERCENTILE	0.93	0.64
MAXIMUM	1.2	0.83

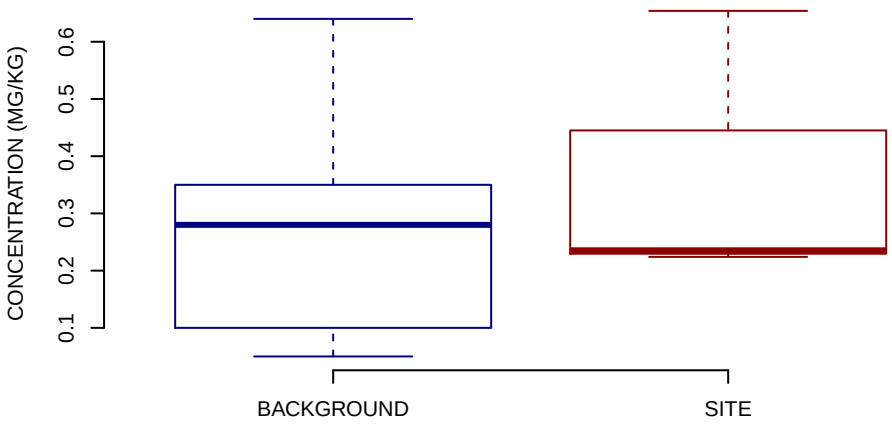
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

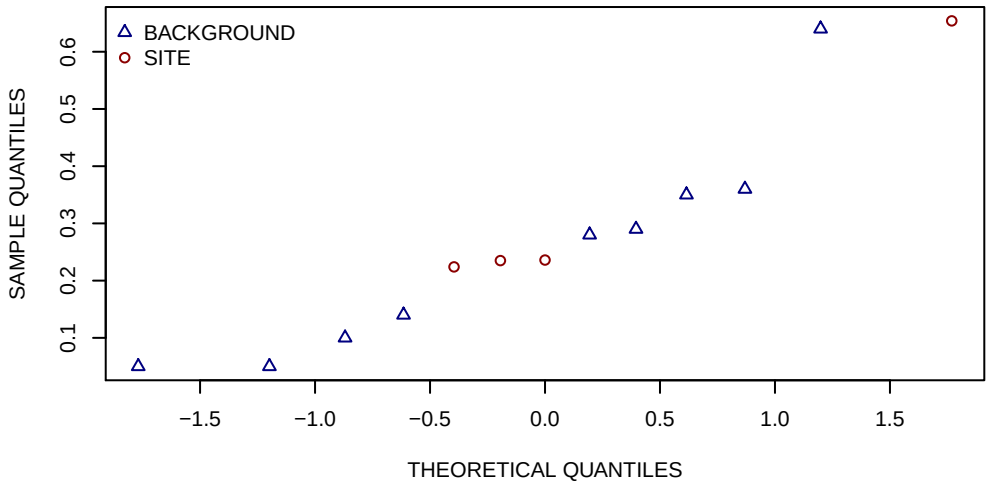
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

CADMIUM SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 6 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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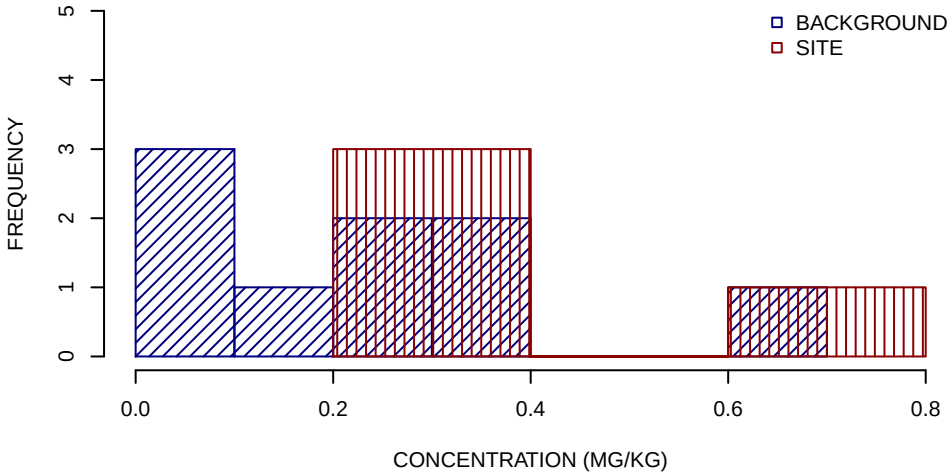


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.05	0.22
25TH PERCENTILE	0.1	0.23
MEDIAN	0.28	0.24
MEAN	0.25	0.34
75TH PERCENTILE	0.35	0.34
MAXIMUM	0.64	0.65

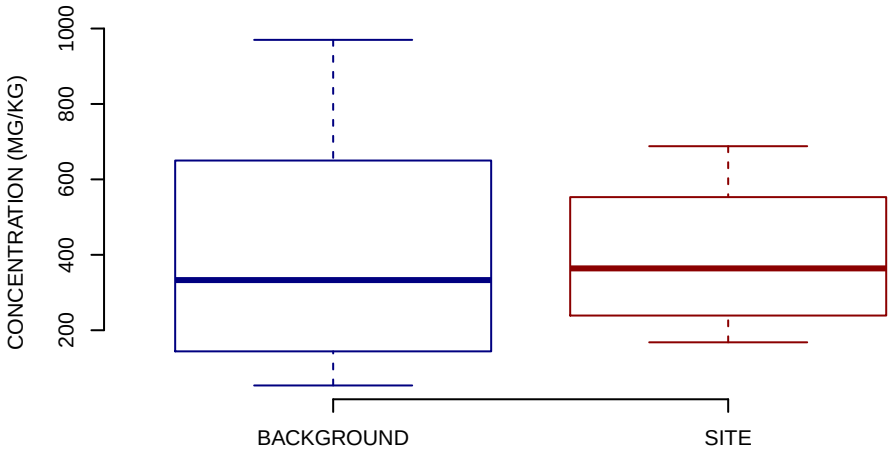
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

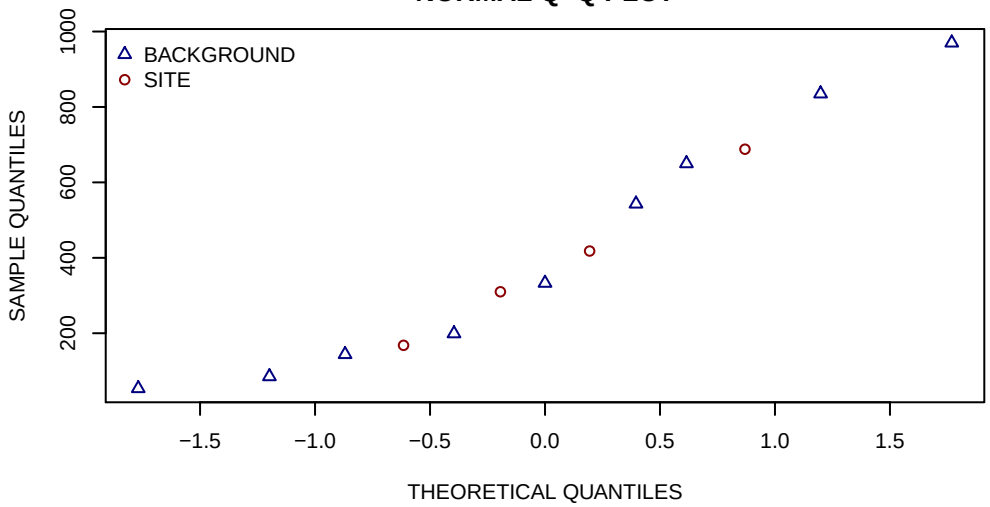
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

CALCIUM SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 7 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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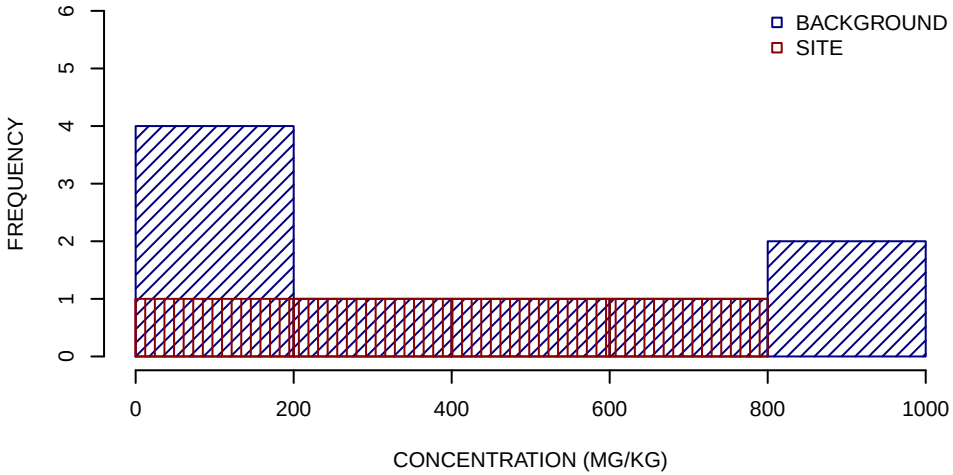


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	54	170
25TH PERCENTILE	140	270
MEDIAN	330	360
MEAN	420	400
75TH PERCENTILE	650	490
MAXIMUM	970	690

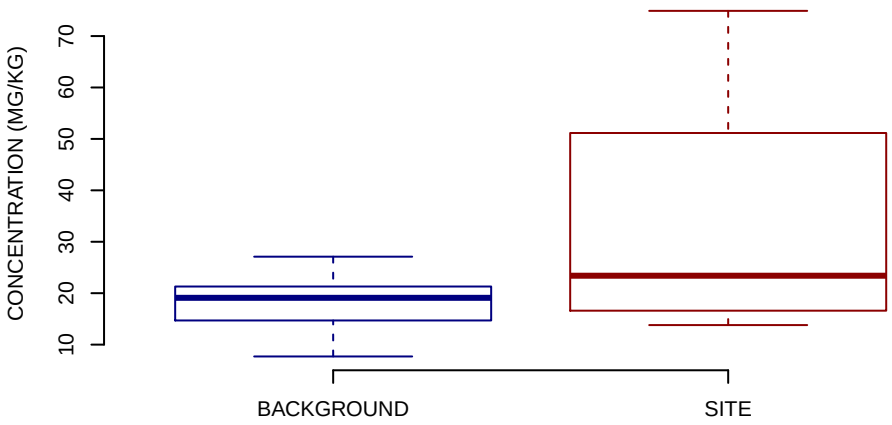
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

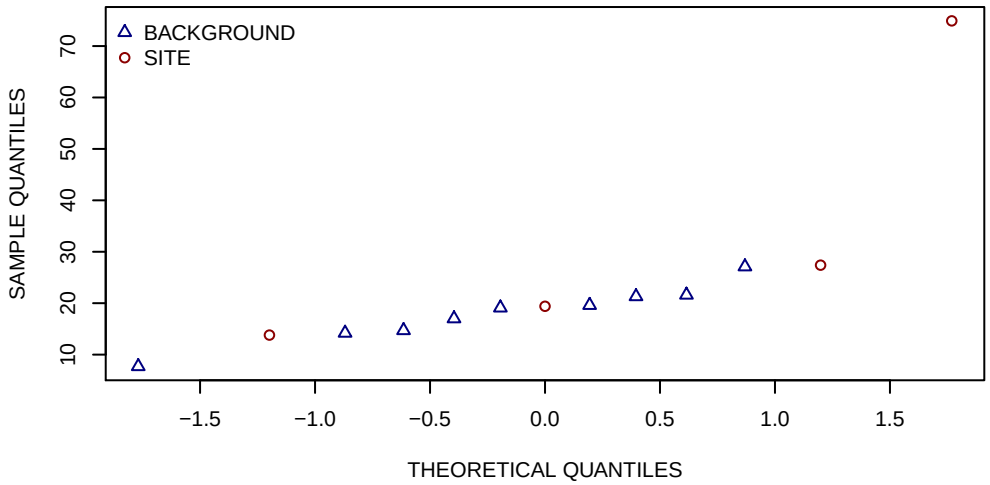
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

CHROMIUM SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 8 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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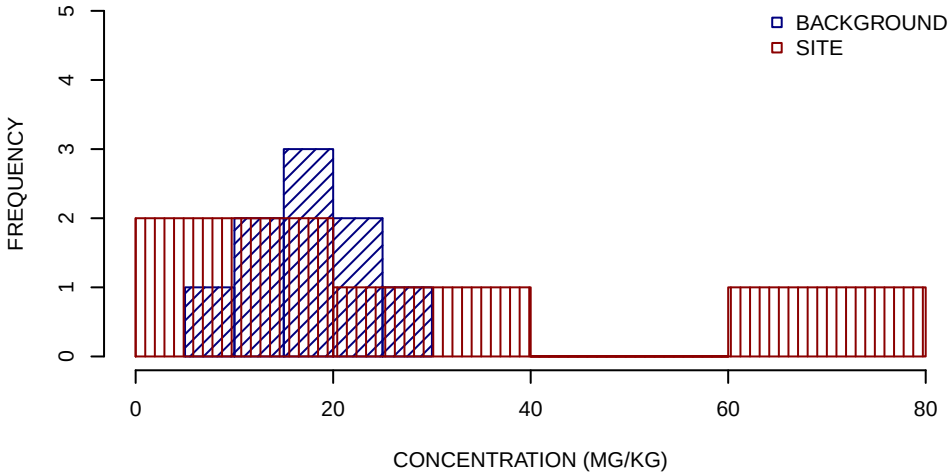


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	7.7	14
25TH PERCENTILE	15	18
MEDIAN	19	23
MEAN	18	34
75TH PERCENTILE	21	39
MAXIMUM	27	75

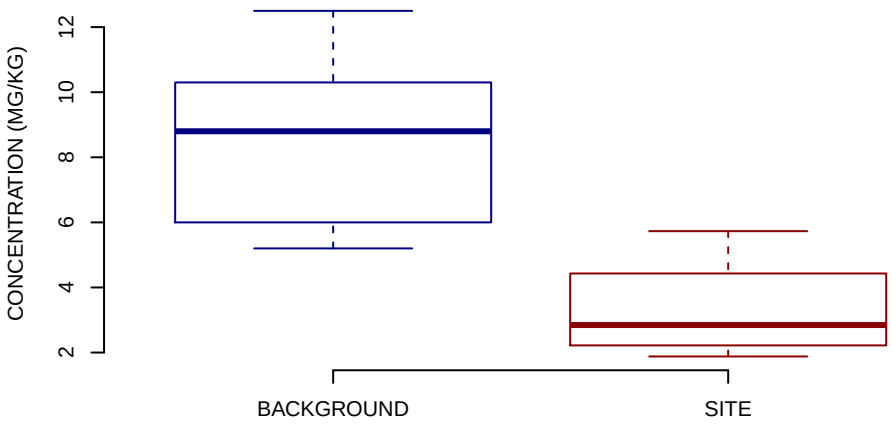
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

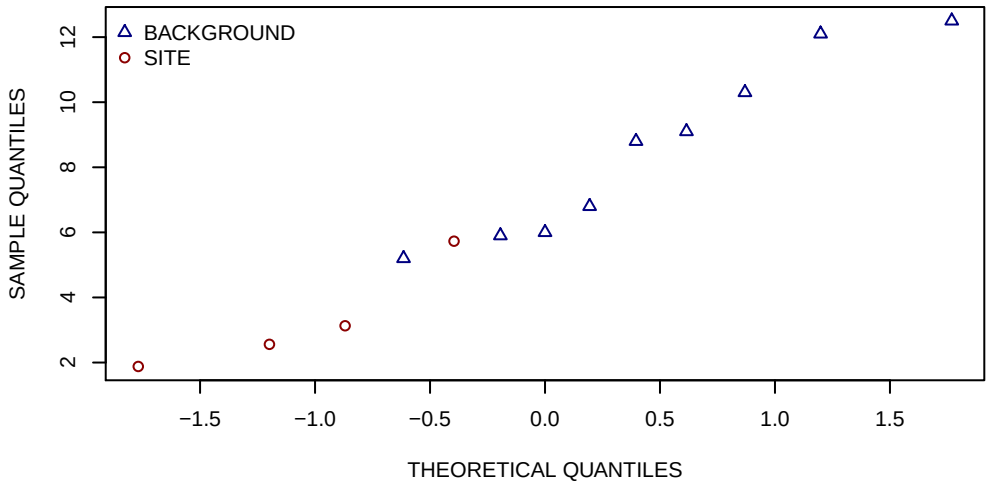
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

COBALT SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 9 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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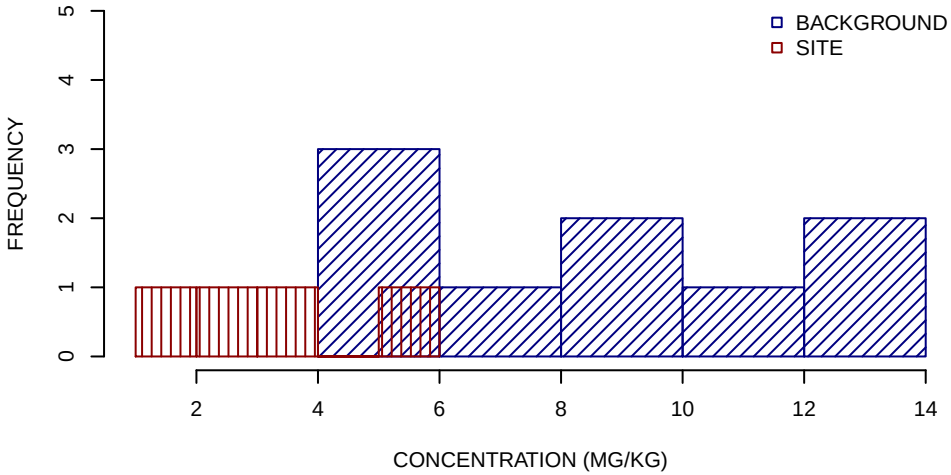


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	5.2	1.9
25TH PERCENTILE	6	2.4
MEDIAN	8.8	2.8
MEAN	8.5	3.3
75TH PERCENTILE	10	3.8
MAXIMUM	12	5.7

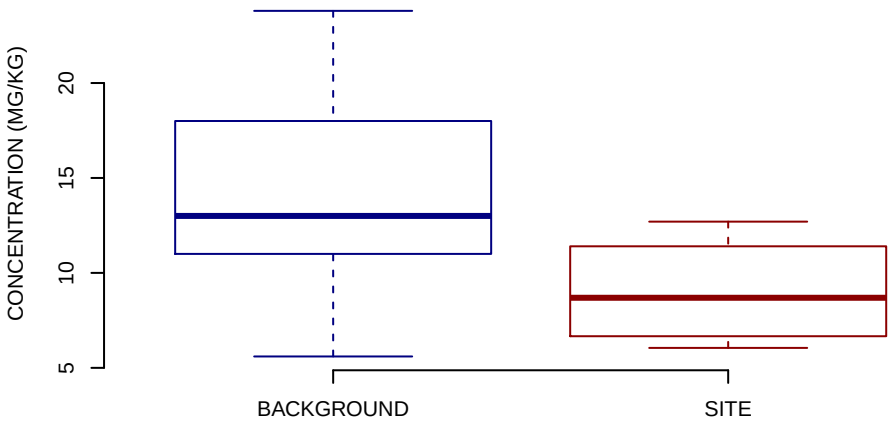
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

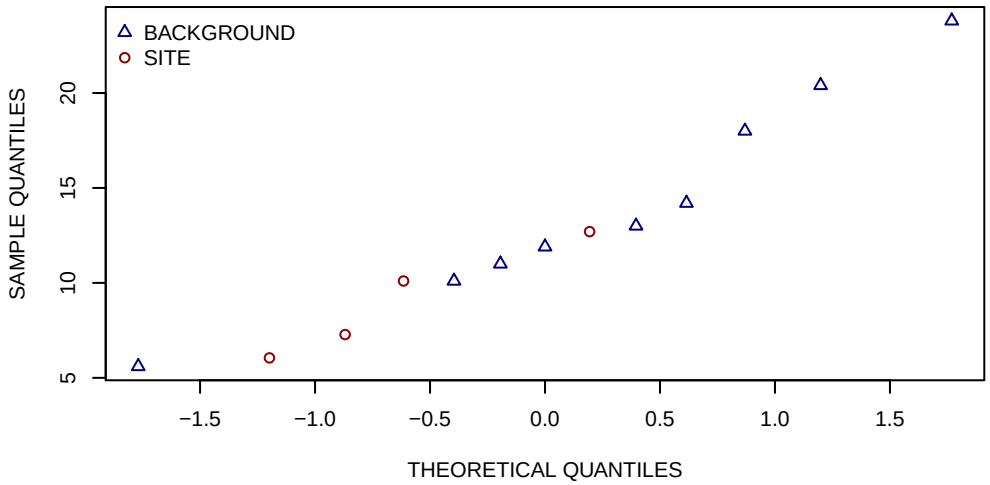
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

COPPER SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 10 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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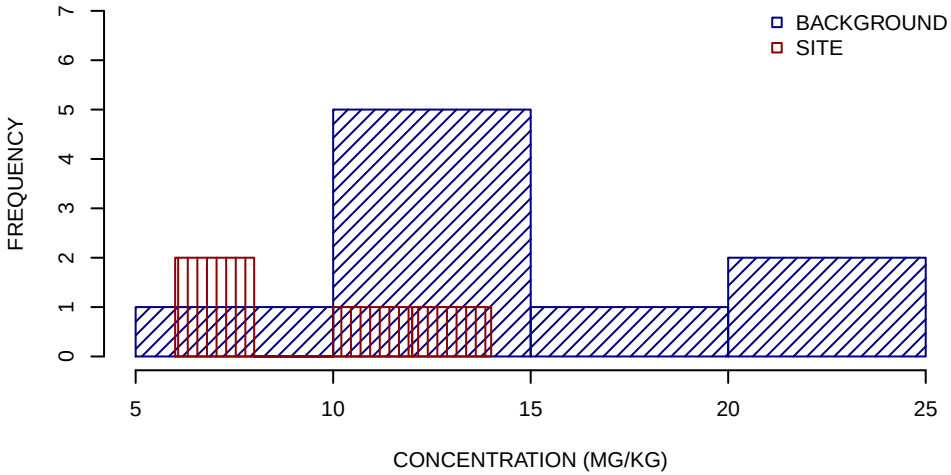


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	5.6	6
25TH PERCENTILE	11	7
MEDIAN	13	8.7
MEAN	14	9
75TH PERCENTILE	18	11
MAXIMUM	24	13

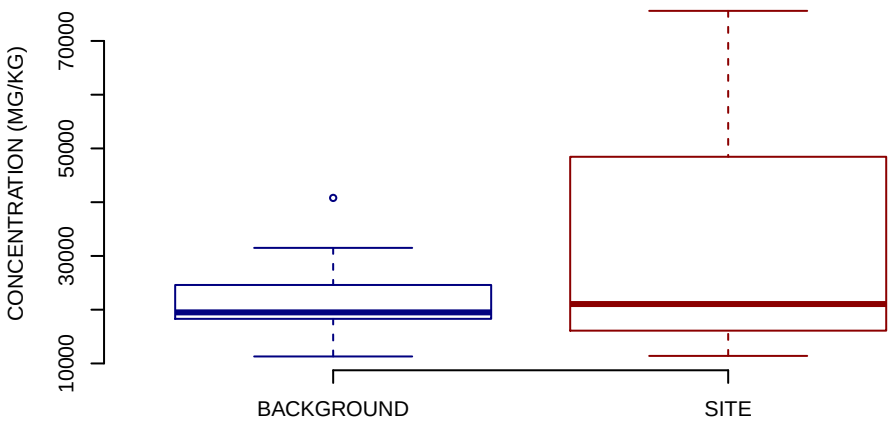
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

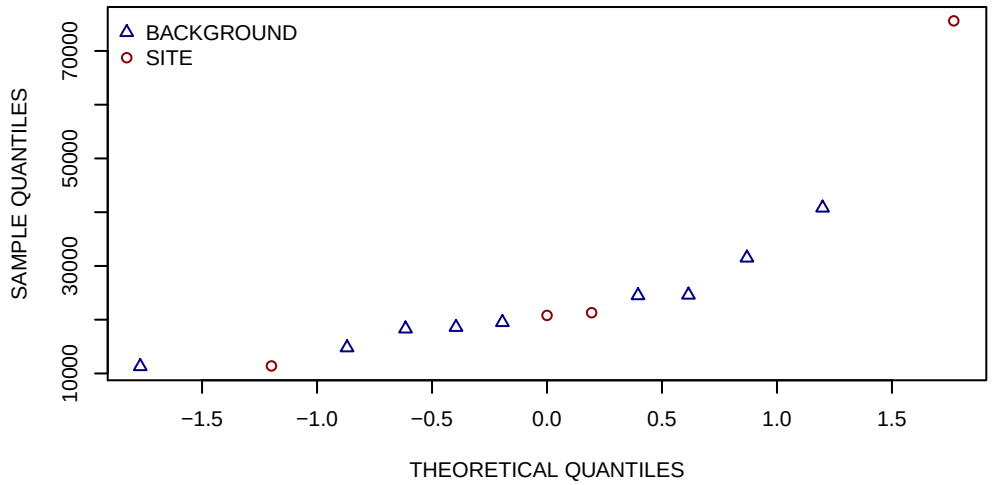
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

IRON SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 11 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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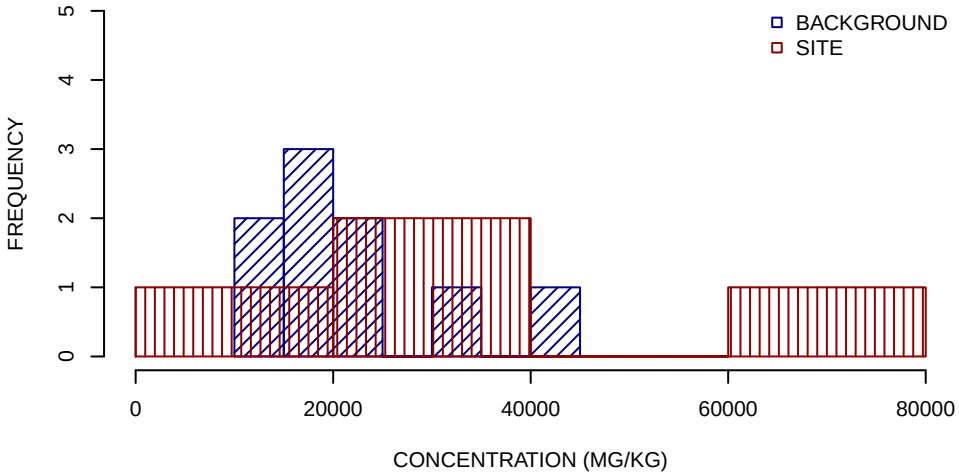


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	11000	11000
25TH PERCENTILE	18000	18000
MEDIAN	20000	21000
MEAN	23000	32000
75TH PERCENTILE	25000	35000
MAXIMUM	41000	76000

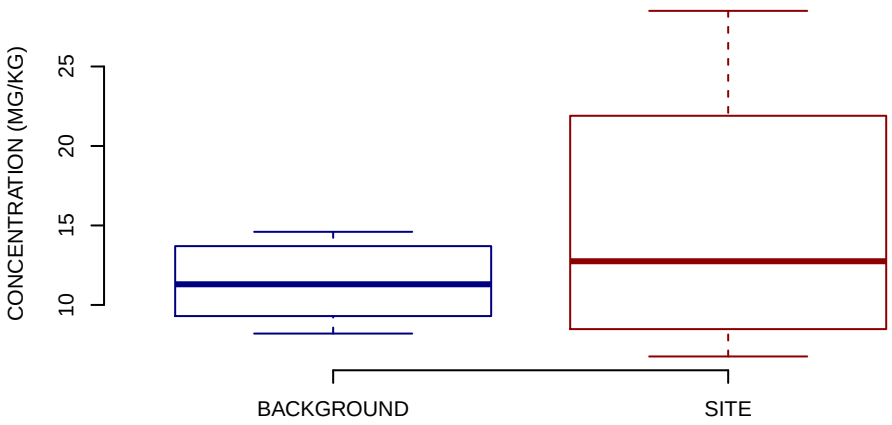
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

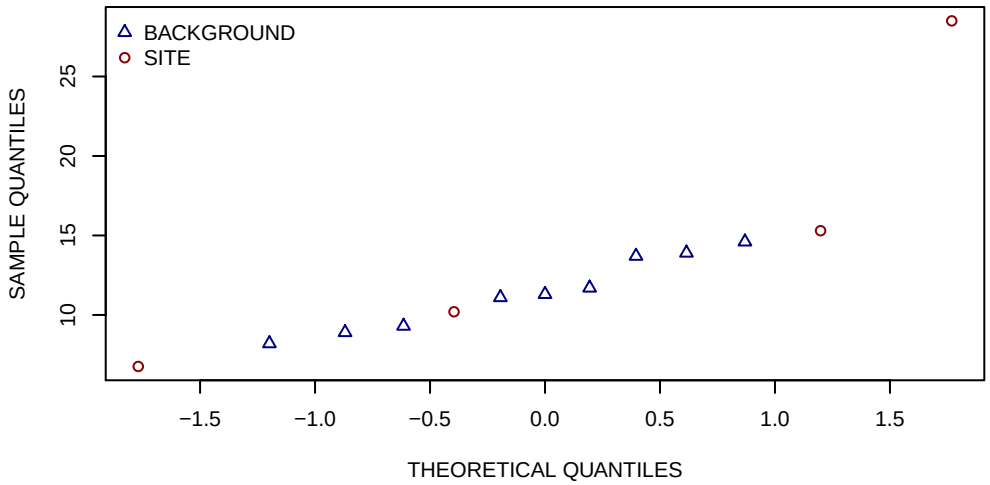
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

LEAD SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 12 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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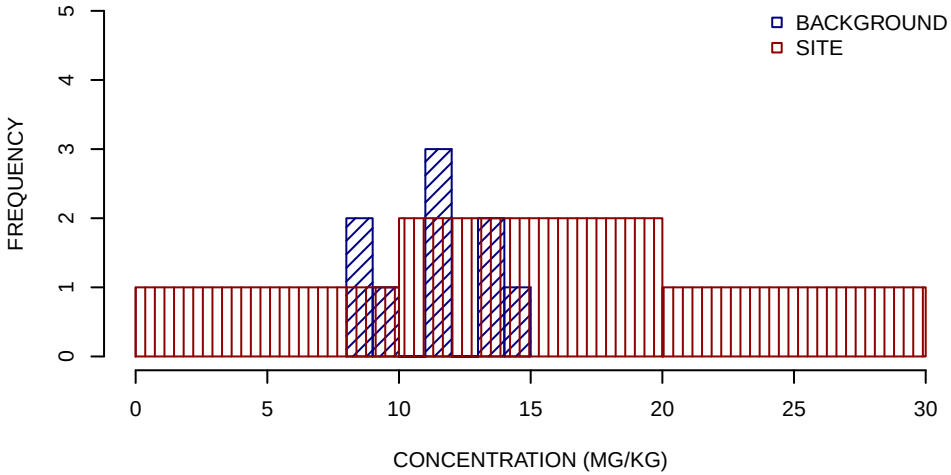


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	8.2	6.8
25TH PERCENTILE	9.3	9.3
MEDIAN	11	13
MEAN	11	15
75TH PERCENTILE	14	19
MAXIMUM	15	28

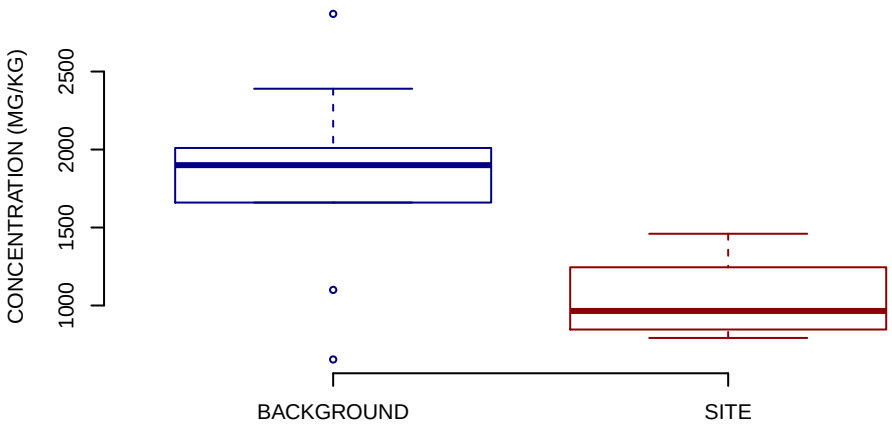
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

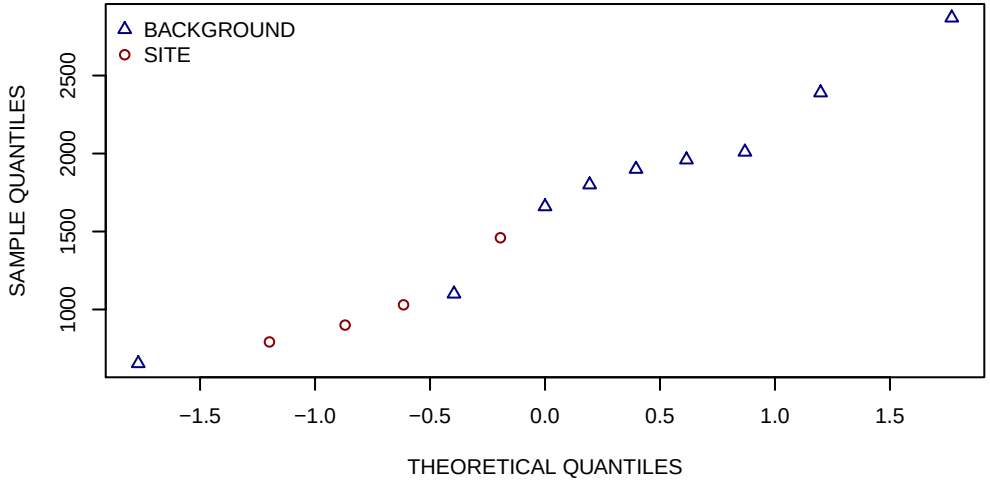
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

MAGNESIUM SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 13 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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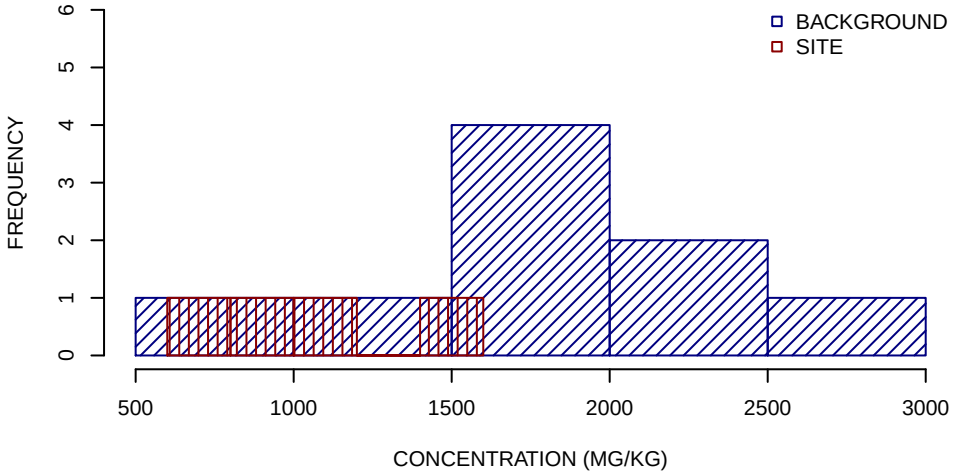


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	650	790
25TH PERCENTILE	1700	870
MEDIAN	1900	960
MEAN	1800	1000
75TH PERCENTILE	2000	1100
MAXIMUM	2900	1500

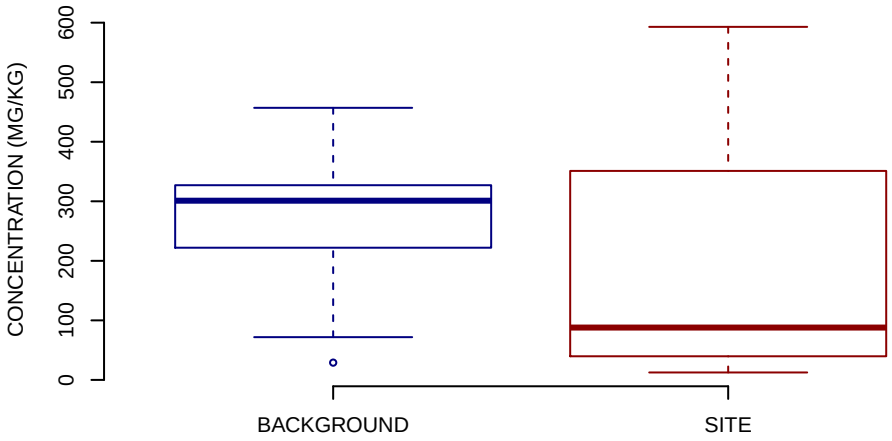
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

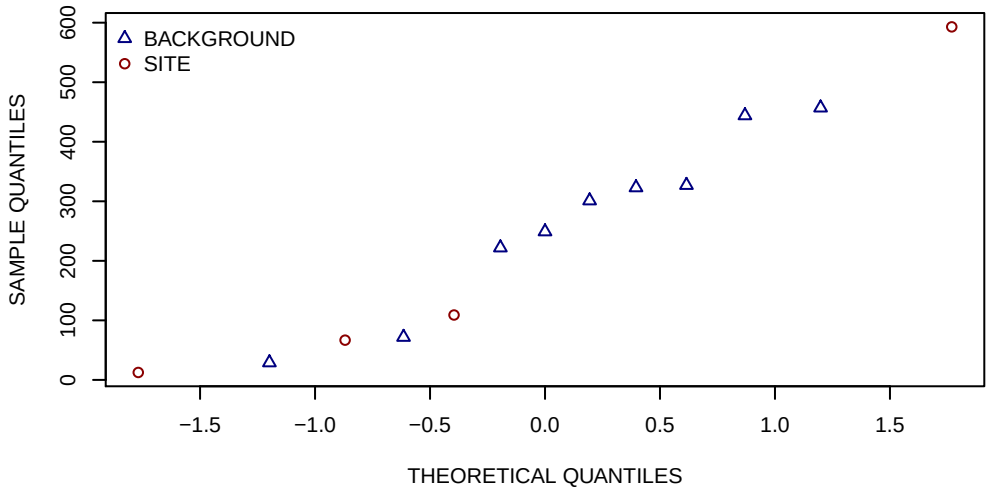
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

MANGANESE SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 14 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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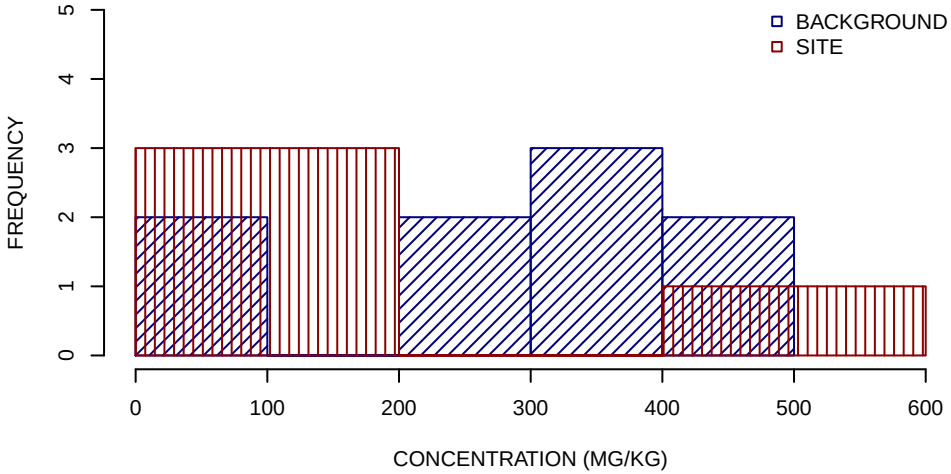


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	29	12
25TH PERCENTILE	220	53
MEDIAN	300	88
MEAN	270	200
75TH PERCENTILE	330	230
MAXIMUM	460	590

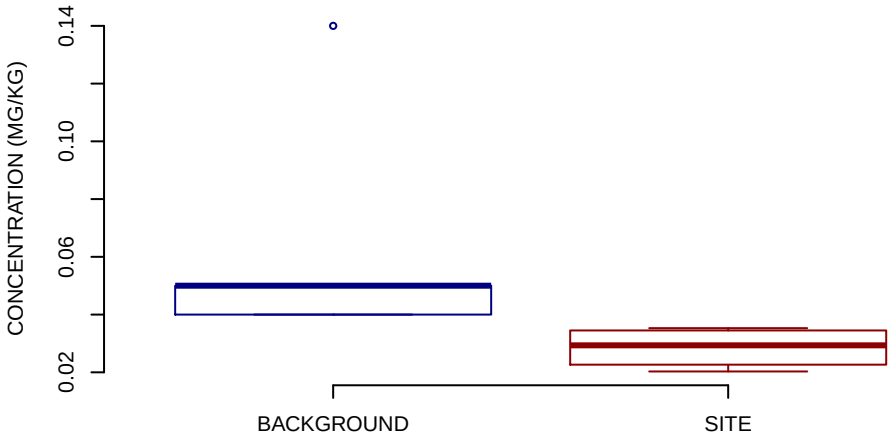
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

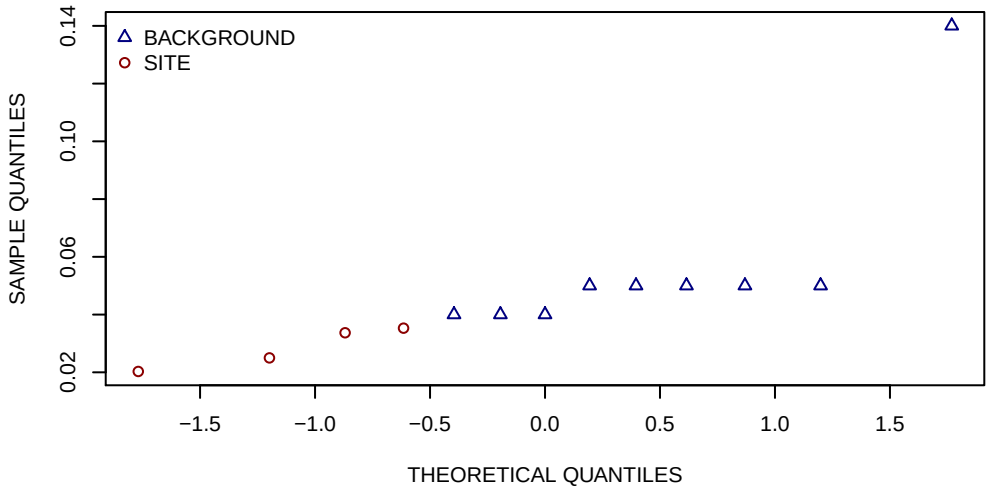
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

MERCURY SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 15 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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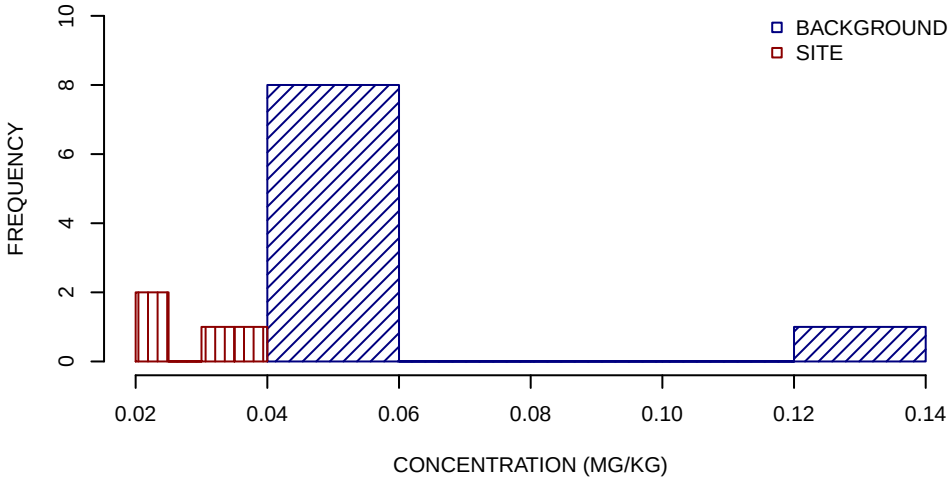


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.04	0.02
25TH PERCENTILE	0.04	0.024
MEDIAN	0.05	0.029
MEAN	0.057	0.029
75TH PERCENTILE	0.05	0.034
MAXIMUM	0.14	0.035

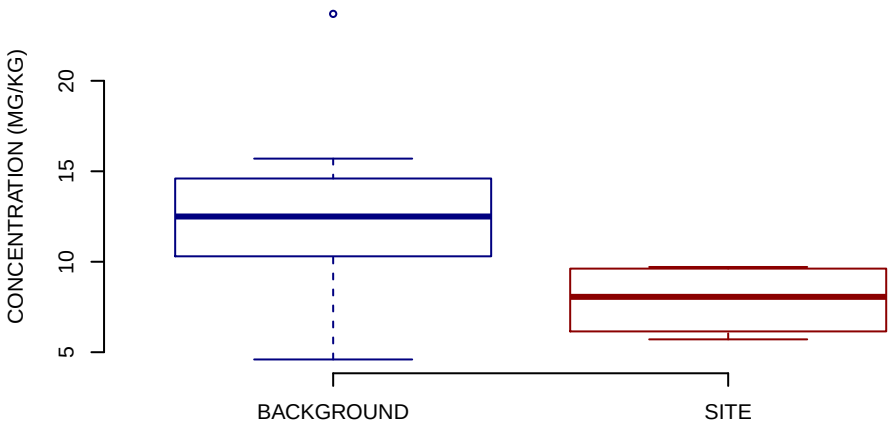
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

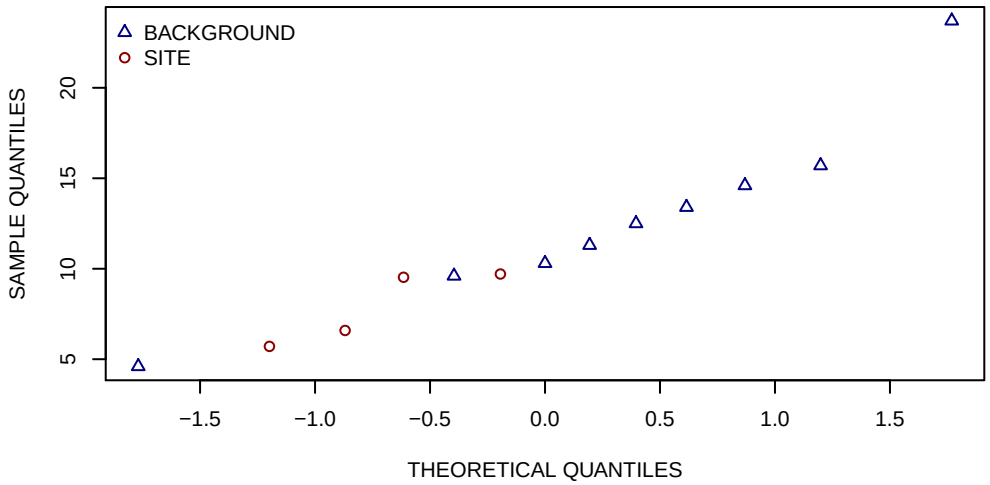
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

NICKEL SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 16 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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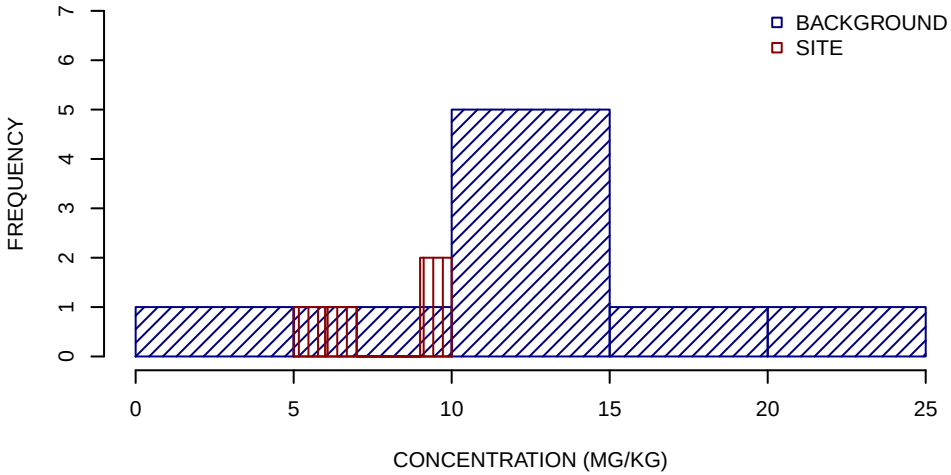


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	4.6	5.7
25TH PERCENTILE	10	6.4
MEDIAN	12	8.1
MEAN	13	7.9
75TH PERCENTILE	15	9.6
MAXIMUM	24	9.7

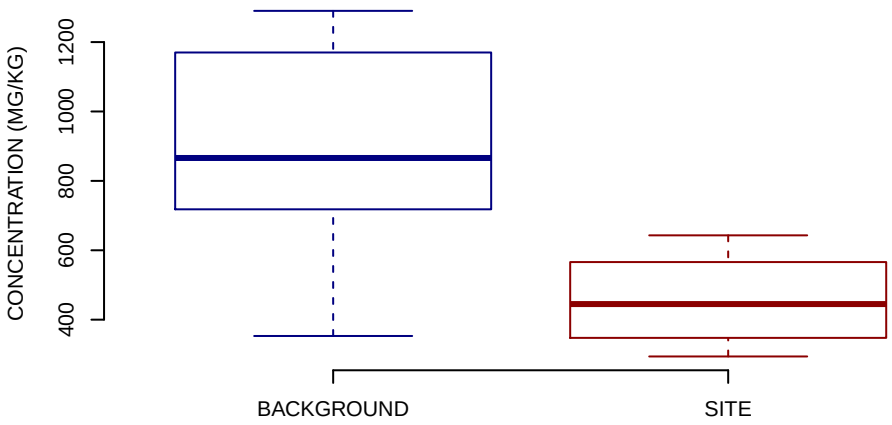
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

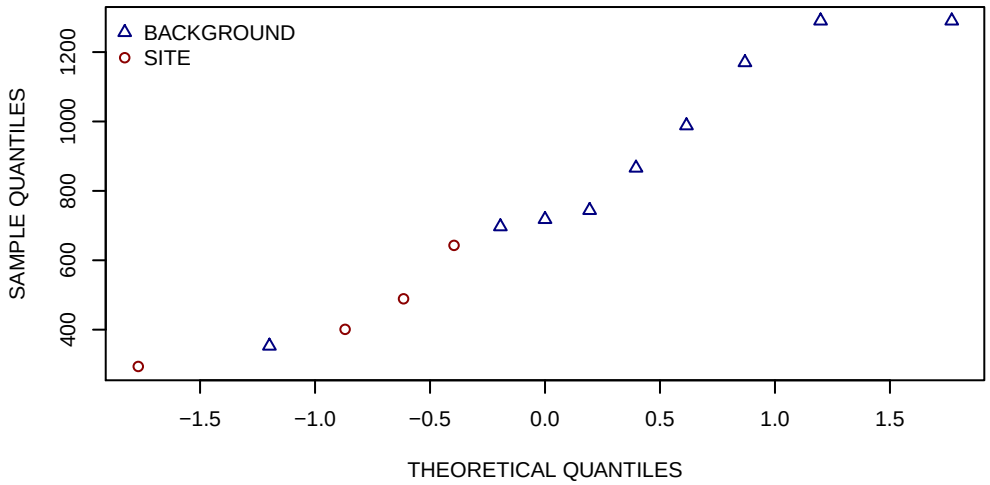
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

POTASSIUM SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 17 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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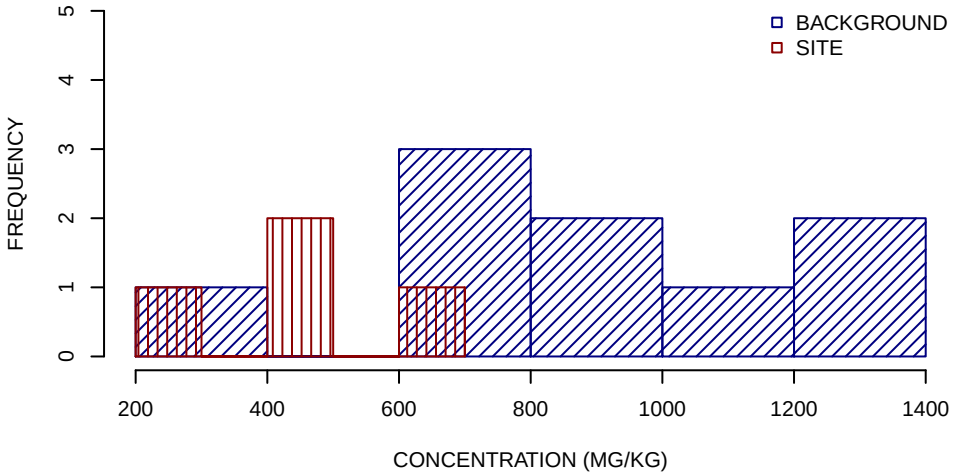


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	350	290
25TH PERCENTILE	720	370
MEDIAN	870	440
MEAN	900	460
75TH PERCENTILE	1200	530
MAXIMUM	1300	640

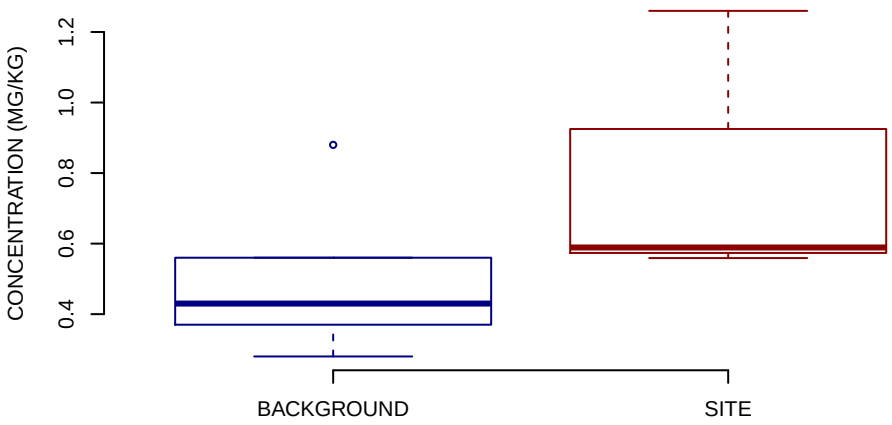
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

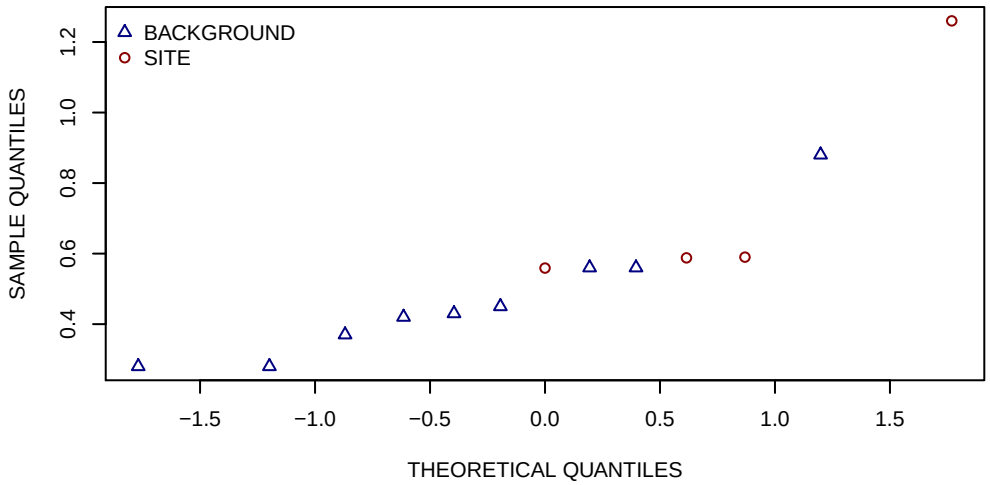
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

SELENIUM SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 18 OF 23

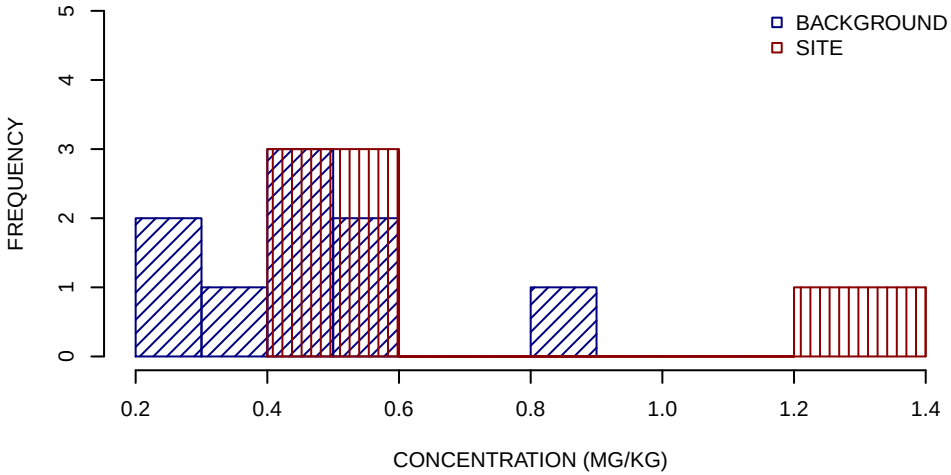
BOXPLOTS



NORMAL Q−Q PLOT



HISTOGRAMS



SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.28	0.56
25TH PERCENTILE	0.37	0.58
MEDIAN	0.43	0.59
MEAN	0.47	0.75
75TH PERCENTILE	0.56	0.76
MAXIMUM	0.88	1.3

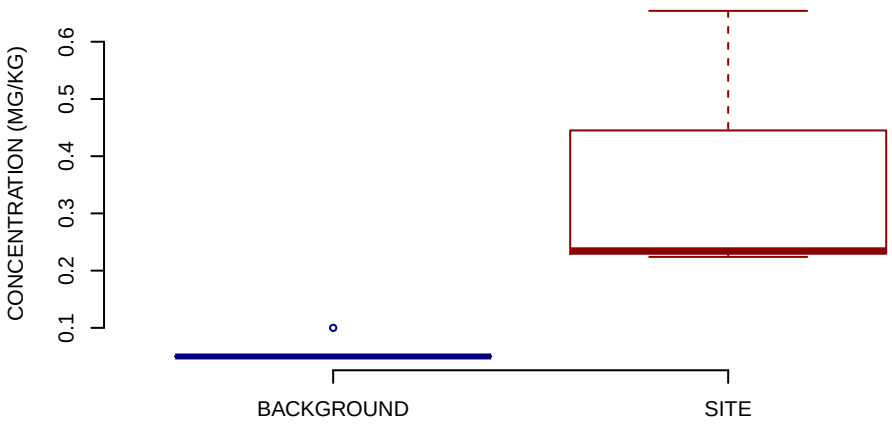
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

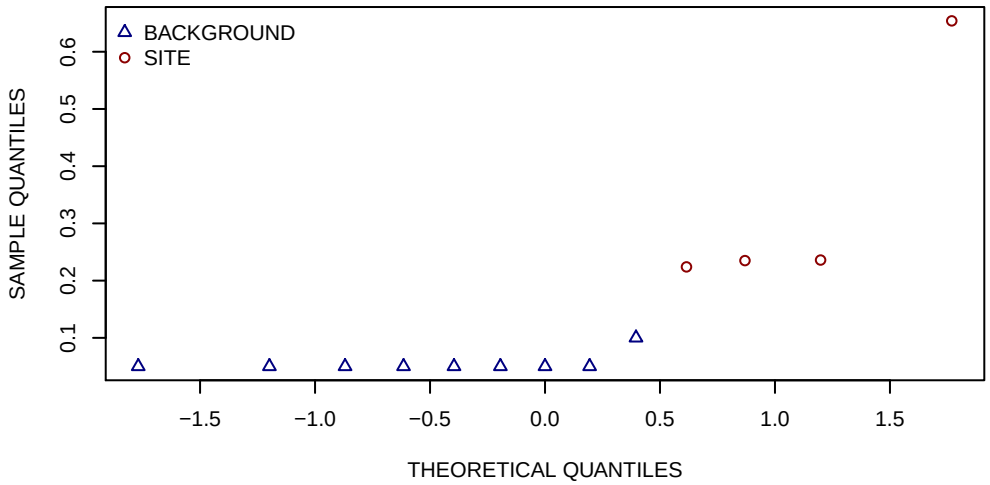
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

SILVER SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 19 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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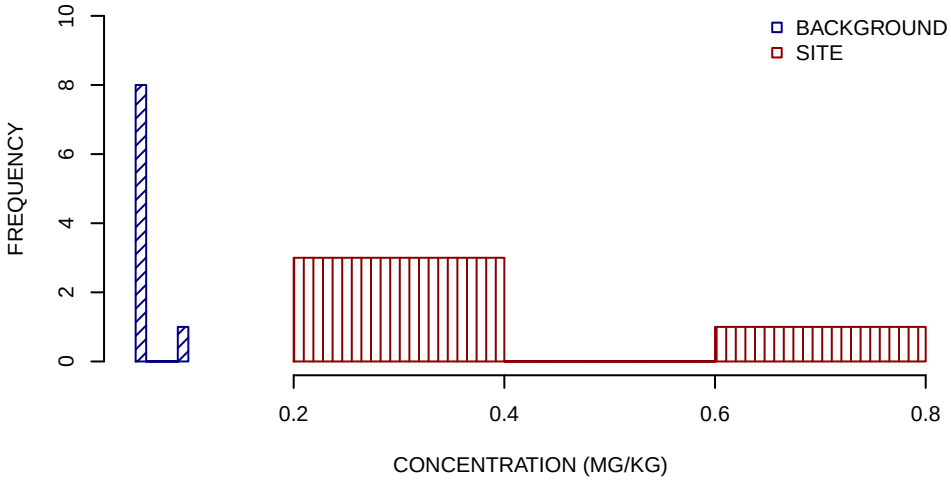


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.05	0.22
25TH PERCENTILE	0.05	0.23
MEDIAN	0.05	0.24
MEAN	0.056	0.34
75TH PERCENTILE	0.05	0.34
MAXIMUM	0.1	0.65

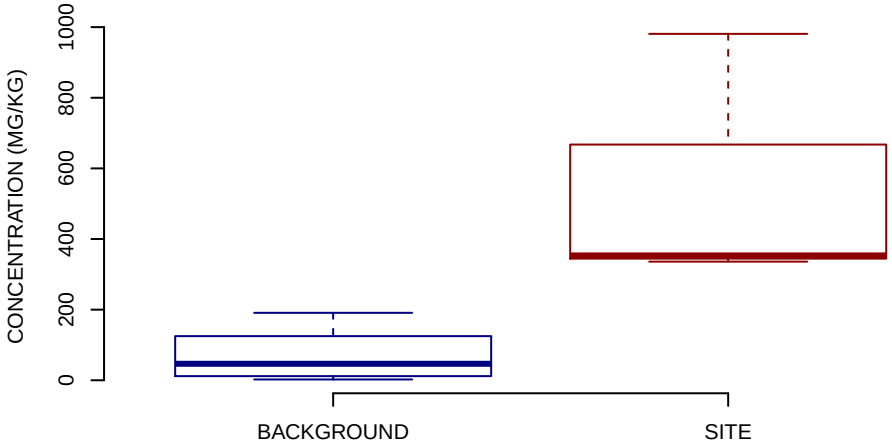
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

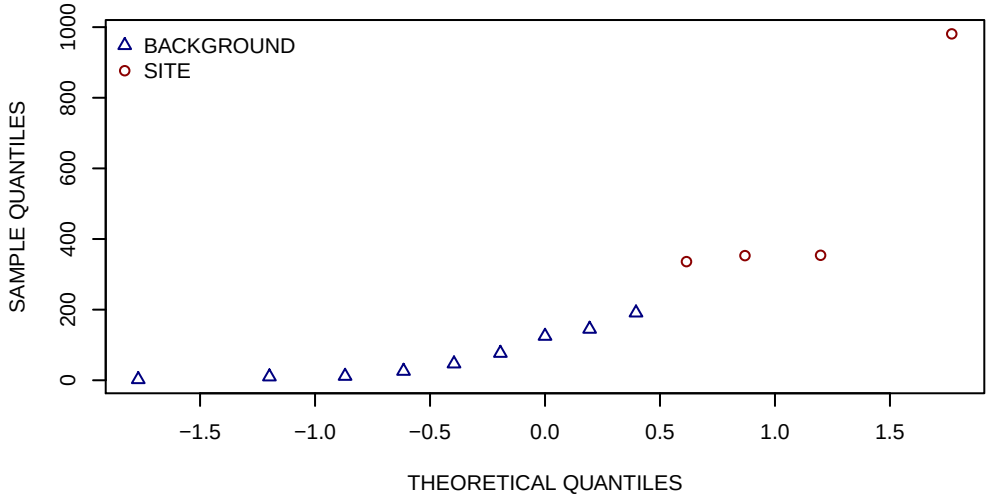
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

SODIUM SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 20 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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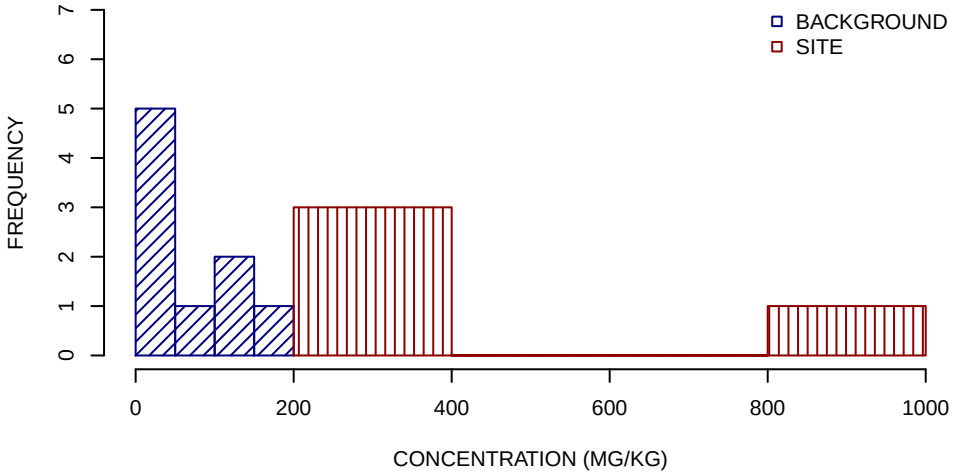


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	2.3	340
25TH PERCENTILE	12	350
MEDIAN	47	350
MEAN	70	510
75TH PERCENTILE	120	510
MAXIMUM	190	980

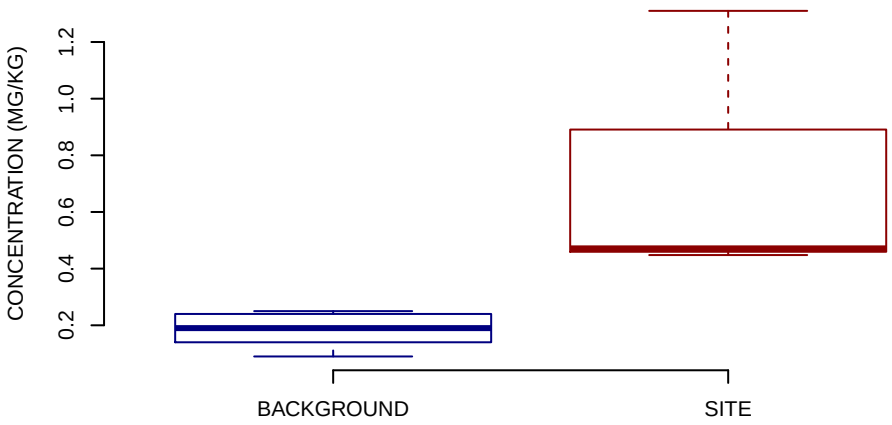
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

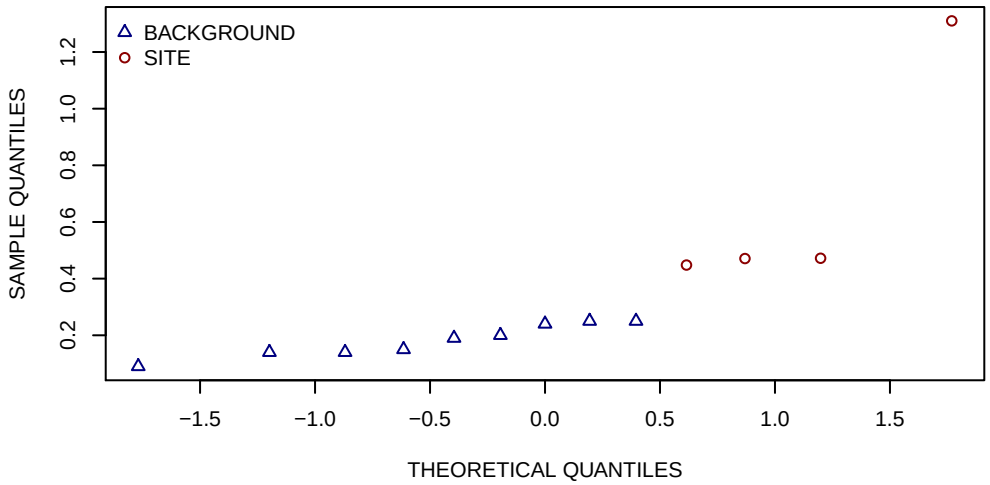
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

THALLIUM SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 21 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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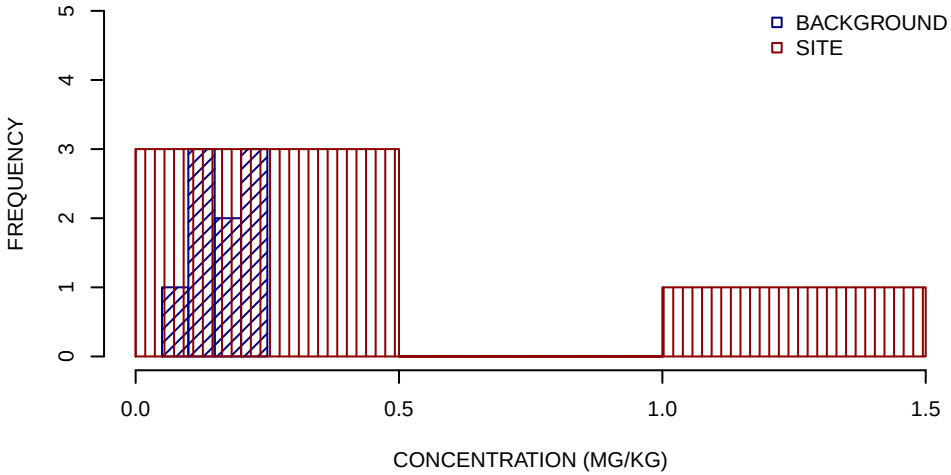


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.09	0.45
25TH PERCENTILE	0.14	0.47
MEDIAN	0.19	0.47
MEAN	0.18	0.68
75TH PERCENTILE	0.24	0.68
MAXIMUM	0.25	1.3

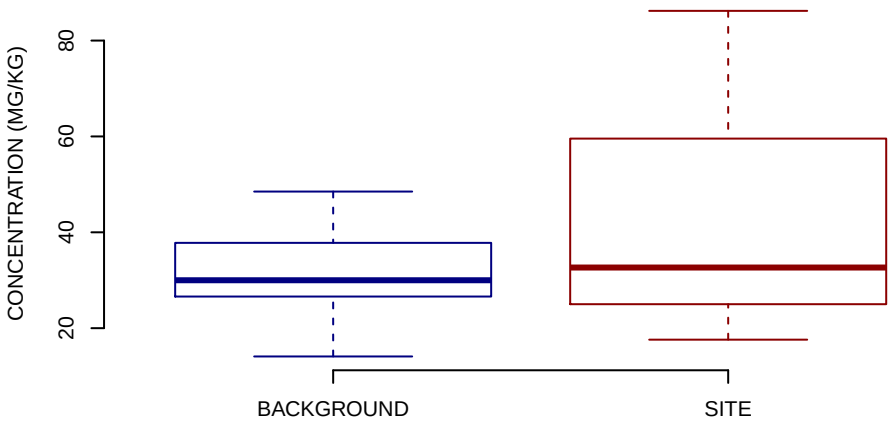
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

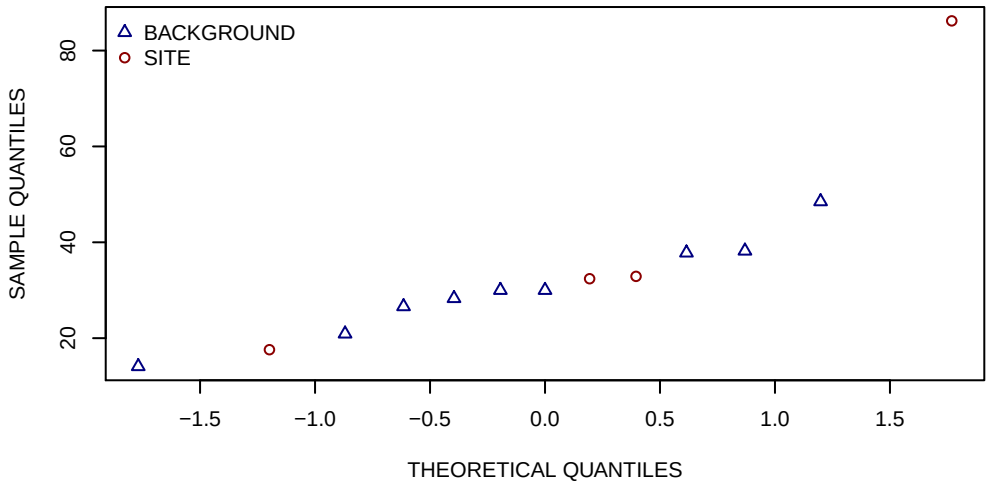
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

VANADIUM SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 22 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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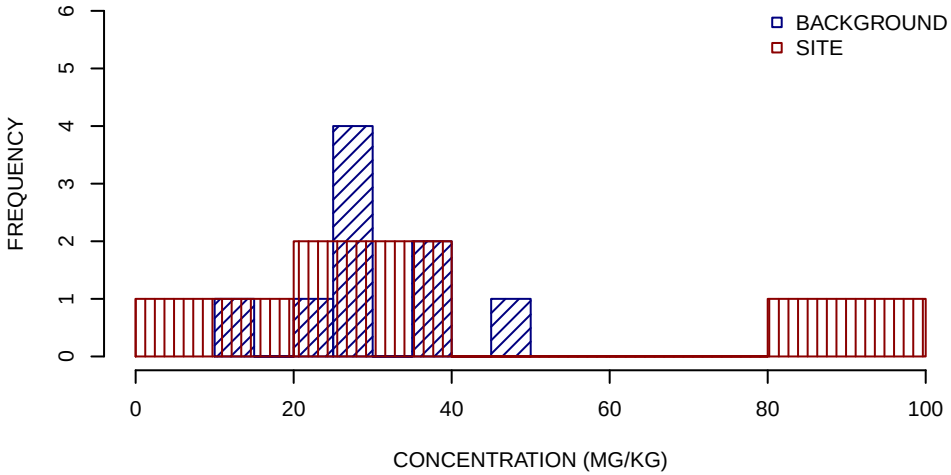


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	14	18
25TH PERCENTILE	27	29
MEDIAN	30	33
MEAN	30	42
75TH PERCENTILE	38	46
MAXIMUM	48	86

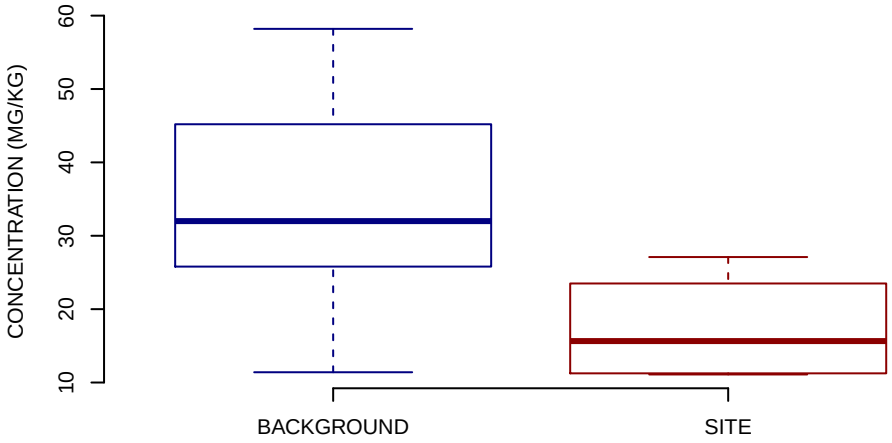
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

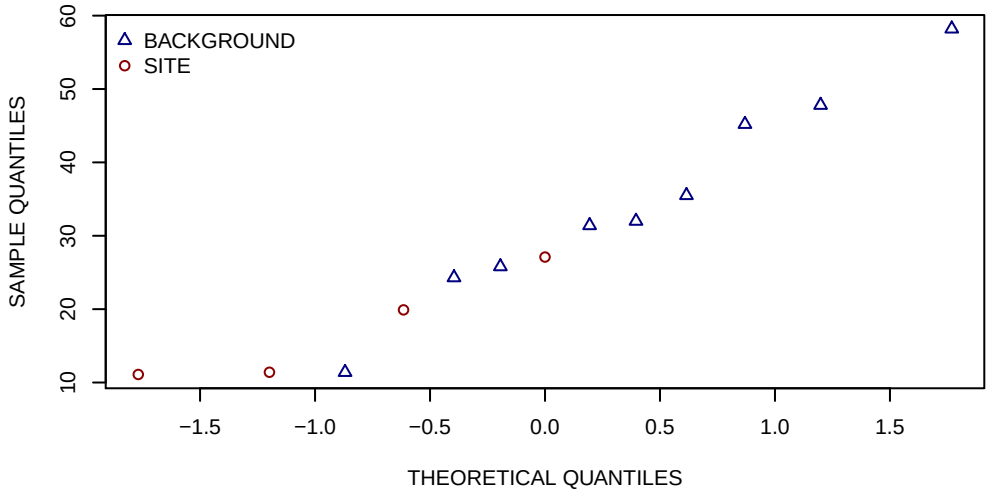
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

ZINC SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 23 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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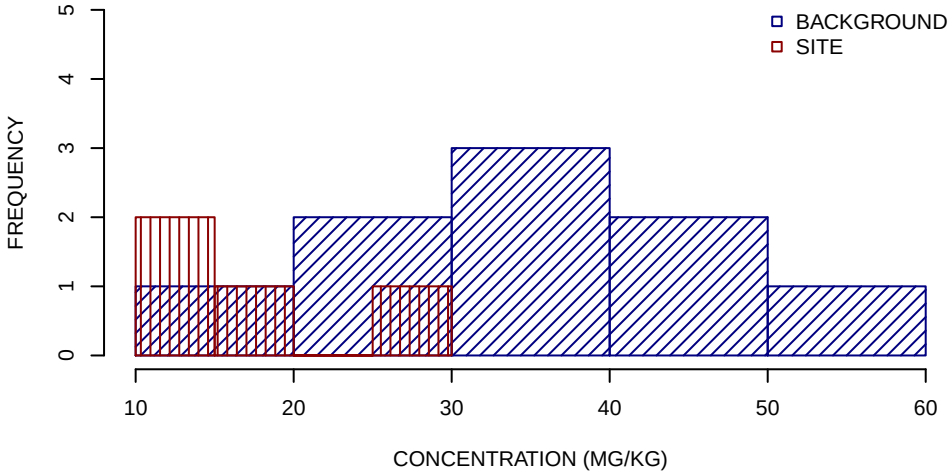


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	11	11
25TH PERCENTILE	26	11
MEDIAN	32	16
MEAN	35	17
75TH PERCENTILE	45	22
MAXIMUM	58	27

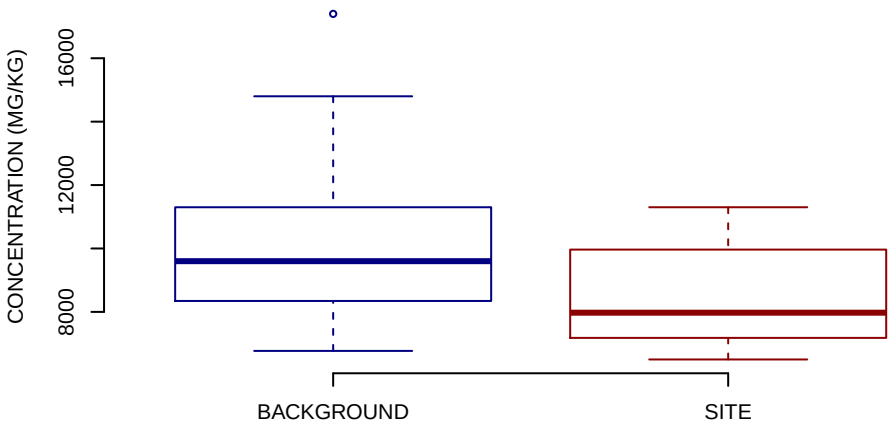
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

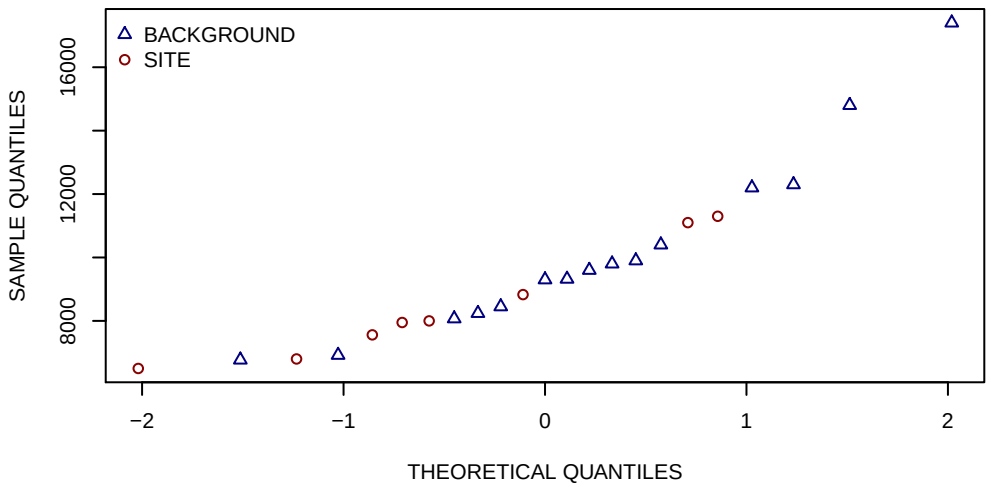
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

ALUMINUM SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 1 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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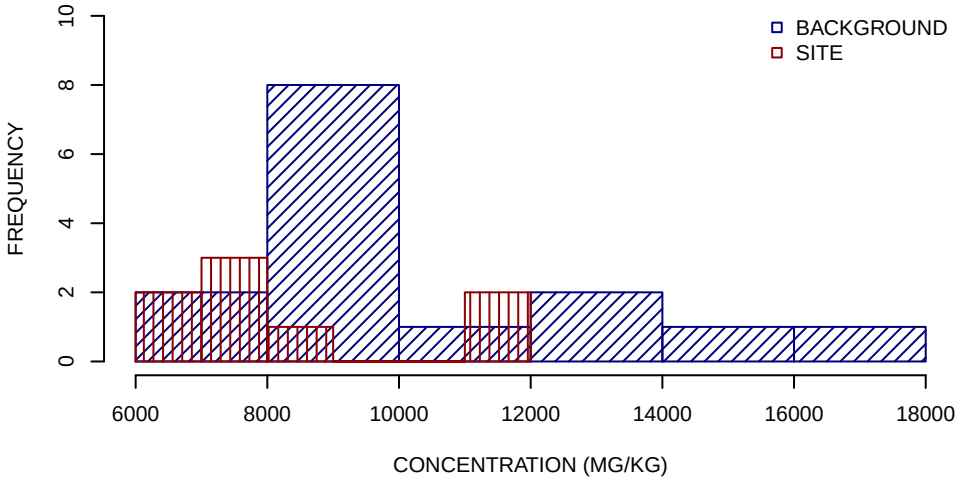


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	6800	6500
25TH PERCENTILE	8300	7400
MEDIAN	9600	8000
MEAN	10000	8500
75TH PERCENTILE	11000	9400
MAXIMUM	17000	11000

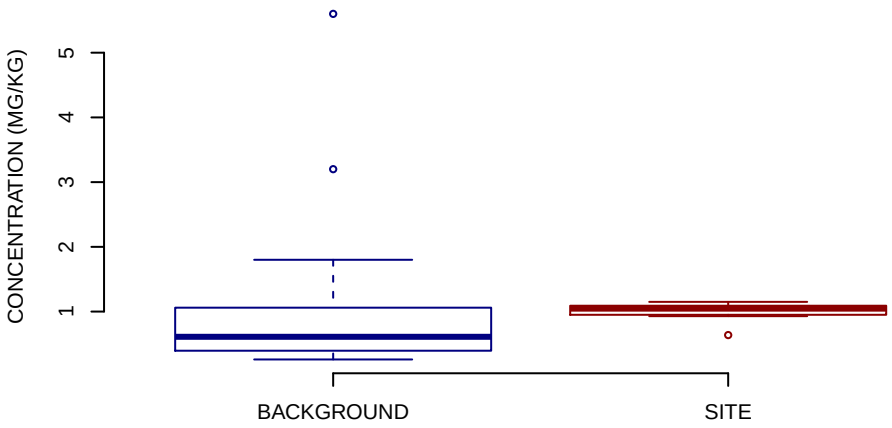
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

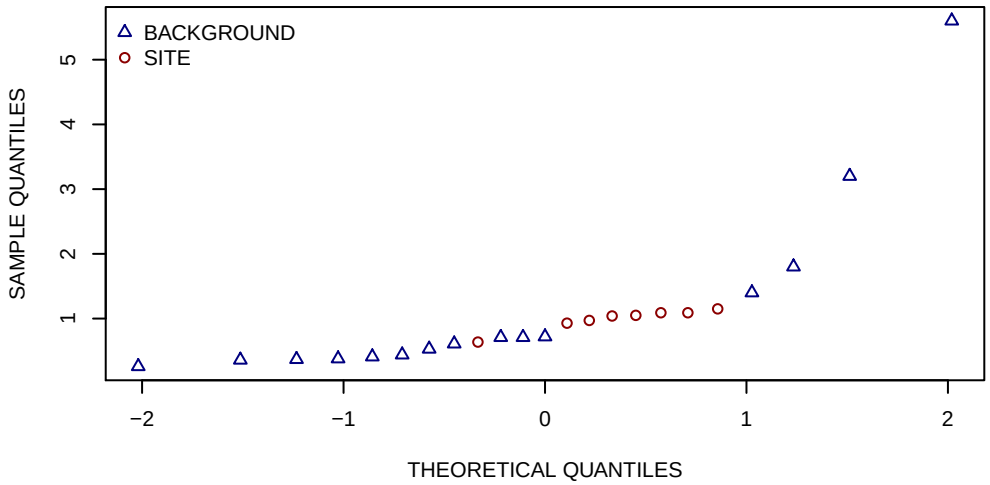
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

ANTIMONY SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 2 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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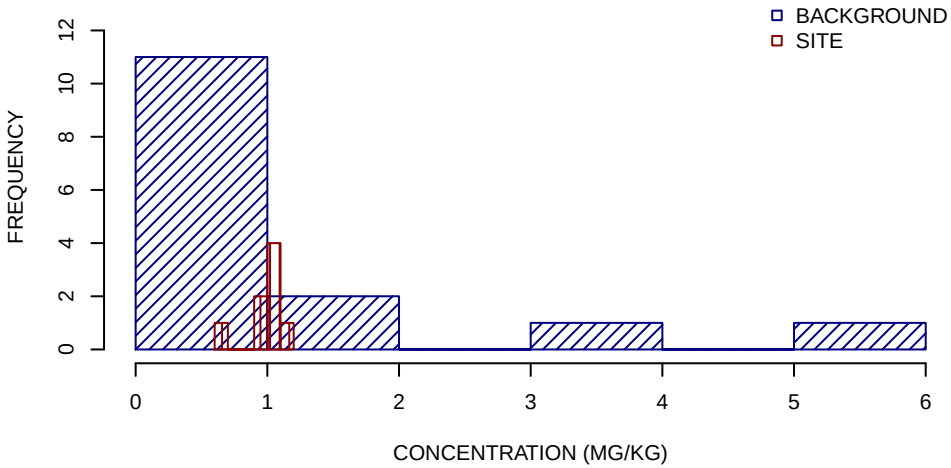


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.26	0.64
25TH PERCENTILE	0.4	0.96
MEDIAN	0.61	1
MEAN	1.2	0.99
75TH PERCENTILE	1.1	1.1
MAXIMUM	5.6	1.2

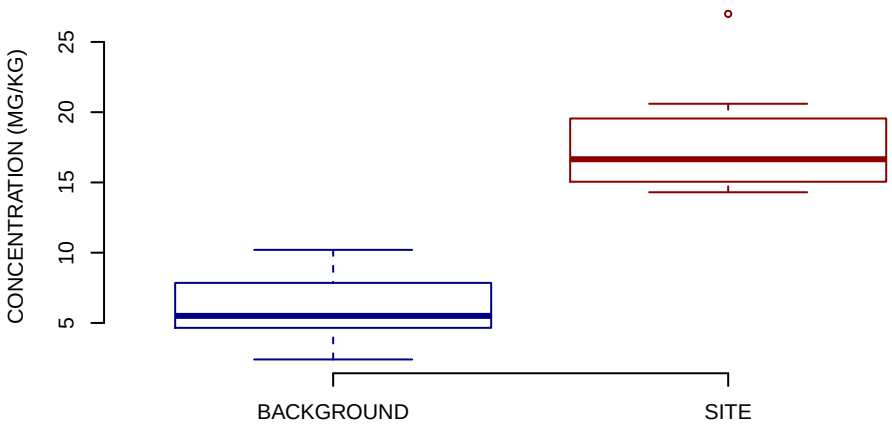
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

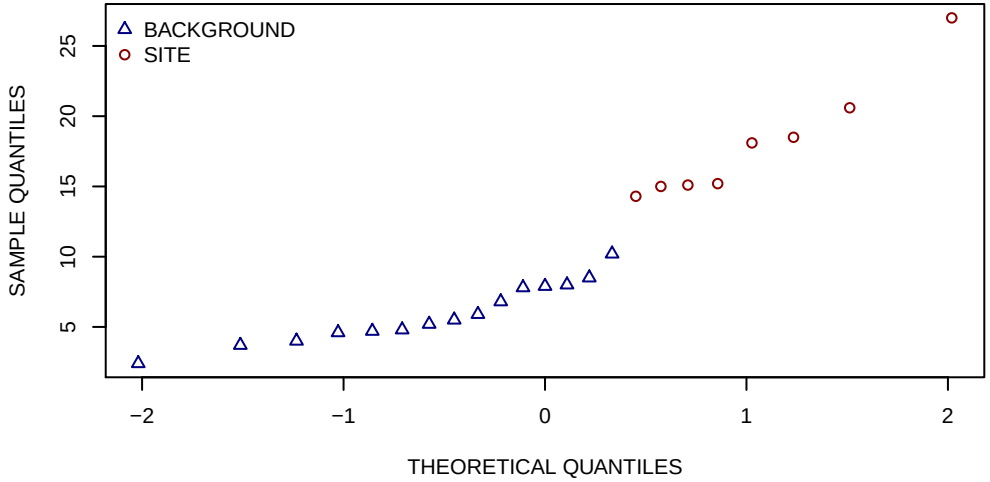
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

ARSENIC SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 3 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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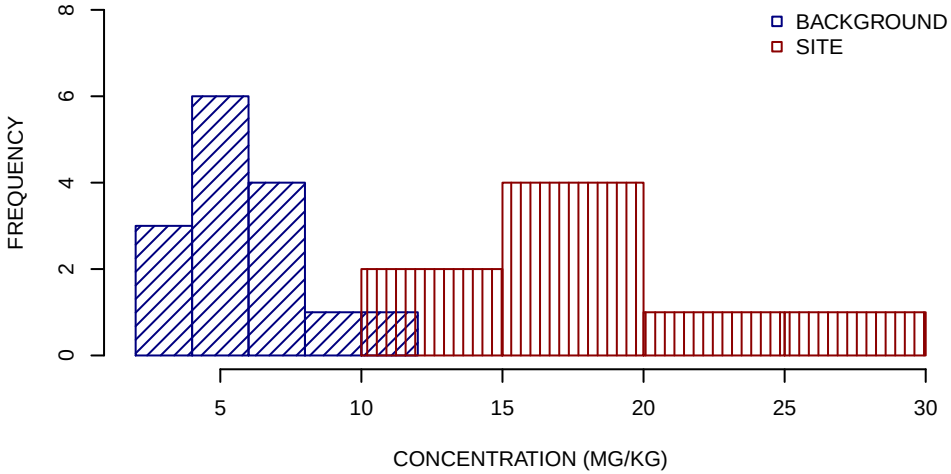


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	2.4	14
25TH PERCENTILE	4.6	15
MEDIAN	5.5	17
MEAN	6	18
75TH PERCENTILE	7.8	19
MAXIMUM	10	27

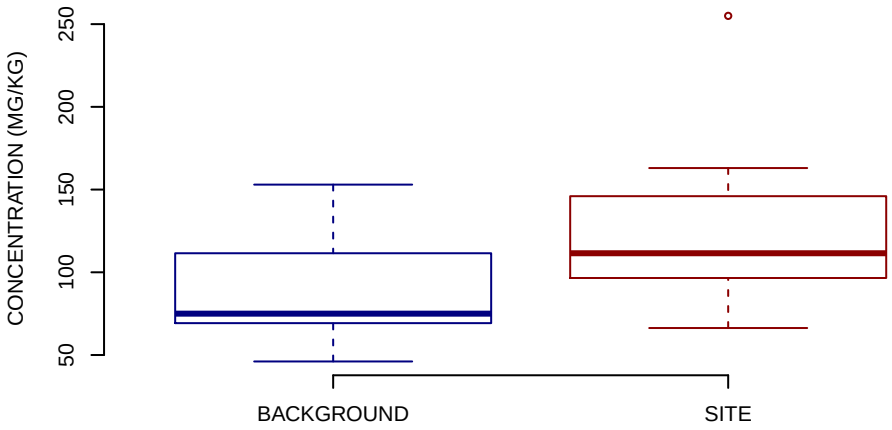
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

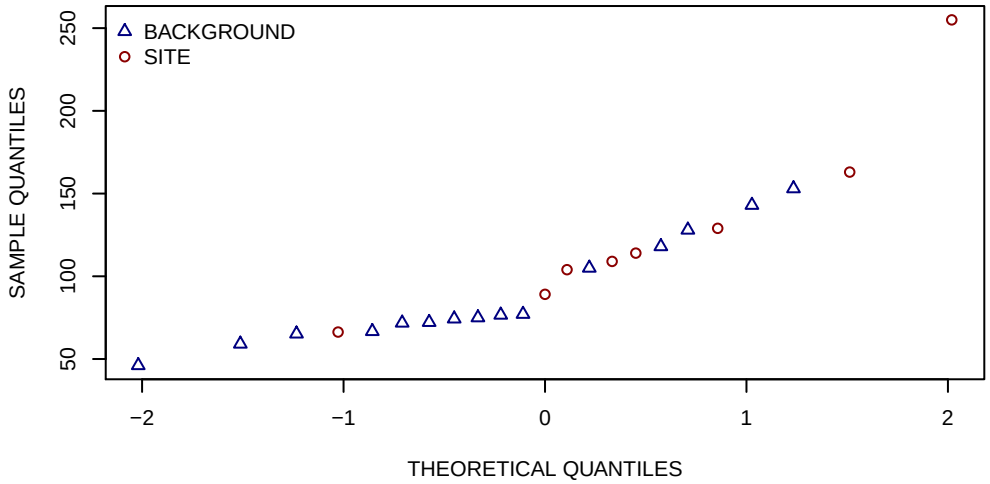
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

BARIUM SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 4 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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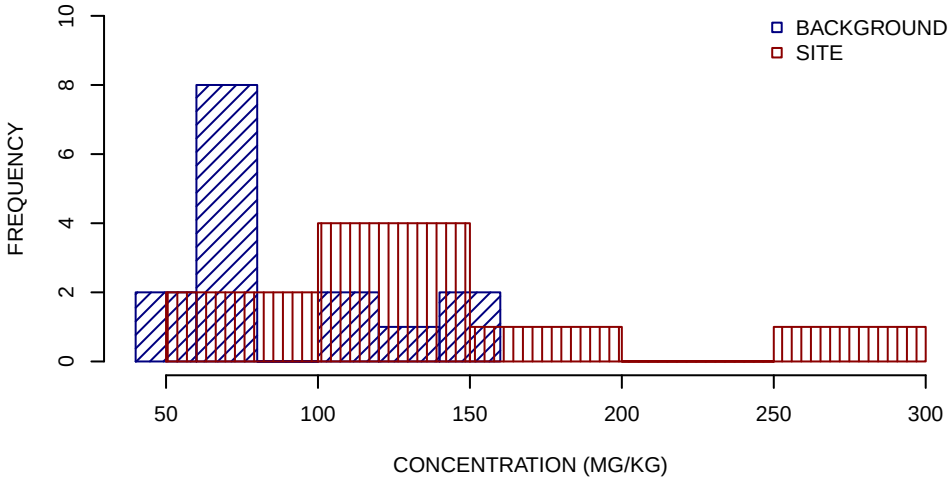


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	46	66
25TH PERCENTILE	69	100
MEDIAN	75	110
MEAN	89	130
75TH PERCENTILE	110	140
MAXIMUM	150	260

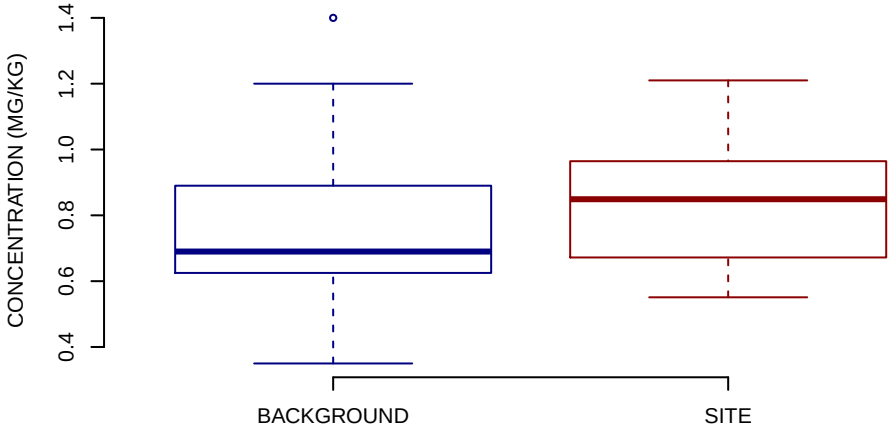
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

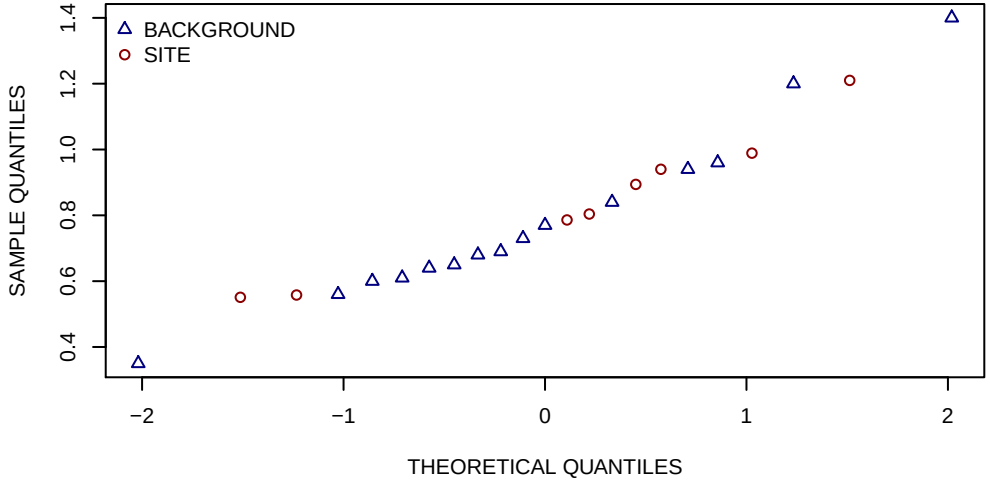
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

BERYLLIUM SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 5 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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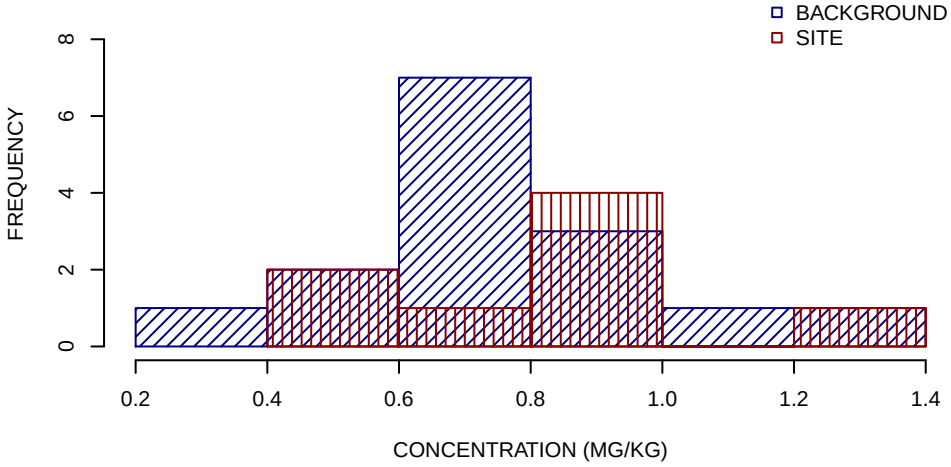


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.35	0.55
25TH PERCENTILE	0.62	0.73
MEDIAN	0.69	0.85
MEAN	0.77	0.84
75TH PERCENTILE	0.89	0.95
MAXIMUM	1.4	1.2

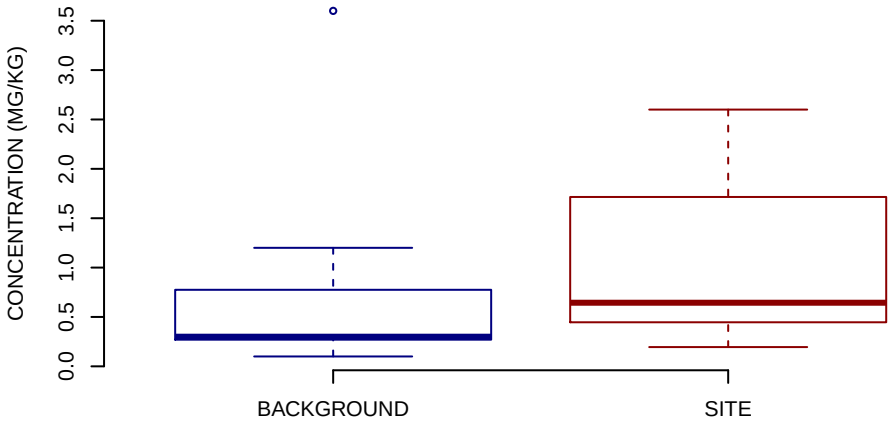
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

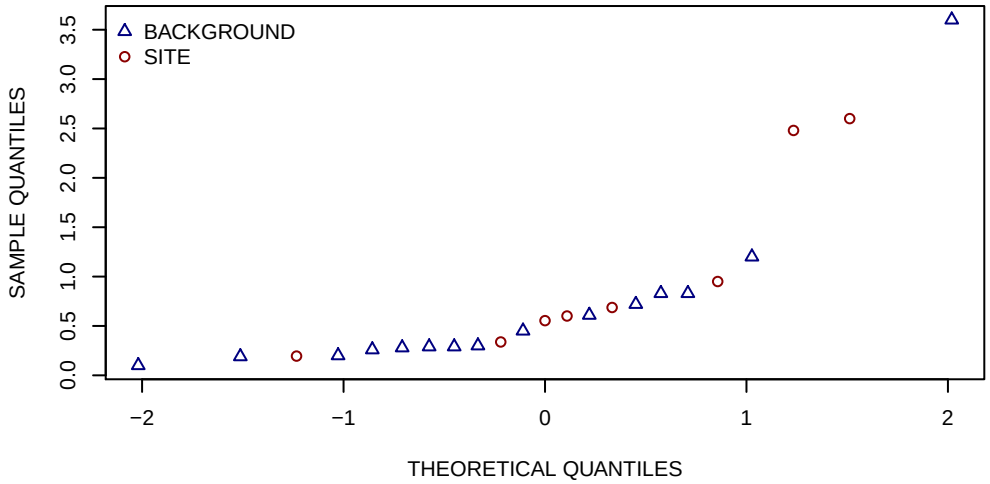
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

CADMIUM SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 6 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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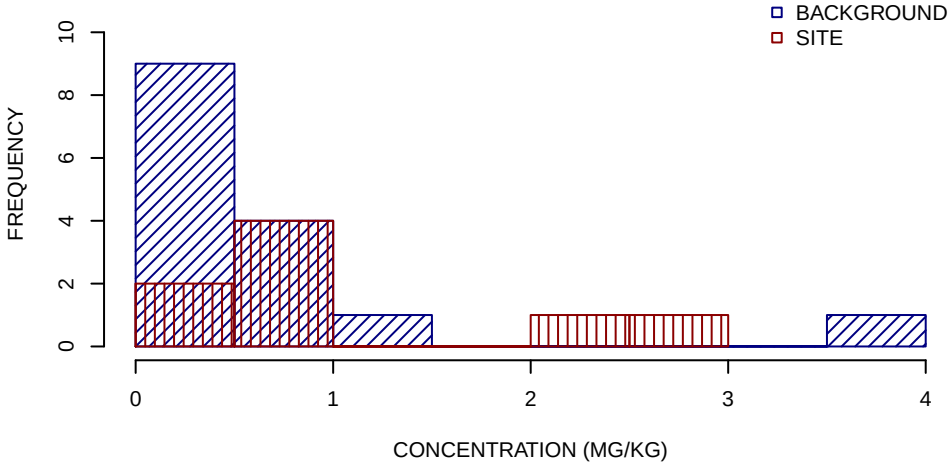


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.1	0.2
25TH PERCENTILE	0.27	0.5
MEDIAN	0.3	0.64
MEAN	0.68	1.1
75TH PERCENTILE	0.78	1.3
MAXIMUM	3.6	2.6

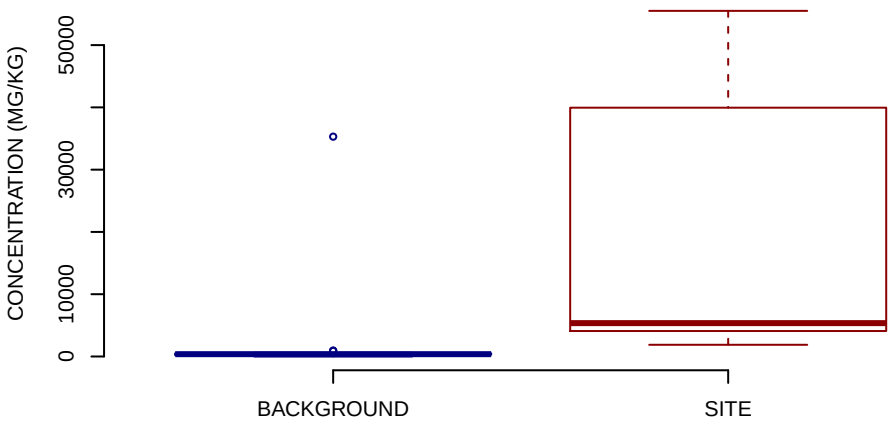
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

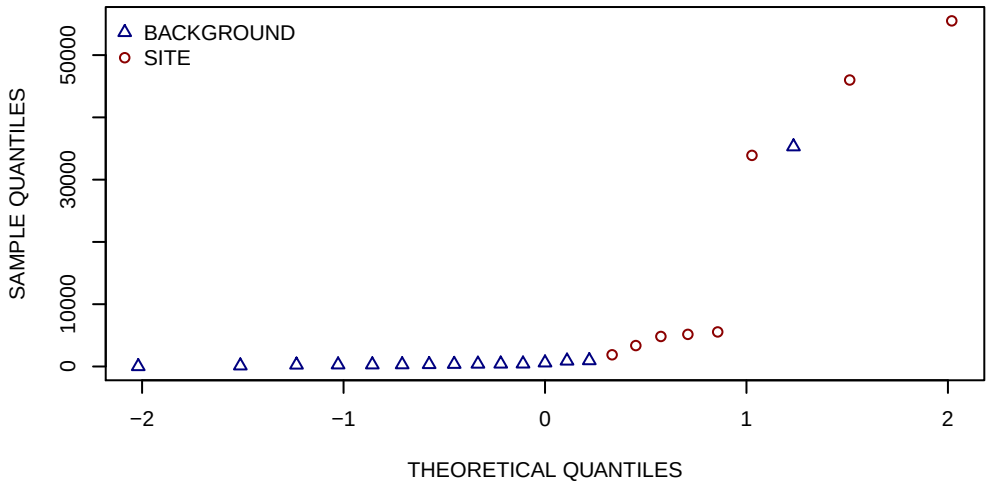
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

CALCIUM SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 7 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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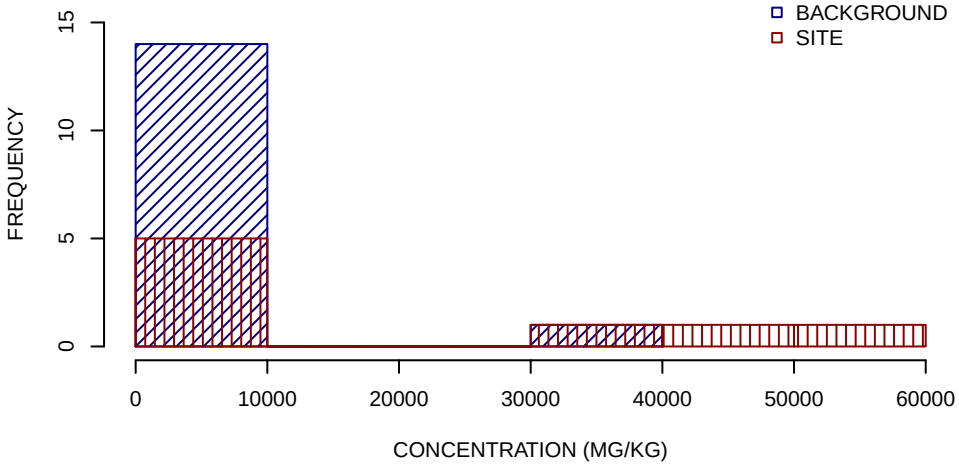


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	5	1900
25TH PERCENTILE	280	4500
MEDIAN	370	5400
MEAN	2700	20000
75TH PERCENTILE	510	37000
MAXIMUM	35000	56000

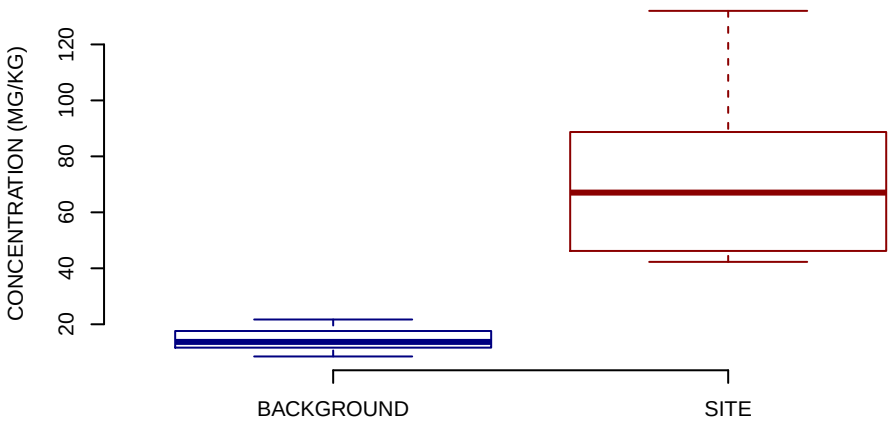
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

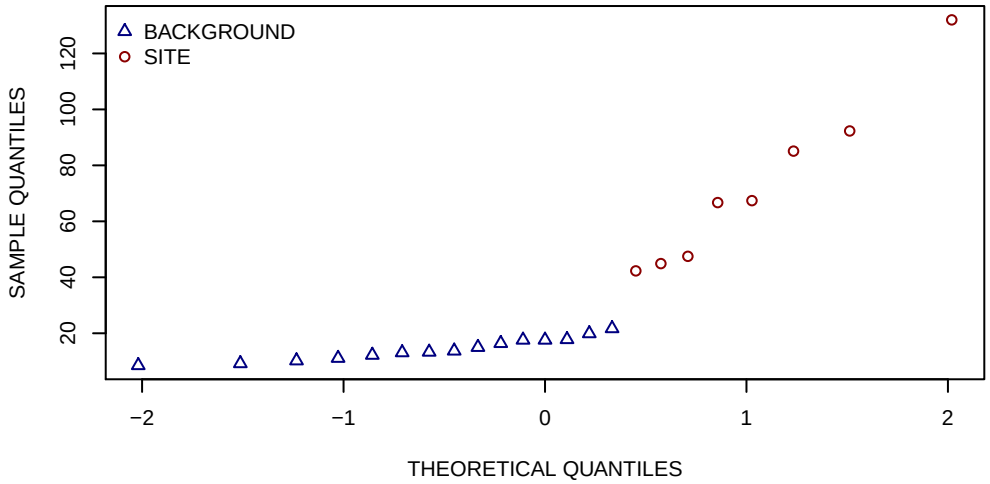
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

CHROMIUM SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 8 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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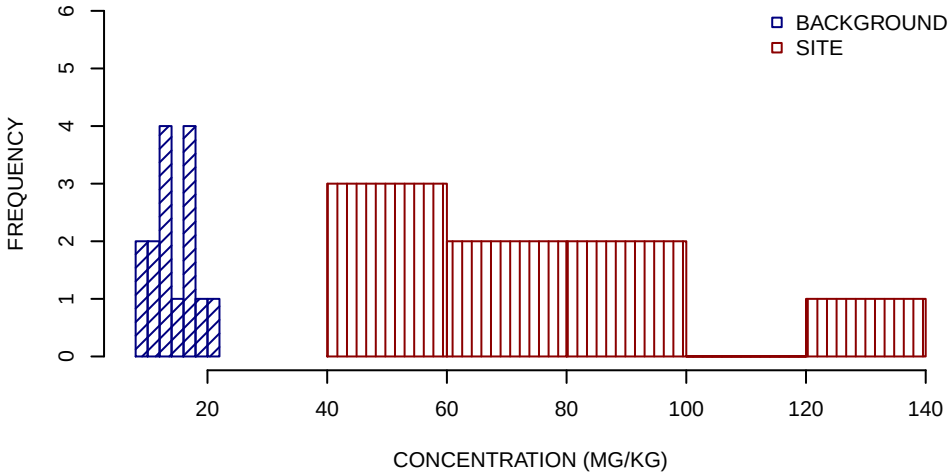


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	8.5	42
25TH PERCENTILE	12	47
MEDIAN	14	67
MEAN	14	72
75TH PERCENTILE	18	87
MAXIMUM	22	130

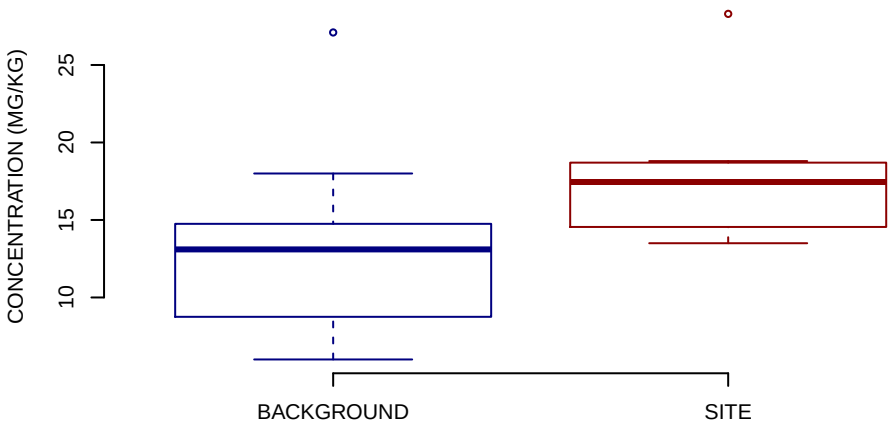
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

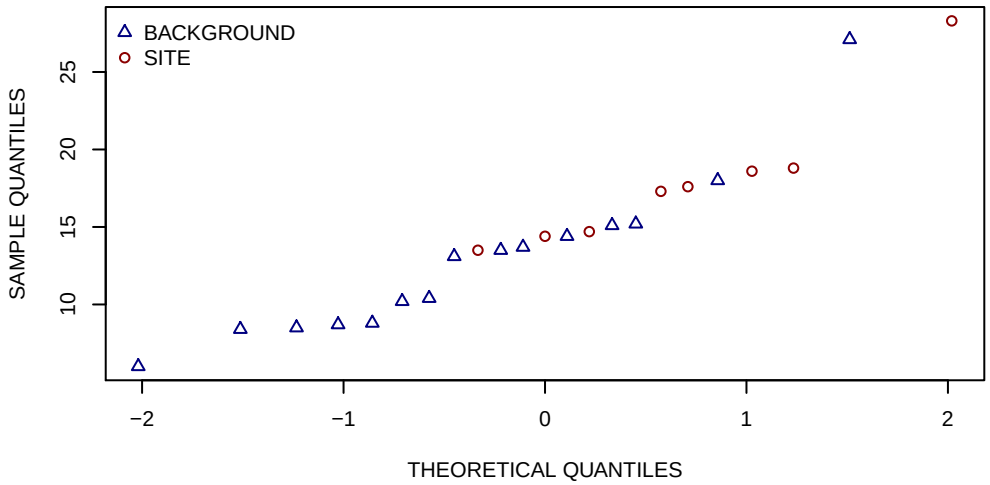
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

COBALT SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 9 OF 23

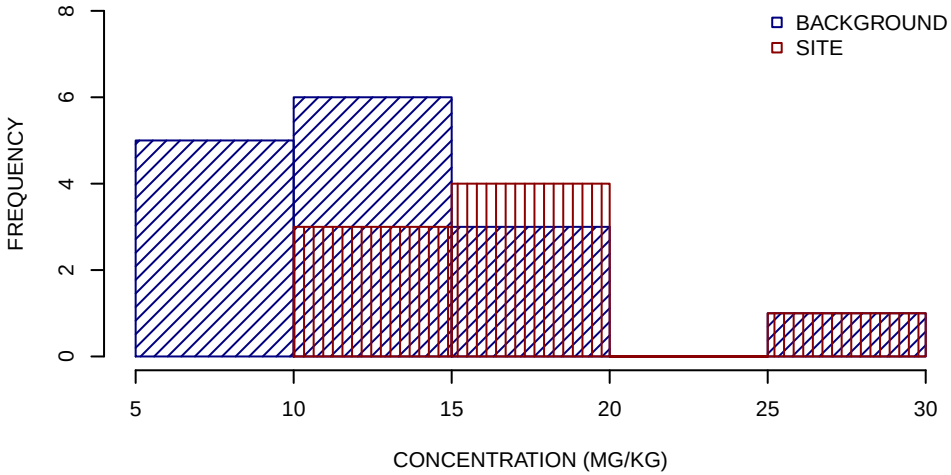
BOXPLOTS



NORMAL Q−Q PLOT



HISTOGRAMS



SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	6	14
25TH PERCENTILE	8.8	15
MEDIAN	13	17
MEAN	13	18
75TH PERCENTILE	15	19
MAXIMUM	27	28

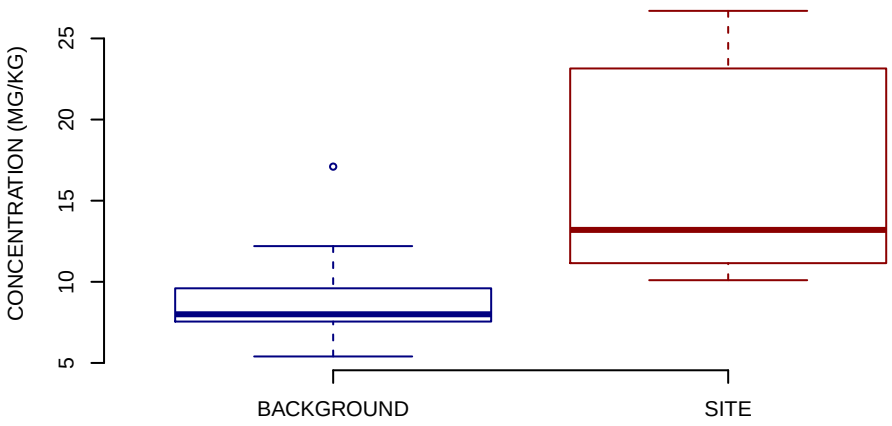
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

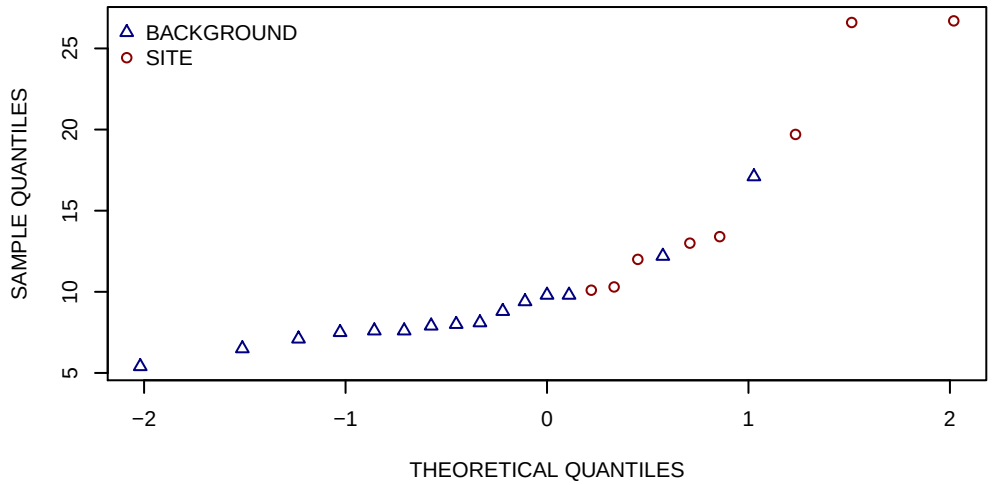
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

COPPER SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 10 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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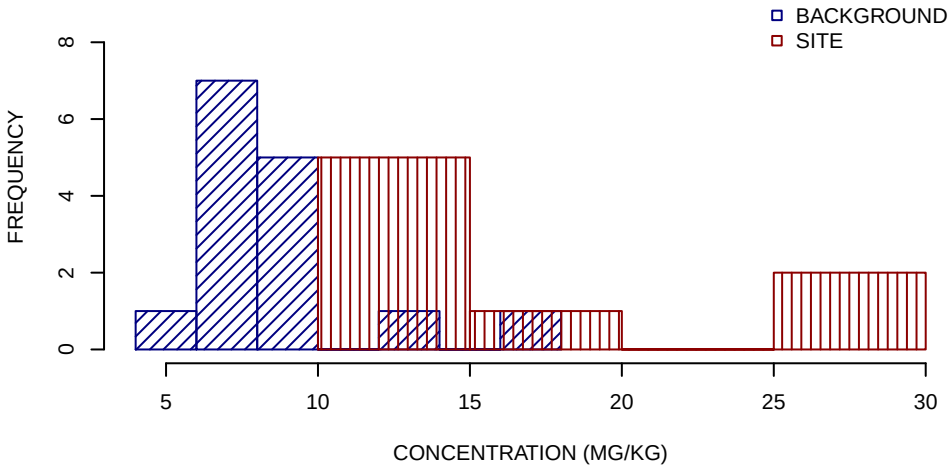


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	5.4	10
25TH PERCENTILE	7.6	12
MEDIAN	8	13
MEAN	8.9	16
75TH PERCENTILE	9.6	21
MAXIMUM	17	27

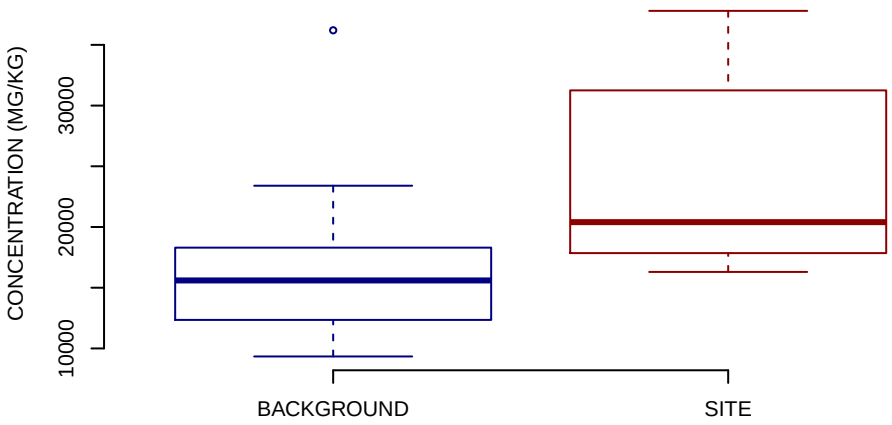
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

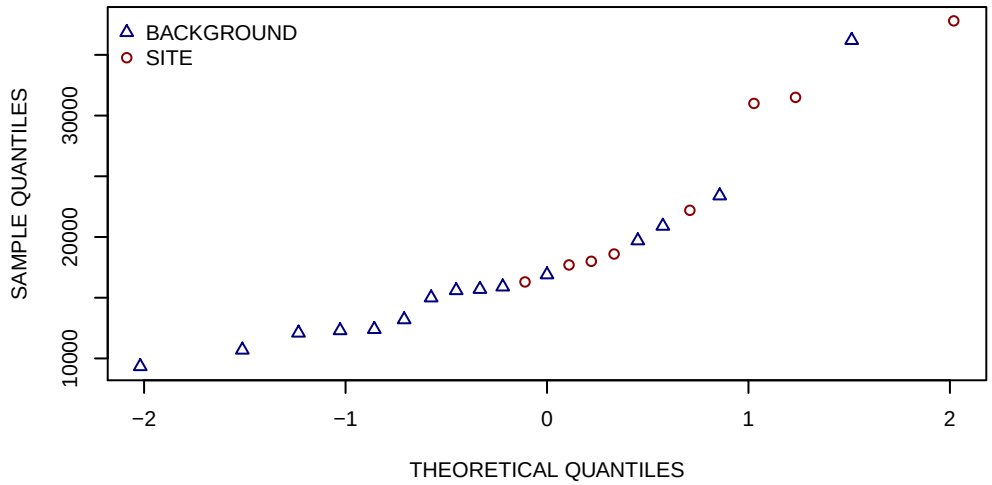
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

IRON SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 11 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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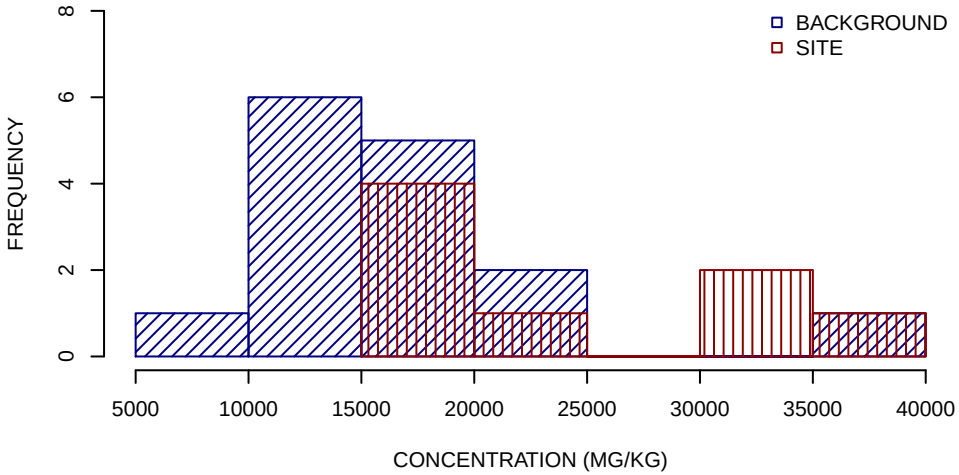


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	9300	16000
25TH PERCENTILE	12000	18000
MEDIAN	16000	20000
MEAN	17000	24000
75TH PERCENTILE	18000	31000
MAXIMUM	36000	38000

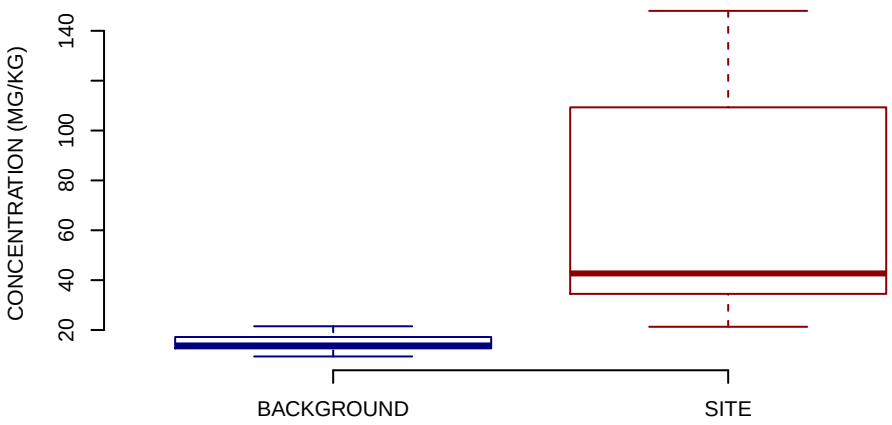
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

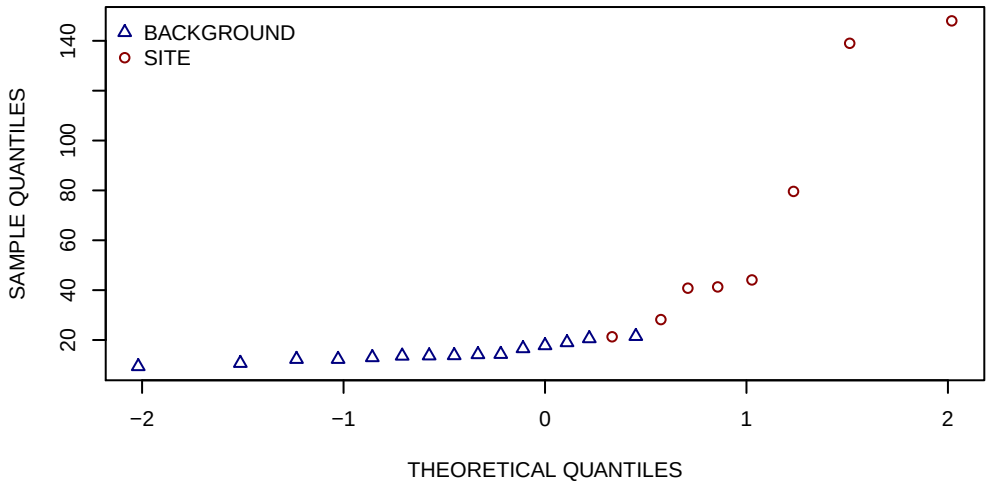
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

LEAD SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 12 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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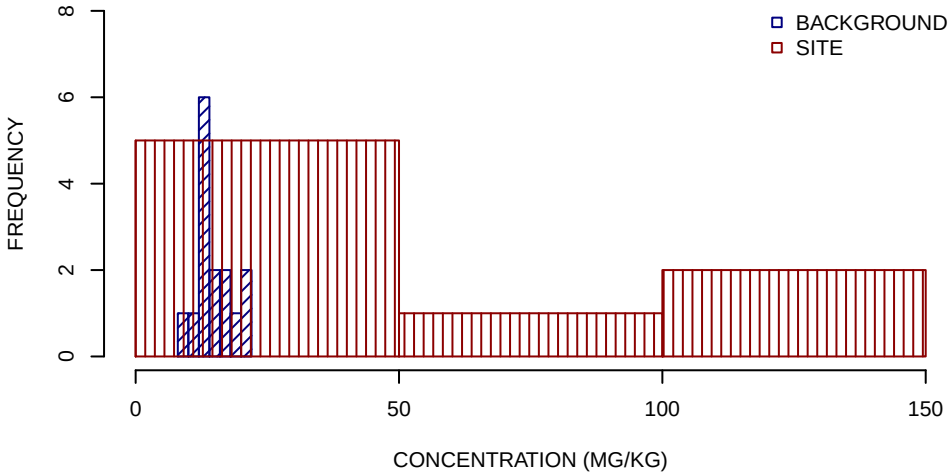


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	9.4	21
25TH PERCENTILE	13	38
MEDIAN	14	43
MEAN	15	68
75TH PERCENTILE	17	94
MAXIMUM	22	150

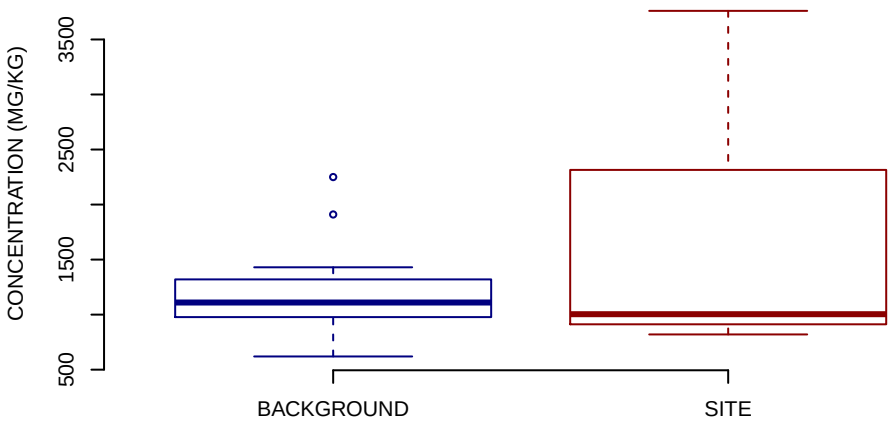
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

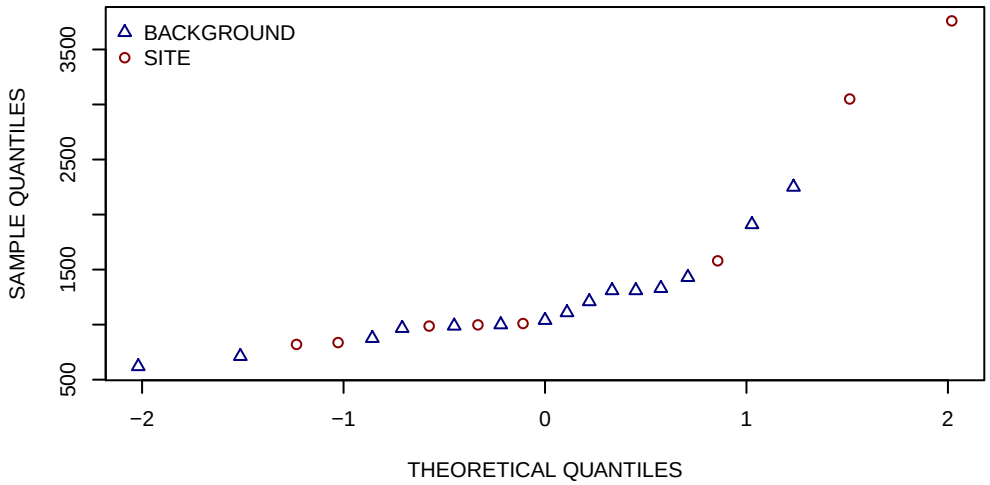
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

MAGNESIUM SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 13 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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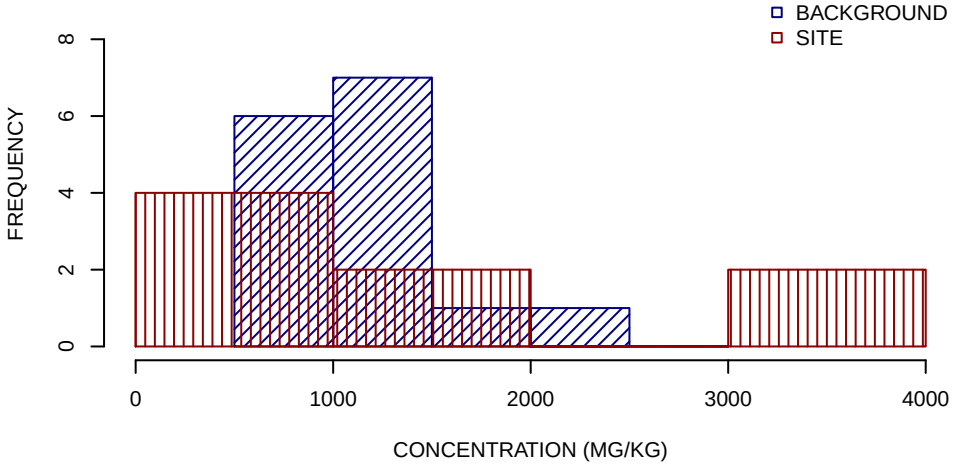


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	620	820
25TH PERCENTILE	980	950
MEDIAN	1100	1000
MEAN	1200	1600
75TH PERCENTILE	1300	1900
MAXIMUM	2200	3800

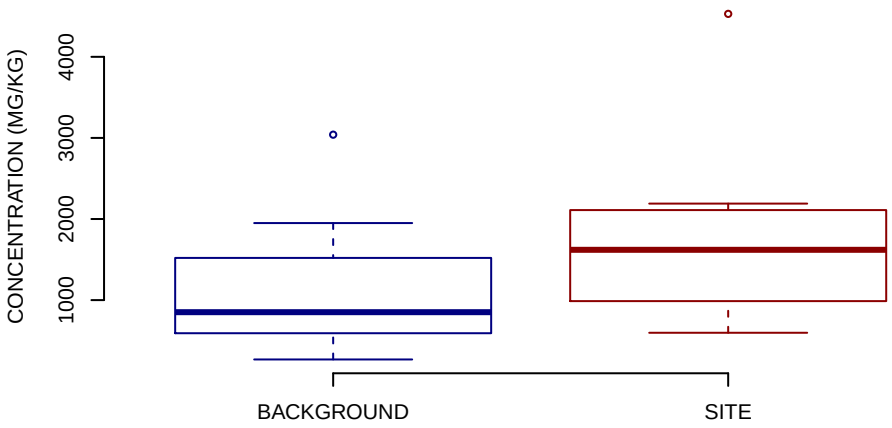
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

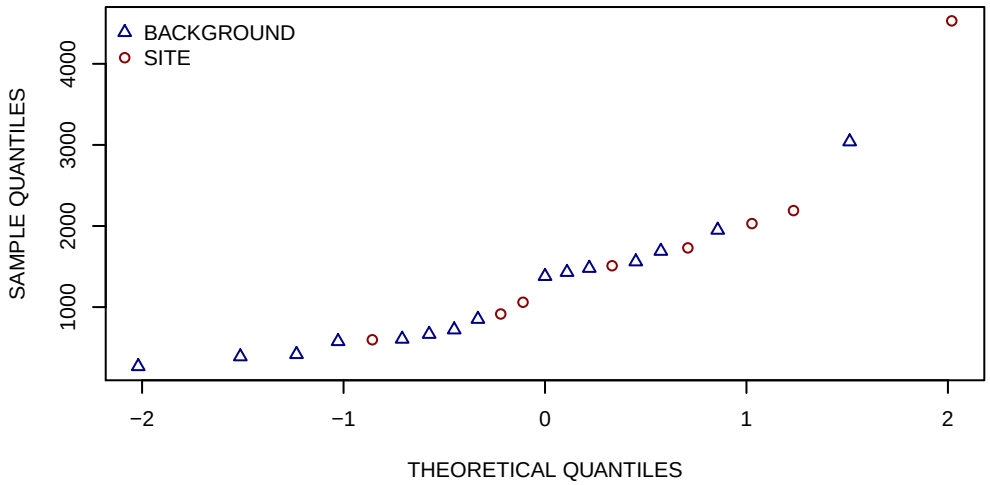
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

MANGANESE SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 14 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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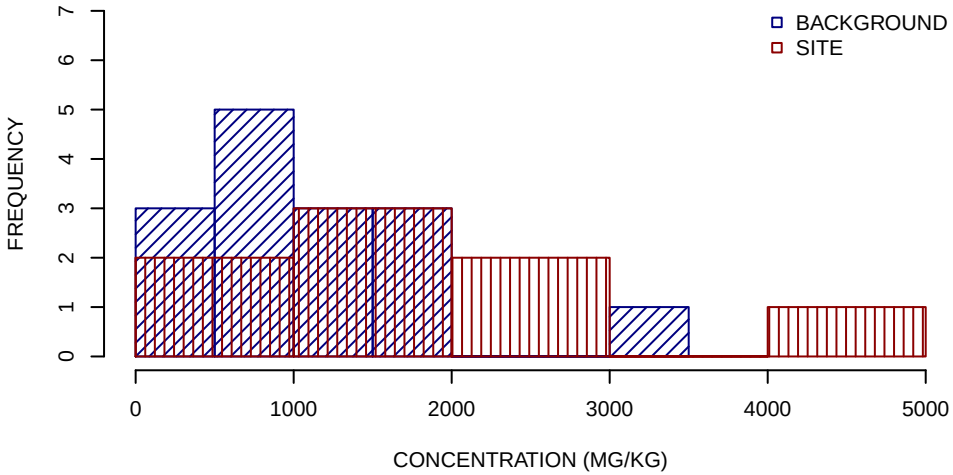


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	270	600
25TH PERCENTILE	590	1000
MEDIAN	850	1600
MEAN	1100	1800
75TH PERCENTILE	1500	2100
MAXIMUM	3000	4500

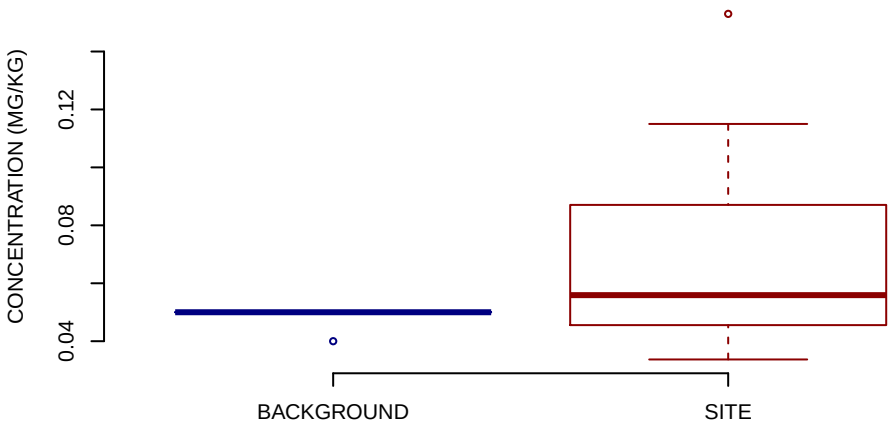
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

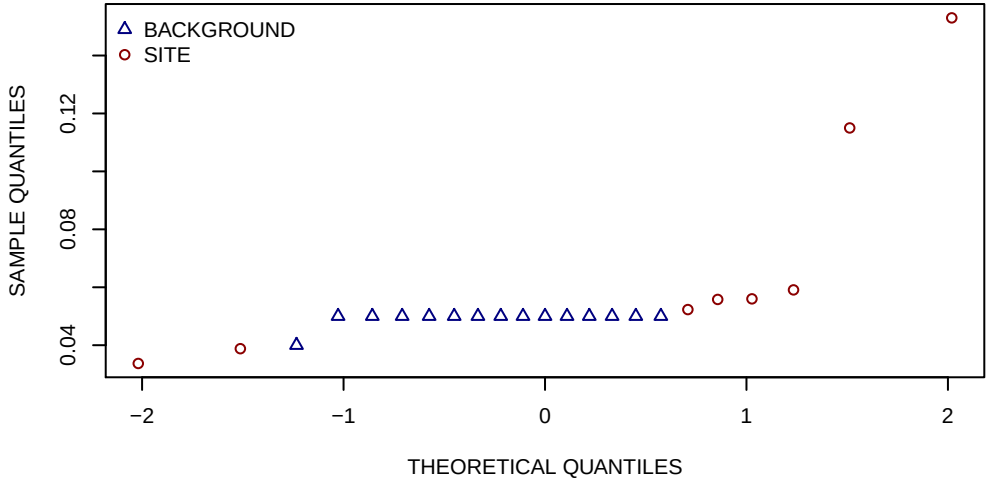
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

MERCURY SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 15 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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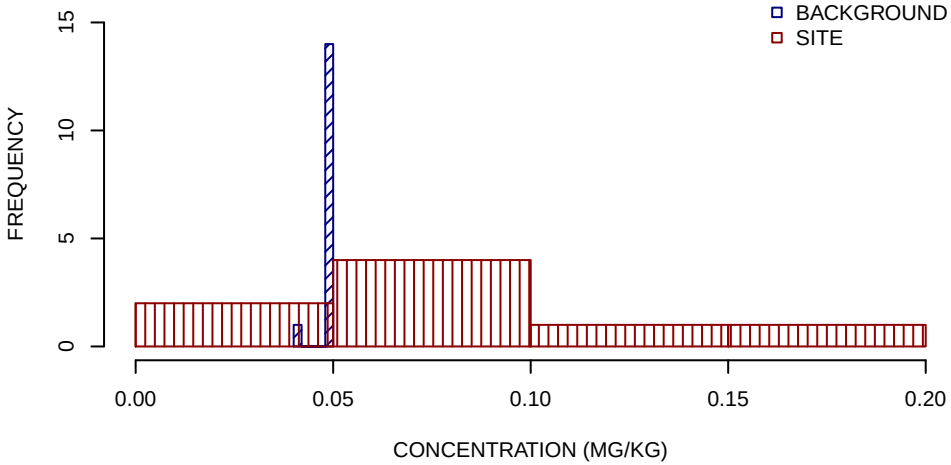


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.04	0.034
25TH PERCENTILE	0.05	0.049
MEDIAN	0.05	0.056
MEAN	0.049	0.07
75TH PERCENTILE	0.05	0.073
MAXIMUM	0.05	0.15

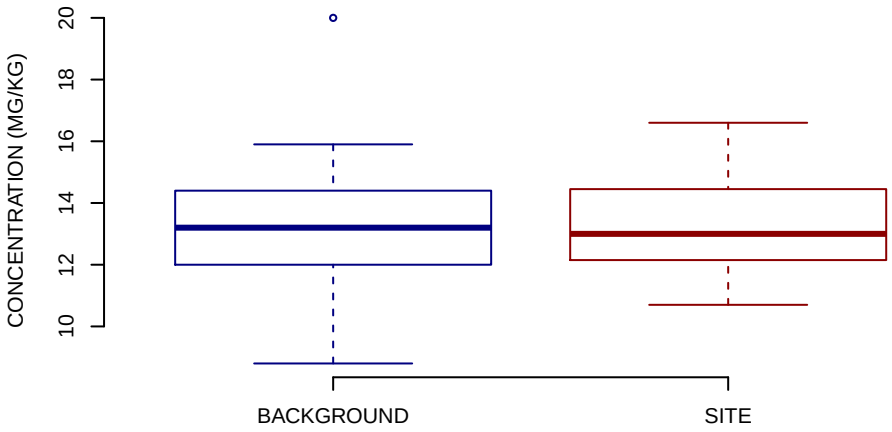
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

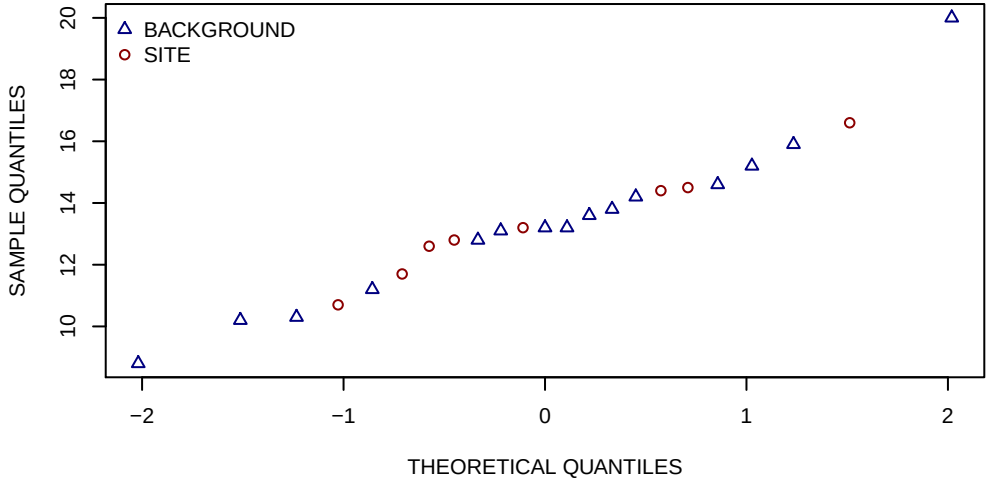
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

NICKEL SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 16 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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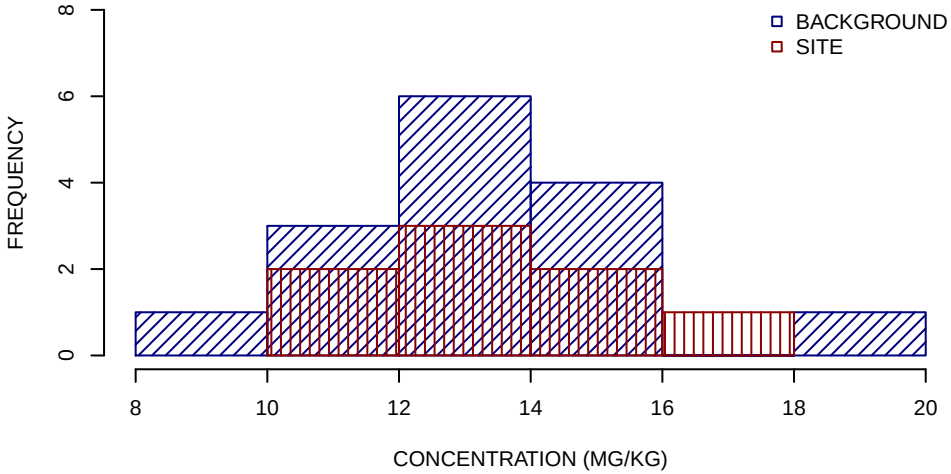


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	8.8	11
25TH PERCENTILE	12	12
MEDIAN	13	13
MEAN	13	13
75TH PERCENTILE	14	14
MAXIMUM	20	17

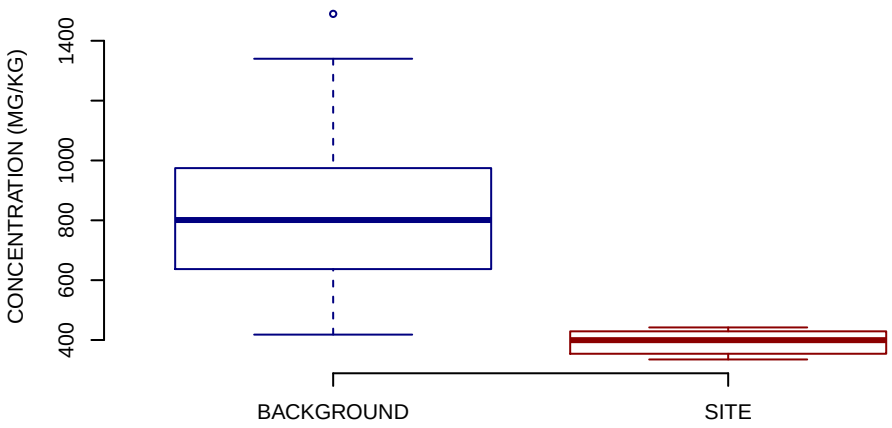
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

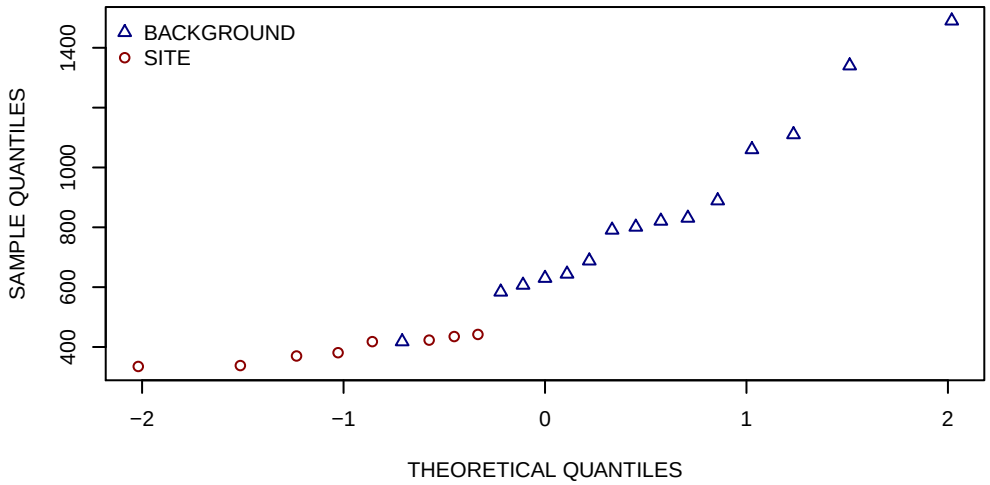
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

POTASSIUM SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 17 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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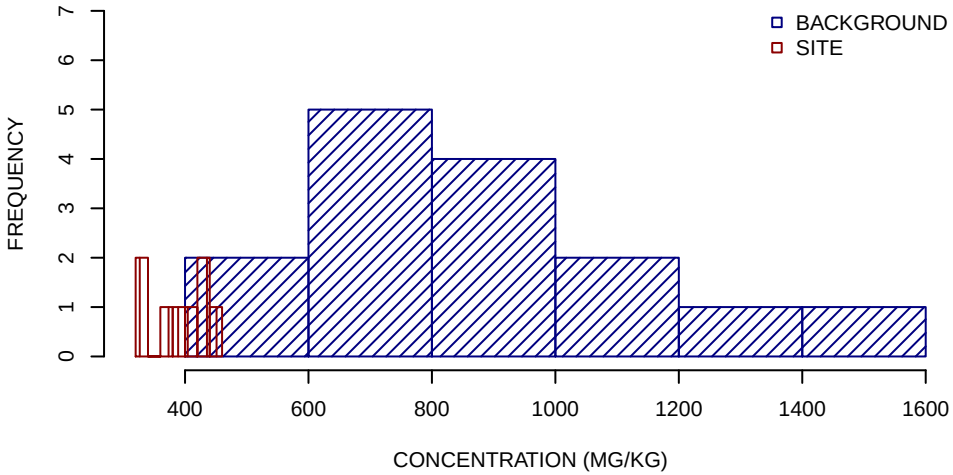


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	420	340
25TH PERCENTILE	640	360
MEDIAN	800	400
MEAN	850	390
75TH PERCENTILE	970	430
MAXIMUM	1500	440

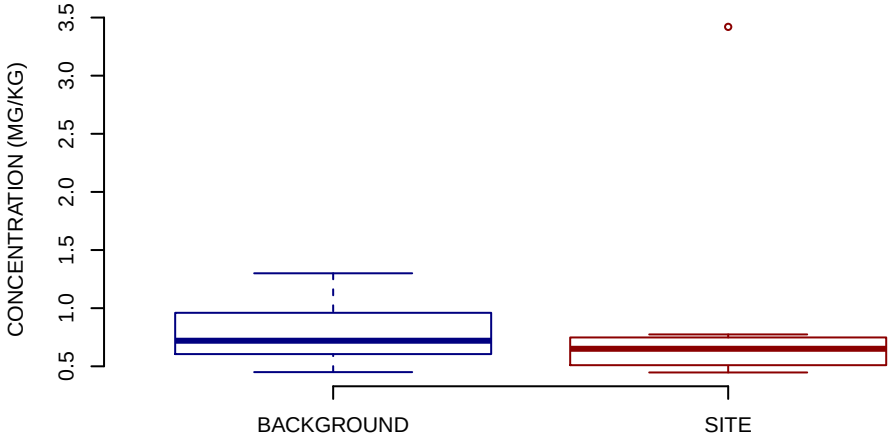
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

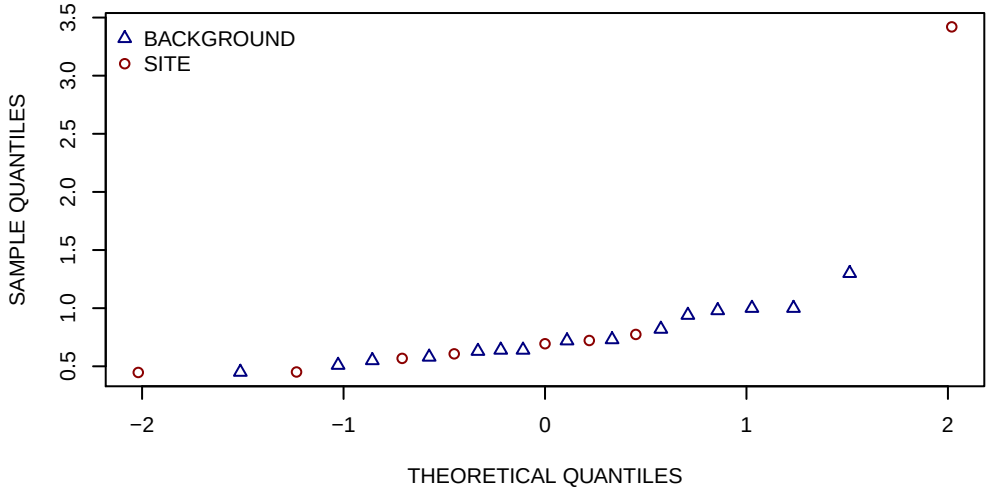
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

SELENIUM SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 18 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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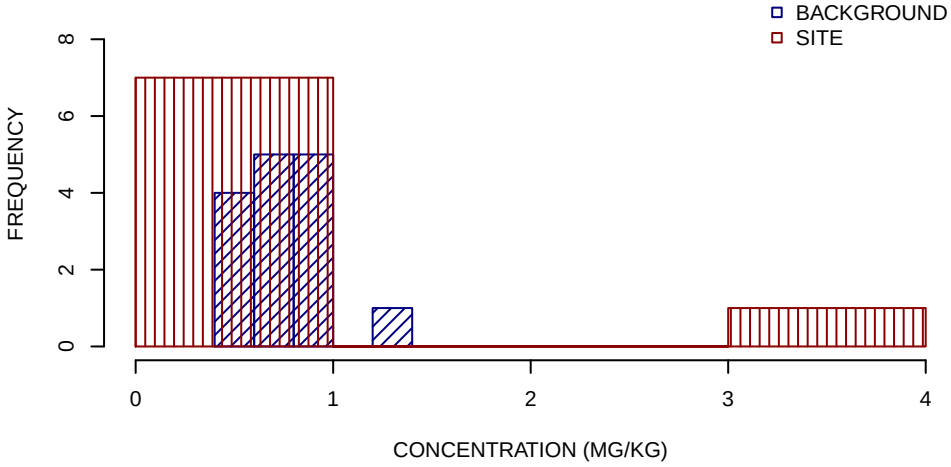


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.45	0.45
25TH PERCENTILE	0.6	0.54
MEDIAN	0.72	0.65
MEAN	0.77	0.96
75TH PERCENTILE	0.96	0.74
MAXIMUM	1.3	3.4

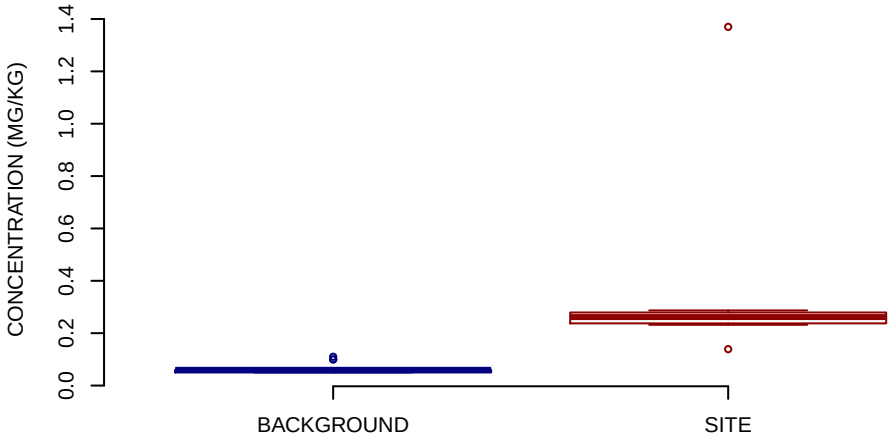
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

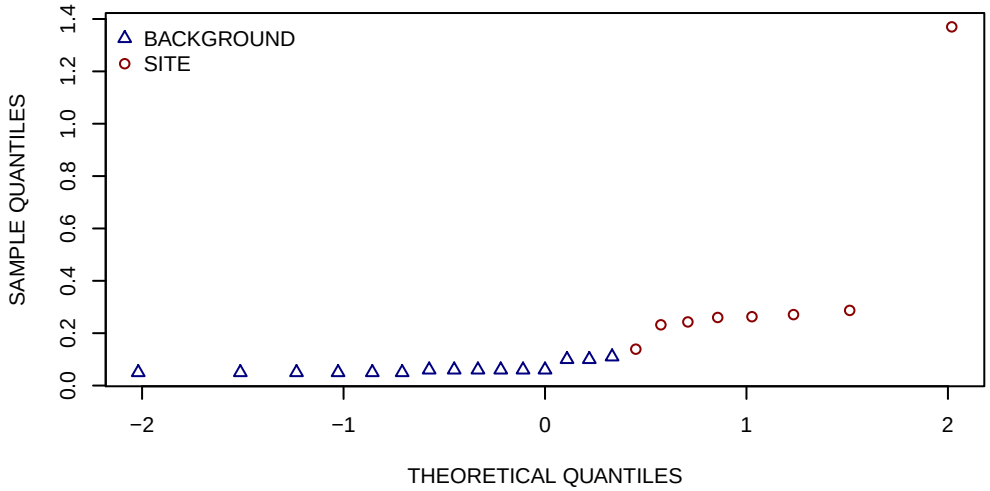
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

SILVER SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 19 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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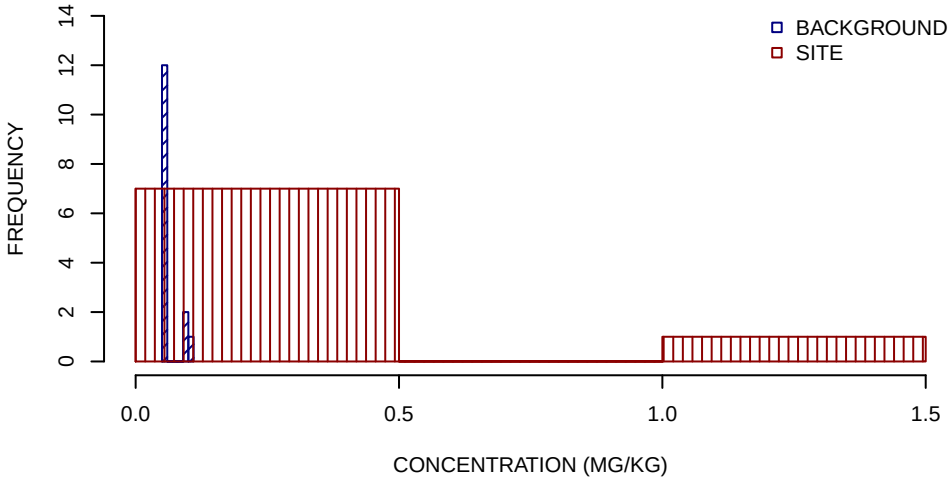


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.05	0.14
25TH PERCENTILE	0.05	0.24
MEDIAN	0.06	0.26
MEAN	0.065	0.38
75TH PERCENTILE	0.06	0.28
MAXIMUM	0.11	1.4

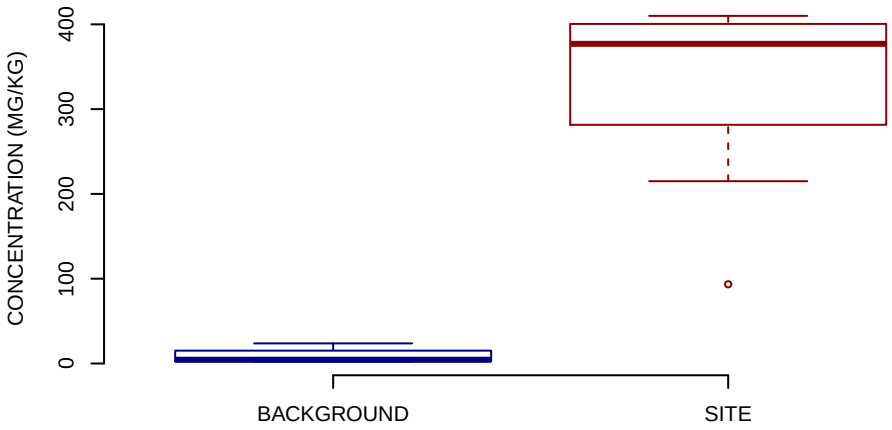
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

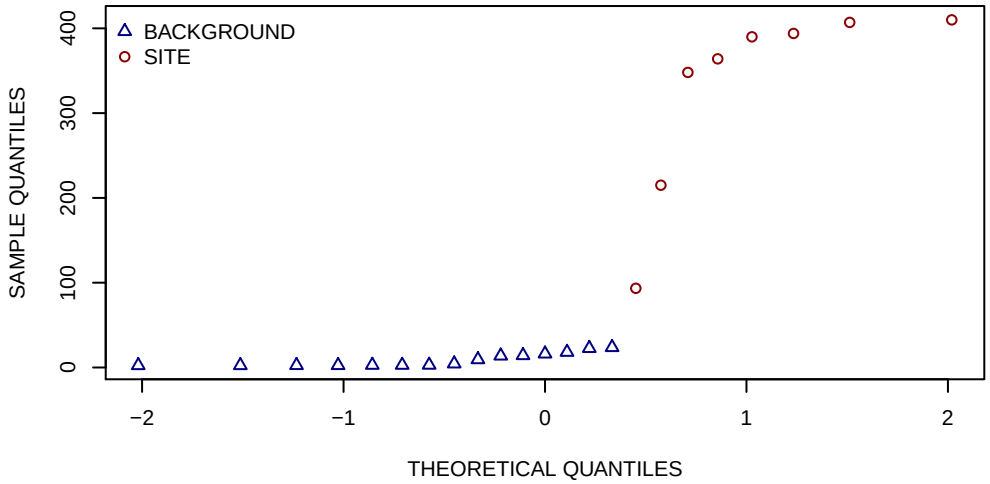
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

SODIUM SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 20 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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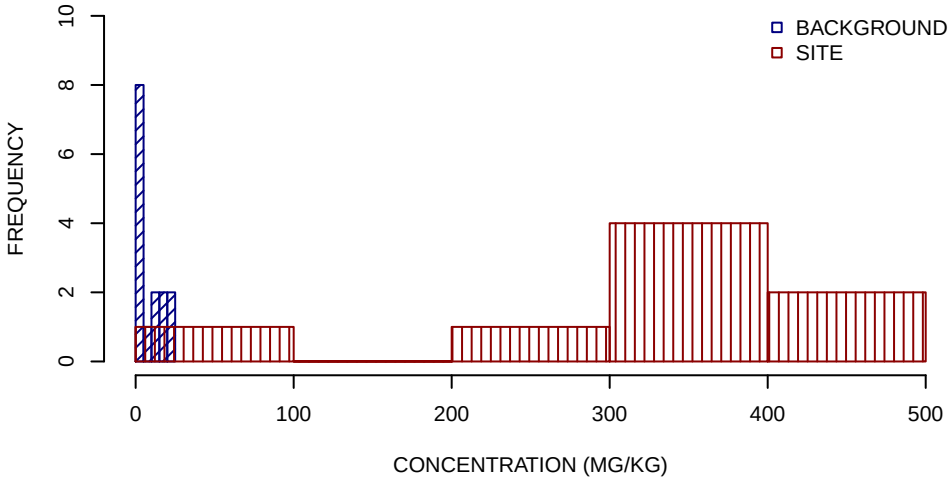


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	2.4	93
25TH PERCENTILE	2.6	310
MEDIAN	4.4	380
MEAN	9.4	330
75TH PERCENTILE	15	400
MAXIMUM	24	410

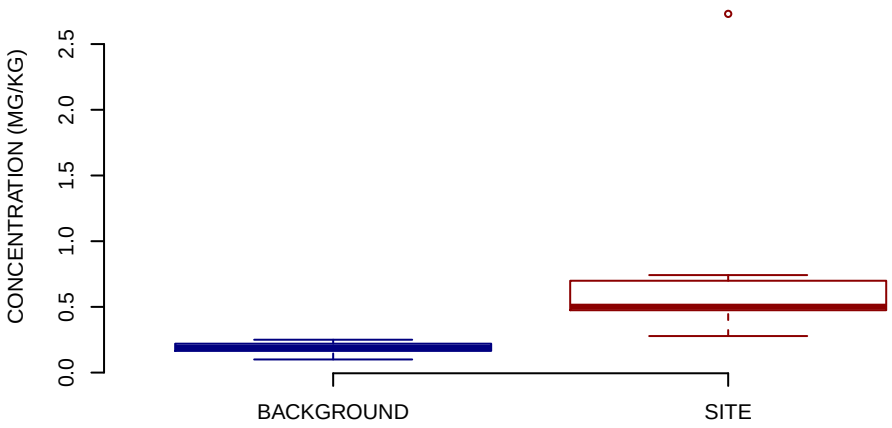
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

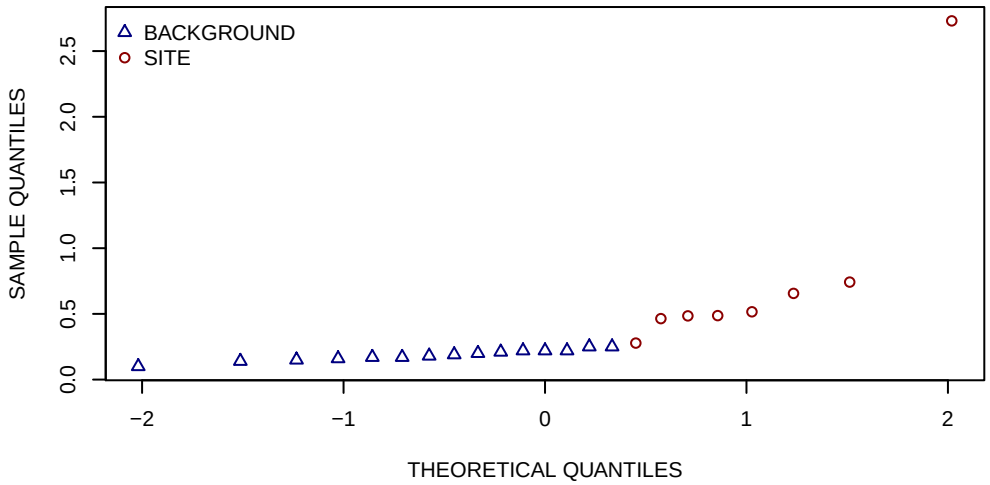
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

THALLIUM SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 21 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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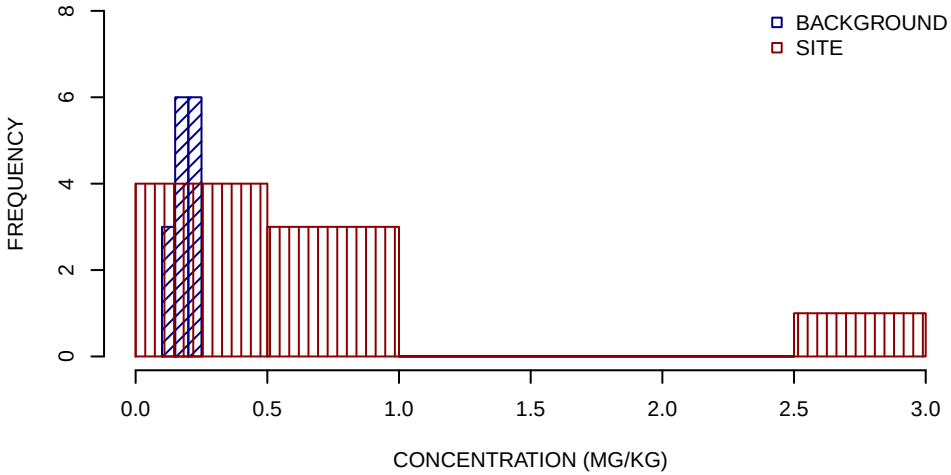


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.1	0.28
25TH PERCENTILE	0.16	0.48
MEDIAN	0.19	0.5
MEAN	0.19	0.79
75TH PERCENTILE	0.22	0.68
MAXIMUM	0.25	2.7

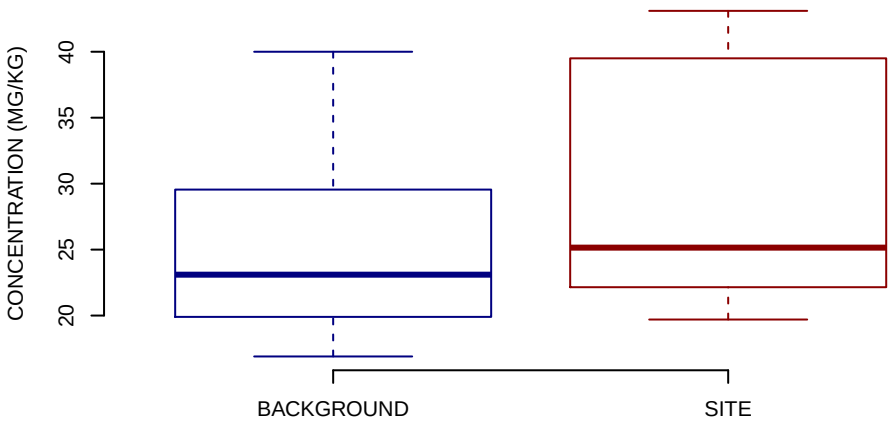
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

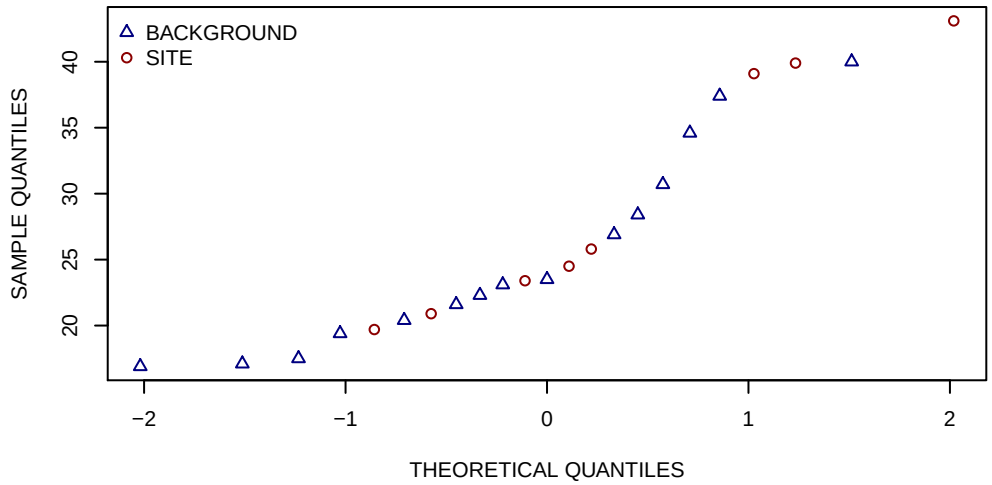
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

VANADIUM SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 22 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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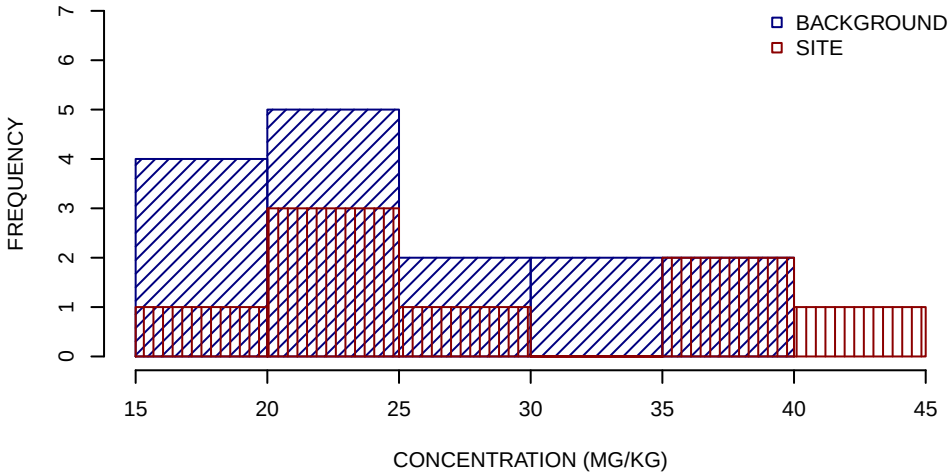


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	17	20
25TH PERCENTILE	20	23
MEDIAN	23	25
MEAN	25	30
75TH PERCENTILE	30	39
MAXIMUM	40	43

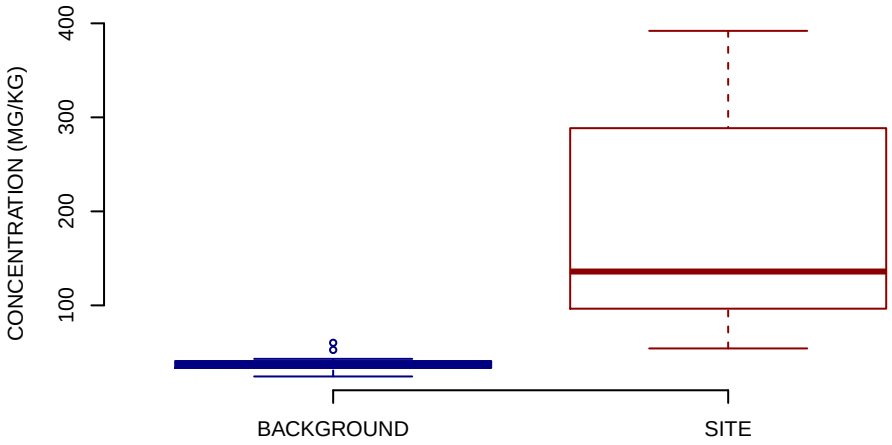
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

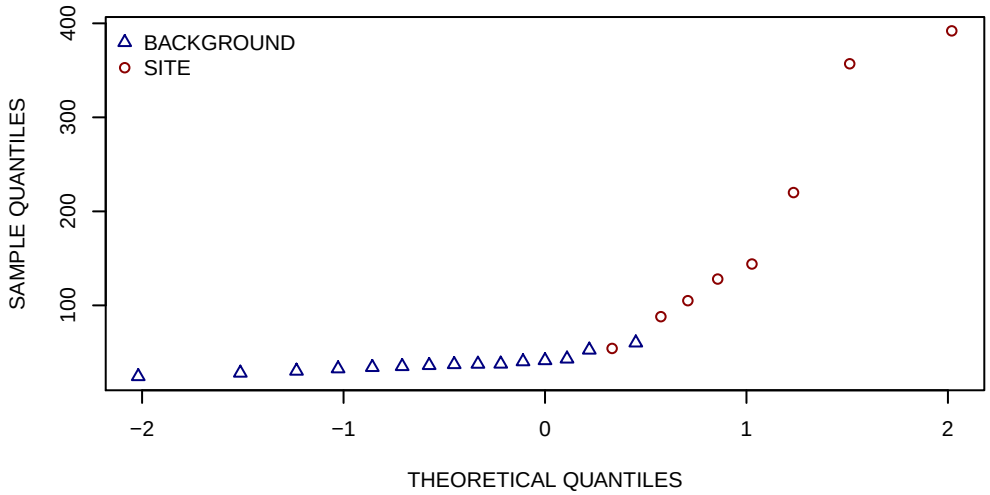
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

ZINC SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 23 OF 23

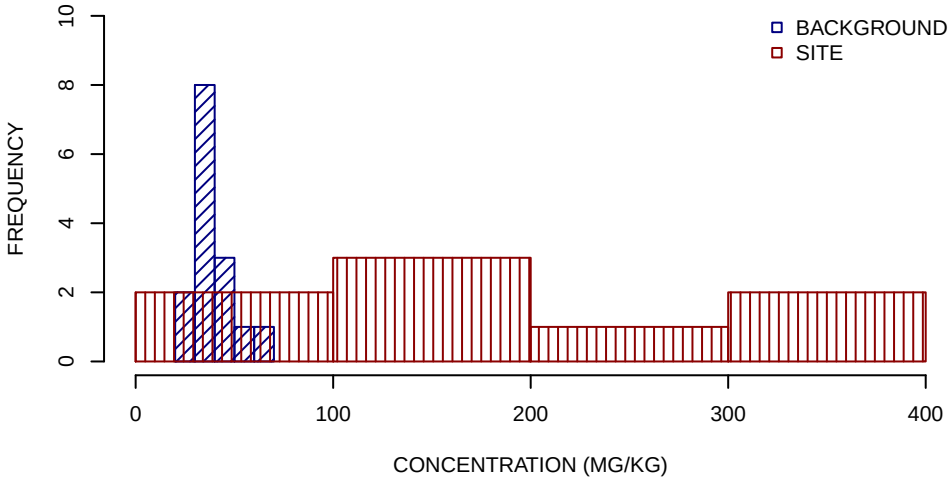
BOXPLOTS



NORMAL Q−Q PLOT



HISTOGRAMS



SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	24	54
25TH PERCENTILE	33	100
MEDIAN	37	140
MEAN	38	190
75TH PERCENTILE	41	250
MAXIMUM	60	390

UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

G-2 HHRA SUPPORTING DOCUMENTATION

G.1 Samples Used in Risk Assessment

G.2 Background Comparisons

G.3 RAGS Part D Tables

G.4 ProUCL Outputs

G.5 Sample Calculations

G.6 Vapor Intrusion Modeling Printouts

APPENDIX G.1

SAMPLES USED IN RISK ASSESSMENT

TABLE 1
SAMPLES USED IN THE HUMAN HEALTH RISH ASSESSMENT

Surface Soil	Subsurface Soil		Groundwater	Sediment
11SB010002	11SB010406	11SB500305	11MWT0101	11SD010006
11SB020002	11SB020406	11SB500506	11MWT0102	11SD010612
11SB030002	11SB030406	11SB51-0204	11MWT0201	11SD020006
11SB040002	11SB040406	11SB51-0506	11MWT0202	11SD020612
11SS050002	11SB250507	11SB52-0204	11MWT0301	11SD030006
11SS060002	11SB260507	11SB52-0506	11MWT0302	11SD030612
11SS070002	11SB270507	11SB53-0204	11MWT0401	11SD040006
11SS080002	11SB280507	11SB53-0506	11MWT0501	11SD040612
11SS090002	11SB330406	11SB54-0204	11MWT0601	11SD050006
11SS100002	11SB330607	11SB54-0405	18CGWT001	11SD060006
11SS110002	11SB340406	11SB55-0406	18CMWT00102	
11SS120002	11SB340708	11SB55-0607		
11SS130002	11SB350305	11SB56-0406		
11SS140002	11SB350506	11SB56-0708		
11SS150002	11SB360204	11SB57-0406		
11SS160002	11SB360405	11SB57-0607		
11SS170002	11SB370103	11SB58-0305		
11SS180002	11SB370304	11SB58-0506		
11SS190002	11SB380406	11SB59-0204		
11SS200002	11SB380607	11SB60-0204		
11SS210002	11SB390406	11SB60-0405		
11SS220002	11SB390708	11SB61-0810		
11SS230002	11SB400305	11SB61-1011		
11SS240002	11SB400506	11SB62-0911		
11SS290002	11SB410204	11SB62-1112		
11SS300002	11SB410405	11SB63-0911		
11SS310002	11SB420102	11SB63-1112		
11SS320002	11SB420203	11SB64-0911		
	11SB430406	11SB64-1112		
	11SB430809	11SB65-0911		
	11SB440406	11SB65-1112		
	11SB440607	11SB66-1315		
	11SB450204	11SB66-1516		
	11SB450506	11SB67-1416		
	11SB460305	11SB67-1617		
	11SB460506	11SB68-1315		
	11SB470103	11SB68-1516		
	11SB470304	11SB69-1416		
	11SB480305	11SB69-1617		
	11SB480506	11SB70-1315		
	11SB490204	11SB70-1516		
	11SB490405			

APPENDIX G.2

BACKGROUND COMPARISONS

BACKGROUND COMPARISONS
SWMU 11
NSA CRANE, CRANE, INDIANA

1. INTRODUCTION

SWMU 11 surface soil and sediment were compared to Background Soil Group 3, residual soil from Pennsylvanian bedrock, and subsurface soil was compared to Background Soil Group 8, Pennsylvanian subsurface Clay and Silt, from the Crane Basewide Background Report (Tetra Tech, 2001). The comparative statistical method was used to compare the surface and subsurface SWMU 11 soil and SWMU 11 sediment to the appropriate background data. The comparative method utilizes several statistical techniques to compare site and background data described below.

2. STATISTICAL METHODLOGY

This section describes the graphical displays and hypothesis tests used to compare site data and background data.

The comparative statistical method of site data and background data involved a graphical evaluation and a hypothesis test comparing the central tendency (mean/median) concentrations and a hypothesis test comparing the right tails (largest values). The graphical evaluation consisted of visual inspection of boxplots, normal probability plots, and histograms. The graphical displays are presented at the end of this Appendix. One-half the detection limit was used for non-detected concentrations for the graphical displays; the full detection limit was used for non-detected concentrations for the hypothesis tests. The statistical package R version 2.14.0 was used to conduct the statistical evaluations.

2.1 Graphical Displays

Boxplots show the central tendency, degree of symmetry, range of variation, and potential outliers of a data set. The data set is shown as a rectangular box that represents the middle 50 percent of the data. The upper value of the box represents the 75th percentile and the lower value of the box represents the 25th percentile. The median is represented by the middle line in the box. Box plots for the same analyte were plotted on the same graph. The plots were visually inspected to see which data sets look similar and which ones differed. Particular attention was paid to see if the median from one data set fell within the 75th and 25th percentile range of the other data sets.

Probability plots are a useful first step for visually comparing two data sets in a single graph. If the site and background distributions were exactly identical, the plotted values would lie on a straight line through the origin. Deviations from this line show the differences between the two distributions. If the site and background distributions are similar the scattering of the two data sets will be mixed. If there is grouping of the two data sets then data sets are most likely different.

Histograms are a visual representation of the data collected into groups. The data range is divided into several bins or classes and the data are sorted into the bins. The x-axis displays the chemical concentration range for the bin and the y-axis shows the number of observations that fall within the bin. The histograms of the site and background datasets were plotted on top of each other to be able to compare the shapes of the two distributions, overall concentration ranges, and ranges of concentrations that have the most samples.

2.2 Hypothesis Tests

Two types of hypothesis tests were conducted one comparing the central tendency of the data sets and one comparing the right tails of the data sets. The Two sample T-test, Wilcoxon Rank

Sum test, and Gehan test were used to compare the central tendency (mean/median) of the site and background data sets. The Slippage Test and Quantile test were used to compare the right tails of the site and background datasets. All hypothesis tests were conducted using a five percent significance level meaning that if the p-value associated with the hypothesis test is less than 0.05 there is statistically significant evidence that the null hypothesis (H_o or assumed hypothesis) is false. The p-value of a test can be thought of as the credibility of the null hypothesis; p-values greater than 0.05 indicate that the null hypothesis is credible whereas p-values less than 0.05 indicate otherwise.

The Two Sample T-Test tests for a difference between two populations means when it can be assumed that the data are approximately normally distributed or sample sizes are large enough (m and n at least 30) and the data are all detected. If the variances of the two data sets are not equal than the Two sample T Test with unequal variance was computed. The null and alternative hypotheses were:

H_o: Site Average ≥ Background Average + 2*Background Standard Deviation
H_A: Site Average < Background Average + 2*Background Standard Deviation

The Wilcoxon Rank-Sum (WRS) nonparametric test is used to test for a difference between median concentrations between two independent populations. The WRS test was used when the data were not normally distributed and there were less than three reporting limits if non-detected concentrations were present. The null and alternative hypotheses were:

H_o: Site Median ≥ Background Media + 2*Background Standard Deviation
H_A: Site Median < Background Median + 2*Background Standard Deviation

The Gehan nonparametric test is used to test for a difference between median concentrations between two independent populations. The Gehan test can be used when the background or site datasets contain multiple nondetects with different reporting limits. The Gehan test was used when the nondetects had more than three reporting limits. The null and alternative hypotheses are the same as the null and alternative hypothesis for the WRS test.

The two sample proportion test was used to determine if the proportion of site samples in the top 25 percent of the combined site and background dataset is greater than the proportion of background samples. The proportion test was used when there were between 50 and 90 percent non-detects. The null and alternative hypotheses were:

H_o: Proportion Site < Proportion Background
H_A: Proportion Site ≥ Proportion Background

The Slippage Test and Quantile tests are used to test for a shift to the right in the extreme right-tail of the site versus the background concentrations. This is equivalent to asking if a set of the largest values of the site distribution are larger than the maximum value of the background distribution. If the slippage test found the extreme right tail of the site data to be larger than the background data it was concluded that the site concentrations are greater than background. The null and alternative hypotheses were:

H_o: Right Tail of Site Dataset ≤ Right Tail of the Background Dataset
H_A: Right Tail of the Site Dataset > Right Tail of the Background Dataset

3. STATISTICAL CONCLUSIONS

The results of the statistical analysis for surface soil, subsurface soil, and sediment background comparisons are presented in Tables 1 through 3.

For surface soil, it can be concluded that site concentrations of arsenic, barium, cadmium, chromium, cobalt, lead, manganese, mercury, nickel, potassium, selenium, vanadium, and zinc are consistent with background concentrations while site concentrations of aluminum, calcium, copper, iron, magnesium, mercury, and sodium, are greater than background concentrations. Note, that concentrations of antimony, silver, and thallium were not detected in the site data while concentrations of beryllium were not detected in the background data. Because these chemicals were not detected in at least one of the two data sets it is not appropriate to make formal statistical conclusions about whether site concentrations are similar to background concentrations.

For subsurface soil it can be concluded that site concentrations of aluminum, barium, calcium, cobalt, copper, magnesium, manganese, mercury, nickel, potassium, and zinc are consistent with background concentrations while site concentrations of arsenic, beryllium, chromium, iron, lead, selenium, and vanadium are greater than background concentrations. Note that concentrations of antimony, cadmium, silver, sodium, and thallium were not detected in the site data while concentrations of beryllium were not detected in the background data. Because these chemicals were not detected in at least one of the two data sets it is not appropriate to make formal statistical conclusions about whether site concentrations are similar to background concentrations.

For sediment it can be concluded that site concentrations of aluminum, antimony, manganese, nickel, and potassium, are consistent with background concentrations while site concentrations of arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, mercury, selenium, sodium, thallium, vanadium, and zinc are greater than background concentrations. Note that concentrations of silver were not detected in the site data while concentrations of beryllium were not detected in the background data. Because these chemicals were not detected in at least one of the two data sets it is not appropriate to make formal statistical conclusions about whether site concentrations are similar to background concentrations.

TABLE 1

SURFACE SOIL BACKGROUND COMPARISONS
SWMU 11
NSA CRANE
CRANE, INDIANA

PARAMETER	SITE FOD	BACKGROUND FOD	SITE MAXIMUM DETECT (MG/KG)	BACKGROUND MAXIMUM DETECT (MG/KG)	SITE DISTRIBUTION	BACKGROUND DISTRIBUTION	HYPOTHESIS TEST	HYPOTHESIS TEST P-VALUE	HYPOTHESIS TEST CONCLUSION	SLIPPAGE TEST STATISTIC	SLIPPAGE CONCLUSION	QUANTILE TEST STATISTIC	QUANTILE CONCLUSION	FINAL CONCLUSION
ALUMINUM	22 / 22	15 / 15	19900	17400	Normal	Normal	T-Test	0.6733	Site Consistent with Background	2	Site Consistent with Background	5	Site Greater Background	Site Greater than Background
ANTIMONY	0 / 22	2 / 15	--	5.6	Assumed Nonparametric	Assumed Nonparametric	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	22 / 22	15 / 15	12	10.2	Normal	Normal	T-Test	0.3674	Site Consistent with Background	5	Site Consistent with Background	5	Site Greater than Background	Site Consistent with Background
BARIUM	22 / 22	15 / 15	142	153	Normal	Nonparametric	WRS	1.04E-08	Site Consistent with Background	0	Site Consistent with Background	2	Site Consistent with Background	Site Consistent with Background
BERYLLIUM	22 / 22	0 / 15	1.14	--	Normal	Assumed Nonparametric	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	2 / 22	10 / 15	0.174	3.6	Assumed Nonparametric	Nonparametric	Proportion	1	Site Consistent with Background	0	Site Consistent with Background	0	Site Consistent with Background	Site Consistent with Background
CALCIUM	22 / 22	14 / 15	96200	35300	Nonparametric	Nonparametric	WRS	7.30E-08	Site Consistent with Background	1	Site Consistent with Background	5	Site Greater Background	Site Greater Background
CHROMIUM	22 / 22	15 / 15	27.6	21.7	Normal	Normal	T-Test	0.9965	Site Consistent with Background	2	Site Consistent with Background	4	Site Consistent with Background	Site Consistent with Background
COBALT	22 / 22	15 / 15	26	27.1	Nonparametric	Nonparametric	WRS	5.43E-08	Site Consistent with Background	0	Site Consistent with Background	2	Site Consistent with Background	Site Consistent with Background
COPPER	22 / 22	15 / 15	18.4	17.1	Normal	Nonparametric	WRS	0.1394	Site Greater than Background	4	Site Consistent with Background	5	Site Greater Background	Site Greater than Background
IRON	22 / 22	15 / 15	30100	36200	Normal	Nonparametric	WRS	3.29E-05	Site Consistent with Background	0	Site Consistent with Background	5	Site Greater Background	Site Greater than Background
LEAD	22 / 22	15 / 15	27.7	21.5	Normal	Normal	T-Test	0.1975	Site Consistent with Background	1	Site Consistent with Background	3	Site Consistent with Background	Site Consistent with Background
MAGNESIUM	22 / 22	15 / 15	4260	2250	Nonparametric	Normal	WRS	0.04588	Site Consistent with Background	5	Site Consistent with Background	5	Site Greater than Background	Site Greater than Background
MANGANESE	22 / 22	15 / 15	1070	3040	Nonparametric	Normal	WRS	1.07E-10	Site Consistent with Background	0	Site Consistent with Background	0	Site Consistent with Background	Site Consistent with Background
MERCURY	17 / 22	5 / 15	0.0645	0.05	Normal	Nonparametric	Gehan	0.0877	Site Greater than Background	4	Site Consistent with Background	NA	NA	Site Greater than Background
NICKEL	22 / 22	15 / 15	17.1	20	Normal	Normal	T-Test	0.3876	Site Consistent with Background	0	Site Consistent with Background	4	Site Consistent with Background	Site Consistent with Background
POTASSIUM	22 / 22	15 / 15	1110	1490	Normal	Normal	T-Test	0.09169	Site Consistent with Background	0	Site Consistent with Background	2	Site Consistent with Background	Site Consistent with Background
SELENIUM	8 / 22	5 / 15	0.67	0.64	Nonparametric	Normal	Proportion	1	Site Consistent with Background	NA	NA	NA	NA	Site Consistent with Background
SILVER	0 / 22	15 / 15	--	0.11	Assumed Nonparametric	Nonparametric	NA	NA	NA	NA	NA	NA	NA	NA
SODIUM	6 / 22	5 / 15	397	23.7	Nonparametric	Nonparametric	Proportion	0.003998	Site Greater than Background	6	Site Consistent with Background	NA	NA	Site Greater than Background
THALLIUM	0 / 22	15 / 15	--	0.25	Assumed Nonparametric	Normal	NA	NA	NA	0	NA	NA	NA	NA
VANADIUM	22 / 22	15 / 15	41	40	Normal	Normal	T-Test	0.658	Site Consistent with Background	1	Site Consistent with Background	4	Site Consistent with Background	Site Consistent with Background
ZINC	22 / 22	14 / 15	52.5	60.2	Normal	Normal	WRS	1.70E-07	Site Consistent with Background	0	Site Consistent with Background	4	Site Consistent with Background	Site Consistent with Background

TABLE 2

SUBSURFACE SOIL BACKGROUND COMPARISONS
SWMU 11
NSA CRANE
CRANE, INDIANA

PARAMETER	SITE FOD	BACKGROUND FOD	SITE MAXIMUM DETECT (MG/KG)	BACKGROUND MAXIMUM DETECT (MG/KG)	SITE DISTRIBUTION	BACKGROUND DISTRIBUTION	HYPOTHESIS TEST	HYPOTHESIS TEST P-VALUE	HYPOTHESIS TEST CONCLUSION	SLIPPAGE TEST STATISTIC	SLIPPAGE CONCLUSION	QUANTILE TEST STATISTIC	QUANTILE CONCLUSION	FINAL CONCLUSION
ALUMINUM	4 / 4	9 / 9	15400	16200	Normal	Normal	T-Test	0.003639	Site Consistent with Background	0	Site Consistent with Background	NA	NA	Site Consistent with Background
ANTIMONY	0 / 4	1 / 9	--	11.3	Assumed Nonparametric	Assumed Nonparametric	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	4 / 4	9 / 9	20.4	8.5	Normal	Normal	T-Test	0.3921	Site Greater than Background	1	Site Consistent with Background	NA	NA	Site Greater than Background
BARIUM	4 / 4	9 / 9	60.9	83.4	Normal	Normal	T-Test	0.0001001	Site Consistent with Background	0	Site Consistent with Background	NA	NA	Site Consistent with Background
BERYLLIUM	4 / 4	0 / 9	0.827	--	Normal	Assumed Nonparametric	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	0 / 4	8 / 9	--	0.64	Assumed Nonparametric	Normal	NA	NA	NA	NA	NA	NA	NA	NA
CALCIUM	4 / 4	9 / 9	688	970	Normal	Normal	T-Test	0.001519	Site Consistent with Background	0	Site Consistent with Background	NA	NA	Site Consistent with Background
CHROMIUM	4 / 4	9 / 9	74.9	27.1	Normal	Normal	T-Test	0.6236	Site Greater than Background	2	Site Consistent with Background	NA	NA	Site Greater than Background
COBALT	4 / 4	9 / 9	5.73	12.5	Normal	Normal	T-Test	9.19E-06	Site Consistent with Background	0	Site Consistent with Background	NA	NA	Site Consistent with Background
COPPER	4 / 4	9 / 9	12.7	23.8	Normal	Normal	T-Test	0.0001176	Site Consistent with Background	0	Site Consistent with Background	NA	NA	Site Consistent with Background
IRON	4 / 4	9 / 9	75600	40800	Nonparametric	Normal	WRS	0.0993	Site Greater than Background	1	Site Consistent with Background	NA	NA	Site Greater than Background
LEAD	4 / 4	9 / 9	28.5	14.6	Normal	Normal	T-Test	0.4377	Site Greater than Background	2	Site Consistent with Background	NA	NA	Site Greater than Background
MAGNESIUM	4 / 4	9 / 9	1460	2870	Normal	Normal	T-Test	4.59E-05	Site Consistent with Background	0	Site Consistent with Background	NA	NA	Site Consistent with Background
MANGANESE	4 / 4	9 / 9	593	457	Normal	Normal	T-Test	0.00404	Site Consistent with Background	1	Site Consistent with Background	NA	NA	Site Consistent with Background
MERCURY	2 / 4	1 / 9	0.025	0.14	Assumed Nonparametric	Assumed Nonparametric	Proportion	0.2937	Site Consistent with Background	0	Site Consistent with Background	NA	NA	Site Consistent with Background
NICKEL	4 / 4	9 / 9	9.71	23.7	Normal	Normal	T-Test	9.95E-05	Site Consistent with Background	0	Site Consistent with Background	NA	NA	Site Consistent with Background
POTASSIUM	4 / 4	9 / 9	643	1290	Normal	Normal	T-Test	2.41E-05	Site Consistent with Background	0	Site Consistent with Background	NA	NA	Site Consistent with Background
SELENIUM	1 / 4	8 / 9	1.26	0.88	Assumed Nonparametric	Normal	Gehan	0.5	Site Greater than Background	1	Site Consistent with Background	NA	NA	Site Greater than Background
SILVER	0 / 4	8 / 9	--	0.1	Assumed Nonparametric	Nonparametric	NA	NA	NA	NA	NA	NA	NA	NA
SODIUM	0 / 4	6 / 9	--	191	Assumed Nonparametric	Normal	NA	NA	NA	NA	NA	NA	NA	NA
THALLIUM	0 / 4	9 / 9	--	0.25	Assumed Nonparametric	Normal	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM	4 / 4	9 / 9	86.2	48.5	Normal	Normal	T-Test	0.3142	Site Greater than Background	1	Site Consistent with Background	NA	NA	Site Greater than Background
ZINC	4 / 4	9 / 9	27.1	58.2	Normal	Normal	T-Test	4.77E-05	Site Consistent with Background	0	Site Consistent with Background	NA	NA	Site Consistent with Background

TABLE 3

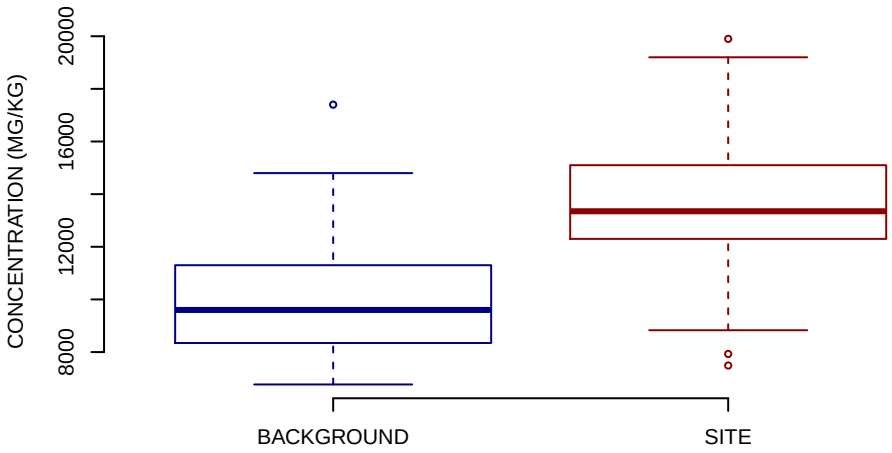
SEDIMENT BACKGROUND COMPARISONS
SWMU 11
NSA CRANE
CRANE, INDIANA

PARAMETER	SITE FOD	BACKGROUND FOD	SITE MAXIMUM DETECT (MG/KG)	BACKGROUND MAXIMUM DETECT (MG/KG)	SITE DISTRIBUTION	BACKGROUND DISTRIBUTION	HYPOTHESIS TEST	HYPOTHESIS TEST P-VALUE	HYPOTHESIS TEST CONCLUSION	SLIPPAGE TEST STATISTIC	SLIPPAGE CONCLUSION	QUANTILE TEST STATISTIC	QUANTILE CONCLUSION	FINAL CONCLUSION
ALUMINUM	8 / 8	15 / 15	11300	17400	Normal	Normal	T-Test	7.06E-07	Site Consistent with Background	0	Site Consistent with Background	0	Site Consistent with Background	Site Consistent with Background
ANTIMONY	1 / 8	2 / 15	0.637	5.6	Assumed Nonparametric	Assumed Nonparametric	Proportion	0.9108	Site Consistent with Background	0	Site Consistent with Background	NA	NA	Site Consistent with Background[(1)]
ARSENIC	8 / 8	15 / 15	27	10.2	Nonparametric	Normal	WRS	1	Site Greater than Background	8	Site Greater Background	3	Site Greater Background	Site Greater than Background
BARIUM	8 / 8	15 / 15	255	153	Normal	Nonparametric	WRS	0.02003	Site Consistent with Background	2	Site Consistent with Background	2	Site Consistent with Background	Site Consistent with Background
BERYLLIUM	8 / 8	0 / 15	1.21	--	Normal	Assumed Nonparametric	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	8 / 8	10 / 15	2.6	3.6	Nonparametric	Nonparametric	Gehan	0.0694	Site Greater than Background	0	Site Consistent with Background	2	Site Consistent with Background	Site Greater than Background
CALCIUM	8 / 8	14 / 15	55500	35300	Nonparametric	Nonparametric	WRS	0.1469	Site Greater than Background	2	Site Consistent with Background	2	Site Consistent with Background	Site Greater than Background
CHROMIUM	8 / 8	15 / 15	132	21.7	Normal	Normal	T-Test	0.9989	Site Greater than Background	8	Site Greater Background	3	Site Greater Background	Site Greater than Background
COBALT	8 / 8	15 / 15	28.3	27.1	Nonparametric	Nonparametric	WRS	0.01005	Site Consistent with Background	1	Site Consistent with Background	2	Site Consistent with Background	Site Consistent with Background
COPPER	8 / 8	15 / 15	26.7	17.1	Nonparametric	Nonparametric	WRS	0.3612	Site Greater than Background	3	Site Consistent with Background	3	Site Greater Background	Site Greater than Background
IRON	8 / 8	15 / 15	37800	36200	Normal	Nonparametric	WRS	0.06573	Site Greater than Background	1	Site Consistent with Background	2	Site Consistent with Background	Site Greater than Background
LEAD	8 / 8	15 / 15	148	21.5	Nonparametric	Normal	WRS	0.9997	Site Greater than Background	7	Site Greater Background	3	Site Greater Background	Site Greater than Background
MAGNESIUM	8 / 8	15 / 15	3760	2250	Nonparametric	Normal	WRS	0.03288	Site Consistent with Background	2	Site Consistent with Background	2	Site Consistent with Background	Site Consistent with Background
MANGANESE	8 / 8	15 / 15	4530	3040	Normal	Normal	T-Test	0.03017	Site Consistent with Background	1	Site Consistent with Background	2	Site Consistent with Background	Site Consistent with Background
MERCURY	8 / 8	5 / 15	0.153	0.05	Nonparametric	Nonparametric	WRS	0.8868	Site Greater than Background	6	Site Greater Background	3	Site Greater Background	Site Greater Background
NICKEL	8 / 8	15 / 15	16.6	20	Normal	Normal	T-Test	2.51E-05	Site Consistent with Background	0	Site Consistent with Background	1	Site Consistent with Background	Site Consistent with Background
POTASSIUM	8 / 8	15 / 15	442	1490	Normal	Normal	T-Test	3.84E-10	Site Consistent with Background	0	Site Consistent with Background	0	Site Consistent with Background	Site Consistent with Background
SELENIUM	6 / 8	5 / 15	0.774	0.64	Nonparametric	Normal	Proportion	0.9108	Site Consistent with Background	NA	NA	NA	NA	Site Consistent with Background
SILVER	0 / 8	15 / 15	--	0.11	Assumed Nonparametric	Nonparametric	NA	NA	NA	NA	NA	NA	NA	NA
SODIUM	2 / 8	5 / 15	215	23.7	Assumed Nonparametric	Nonparametric	Proportion	0.001664	Site Greater than Background	2	Site Consistent with Background	NA	NA	Site Greater than Background
THALLIUM	4 / 8	15 / 15	0.742	0.25	Normal	Normal	Gehan	0.9785	Site Greater than Background	4	Site Greater Background	NA	NA	Site Greater than Background
VANADIUM	8 / 8	15 / 15	43.1	40	Normal	Normal	T-Test	0.003391	Site Consistent with Background	1	Site Consistent with Background	2	Site Consistent with Background	Site Consistent with Background
ZINC	8 / 8	14 / 15	392	60.2	Normal	Normal	WRS	0.9996	Site Greater than Background	7	Site Greater Background	3	Site Greater Background	Site Greater than Background

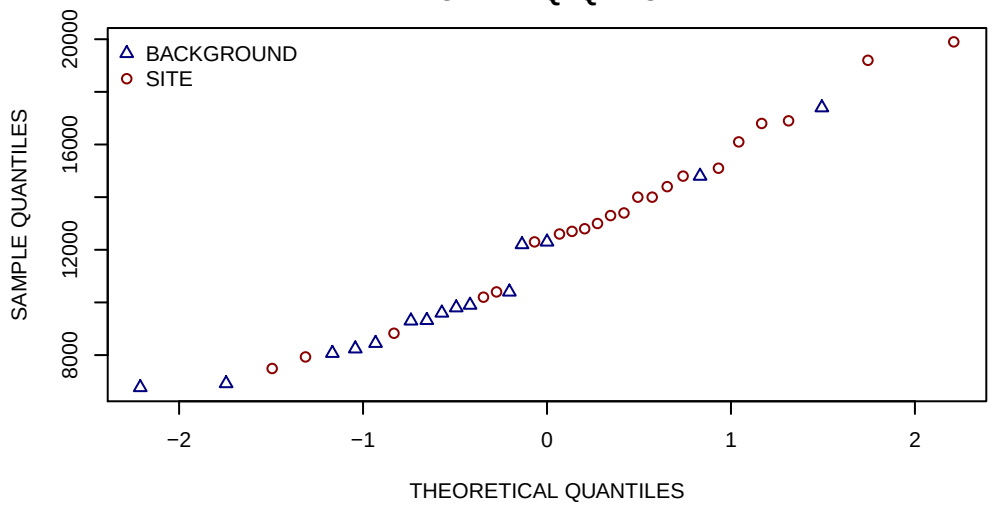
1 - Based on graphical display.

ALUMINUM SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 1 OF 23

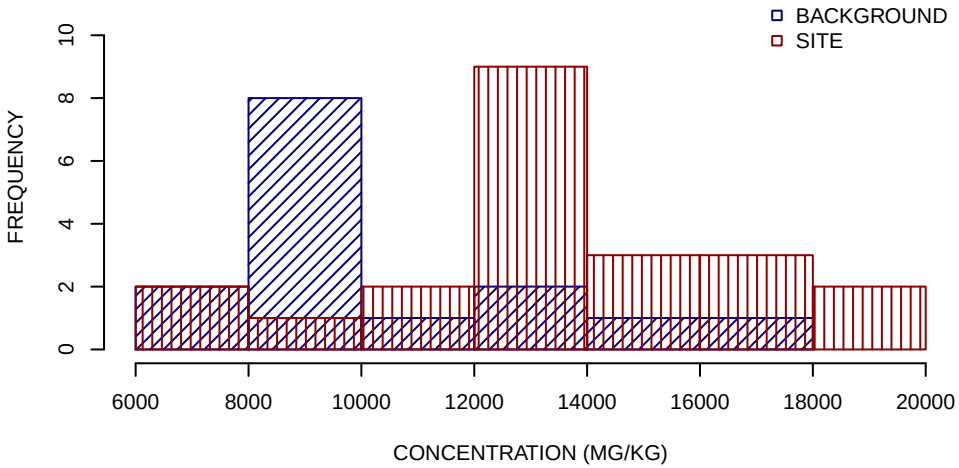
BOXPLOTS



NORMAL Q−Q PLOT



HISTOGRAMS



SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	6800	7500
25TH PERCENTILE	8300	12000
MEDIAN	9600	13000
MEAN	10000	13000
75TH PERCENTILE	11000	15000
MAXIMUM	17000	20000

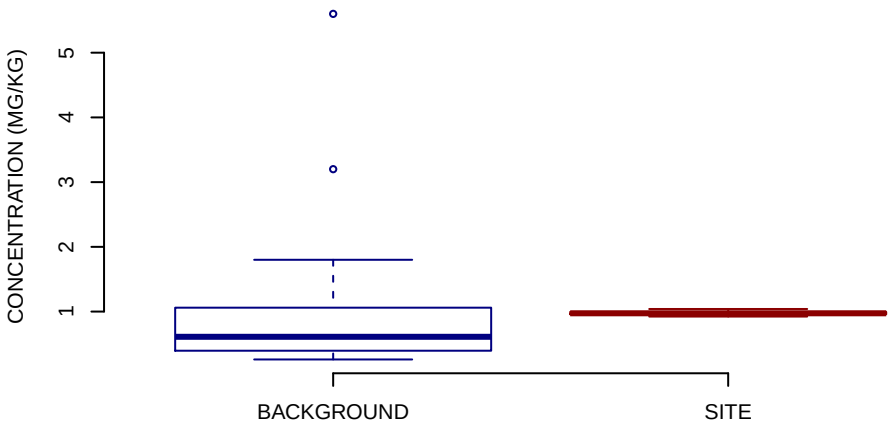
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

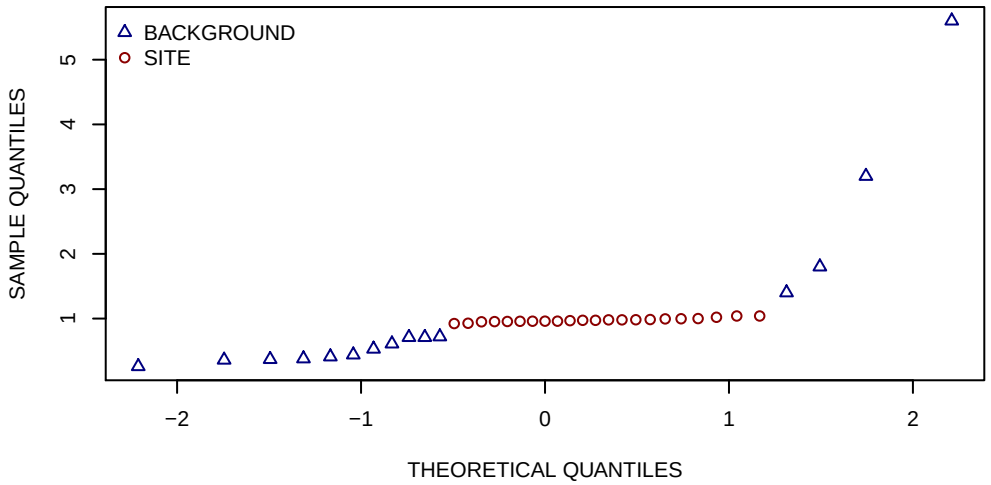
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

ANTIMONY SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 2 OF 23

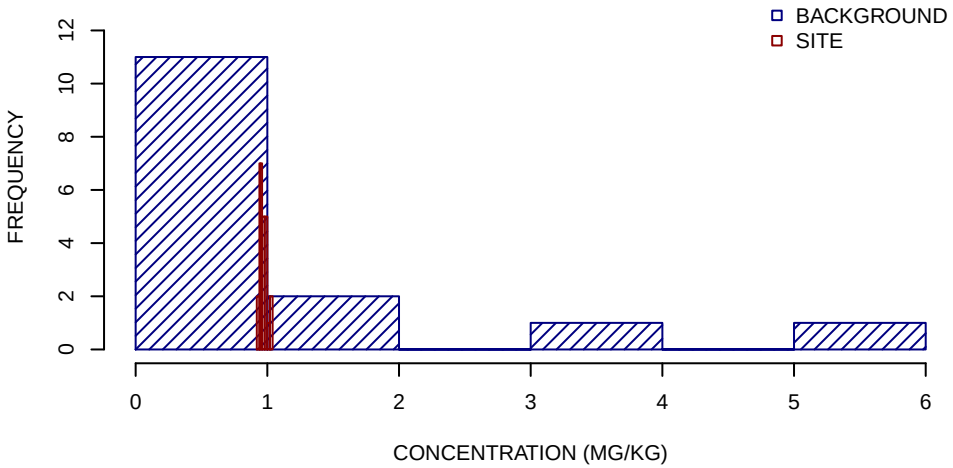
BOXPLOTS



NORMAL Q−Q PLOT



HISTOGRAMS



SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.26	0.92
25TH PERCENTILE	0.4	0.96
MEDIAN	0.61	0.97
MEAN	1.2	0.98
75TH PERCENTILE	1.1	0.99
MAXIMUM	5.6	1

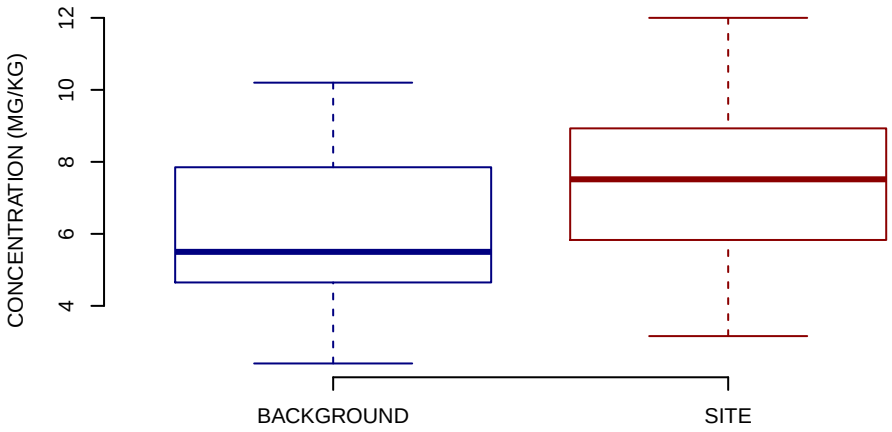
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

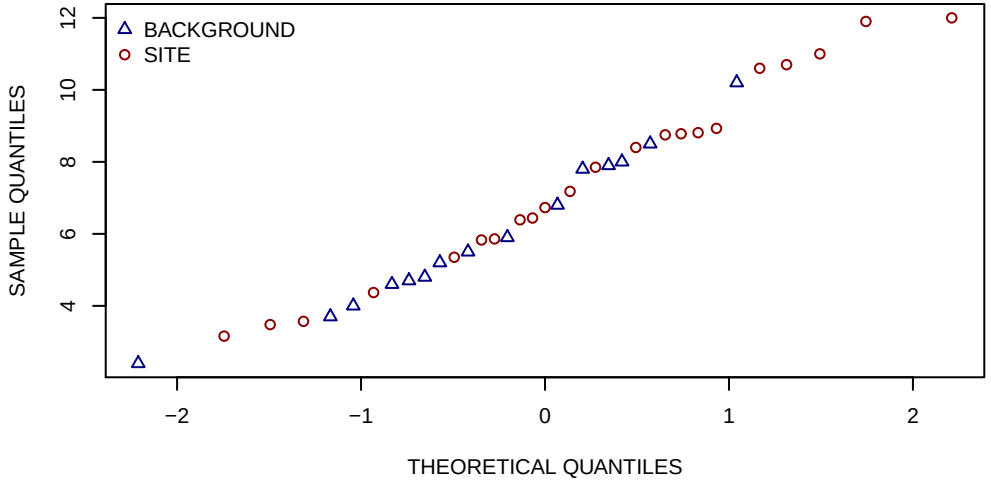
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

ARSENIC SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 3 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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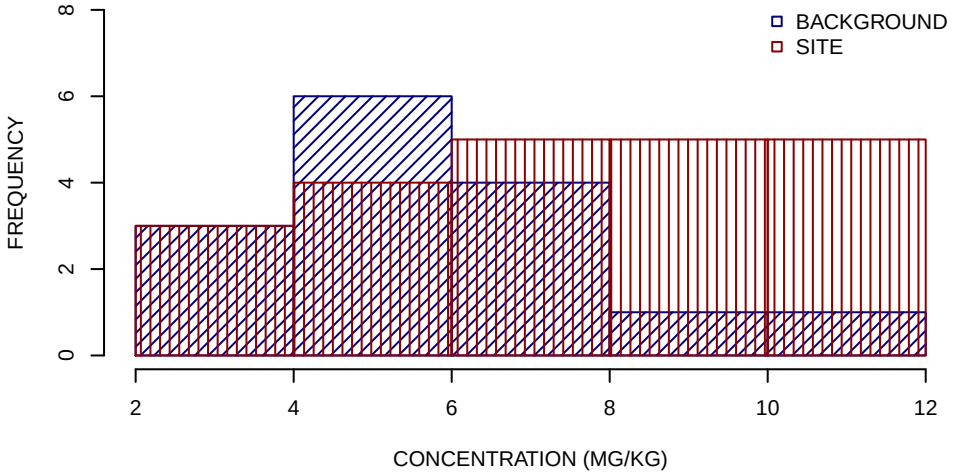


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	2.4	3.2
25TH PERCENTILE	4.6	5.8
MEDIAN	5.5	7.5
MEAN	6	7.5
75TH PERCENTILE	7.8	8.9
MAXIMUM	10	12

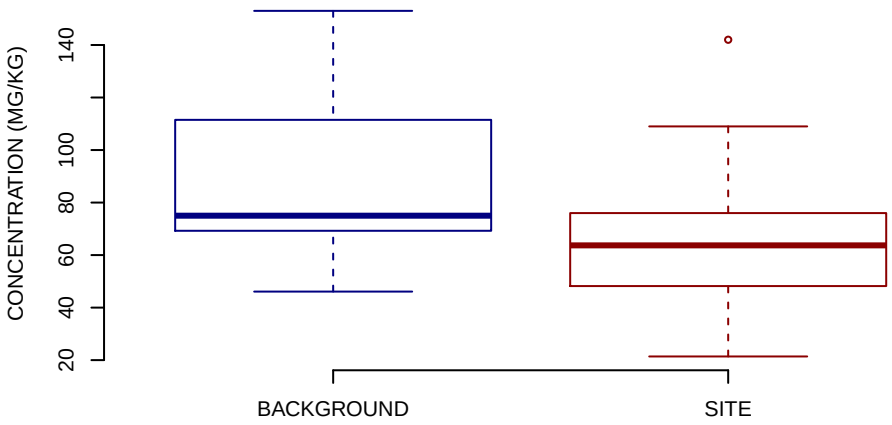
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

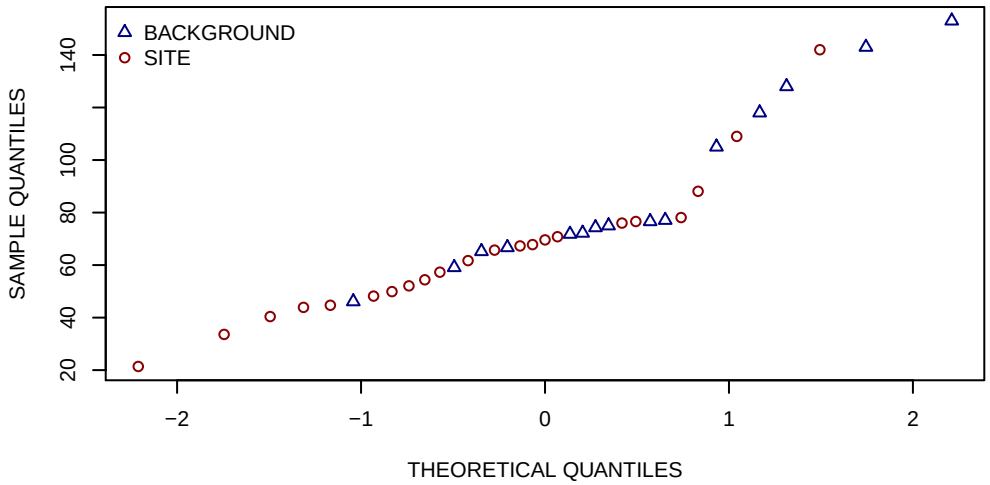
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

BARIUM SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 4 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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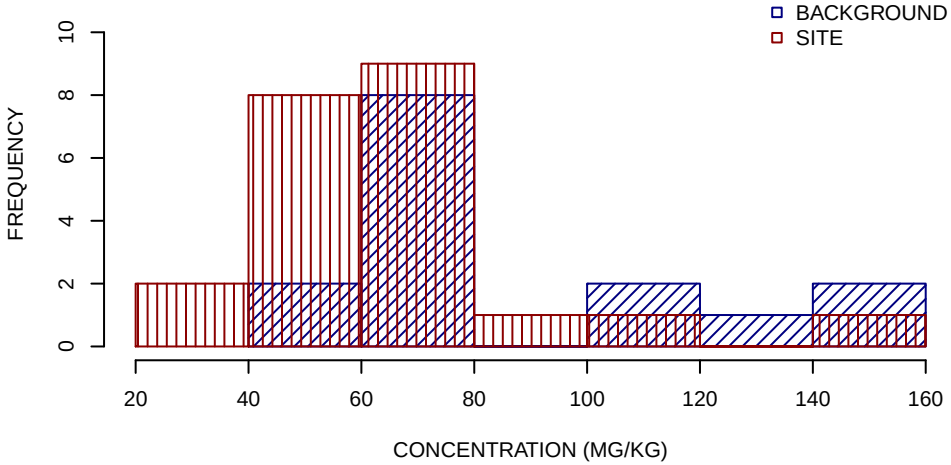


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	46	21
25TH PERCENTILE	69	49
MEDIAN	75	64
MEAN	89	64
75TH PERCENTILE	110	75
MAXIMUM	150	140

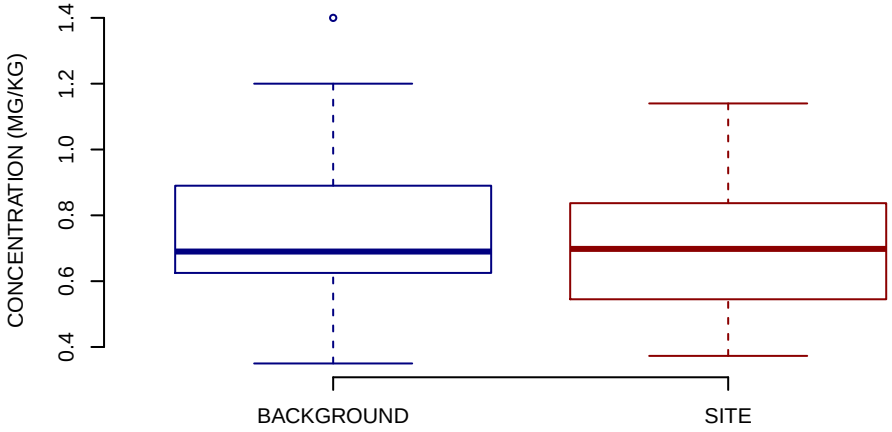
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

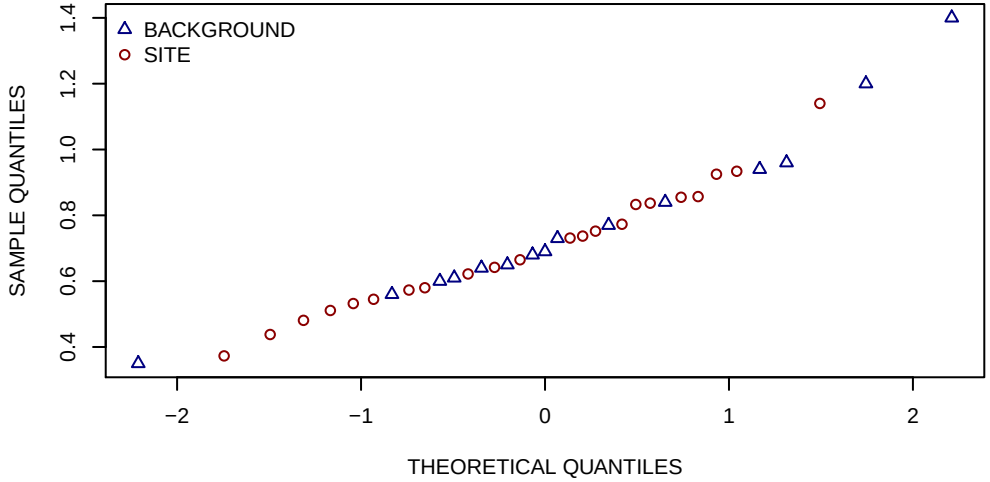
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

BERYLLIUM SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 5 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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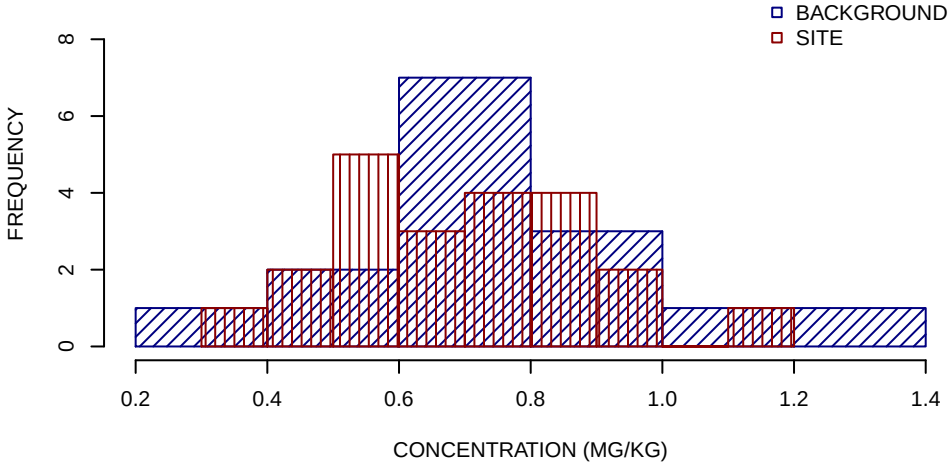


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.35	0.37
25TH PERCENTILE	0.62	0.55
MEDIAN	0.69	0.7
MEAN	0.77	0.7
75TH PERCENTILE	0.89	0.84
MAXIMUM	1.4	1.1

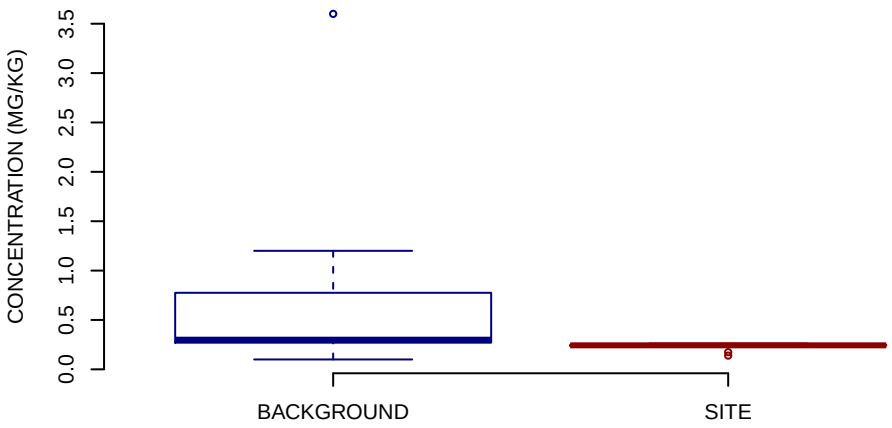
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

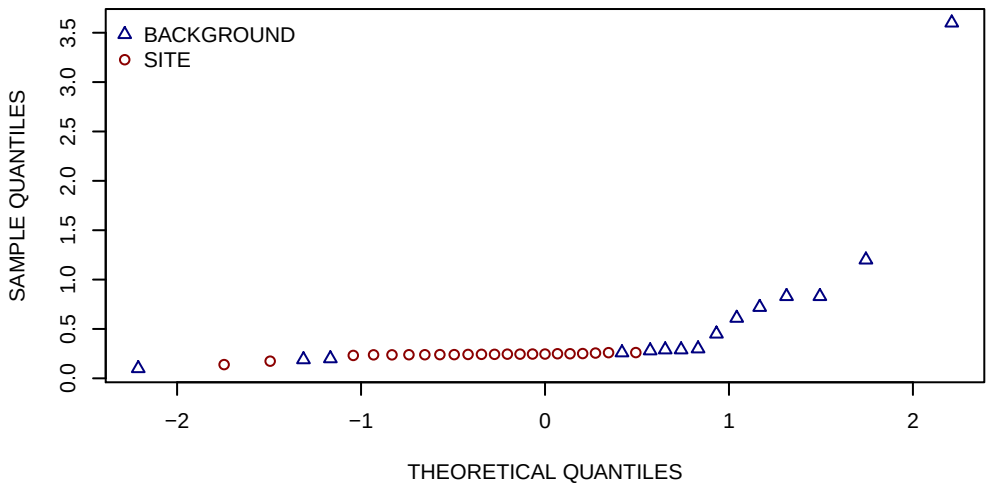
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

CADMIUM SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 6 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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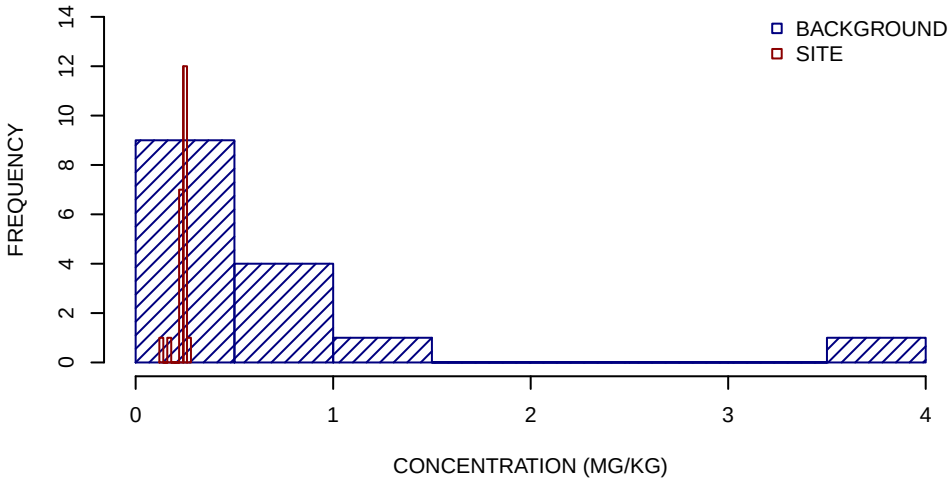


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.1	0.14
25TH PERCENTILE	0.27	0.24
MEDIAN	0.3	0.24
MEAN	0.68	0.24
75TH PERCENTILE	0.78	0.25
MAXIMUM	3.6	0.26

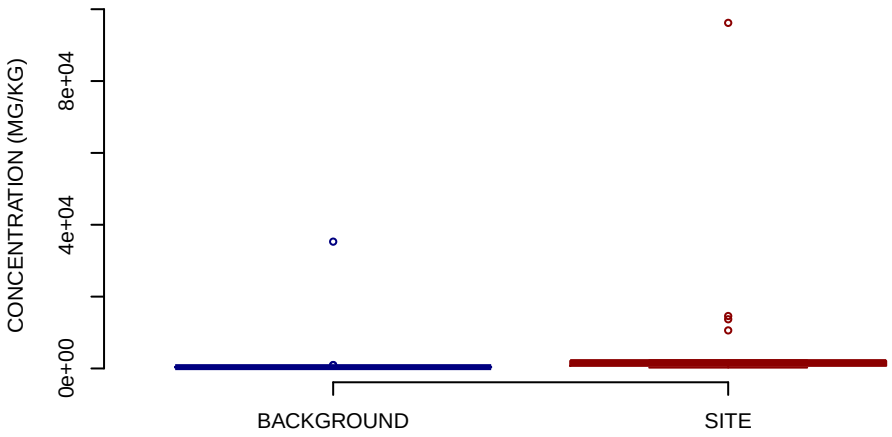
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

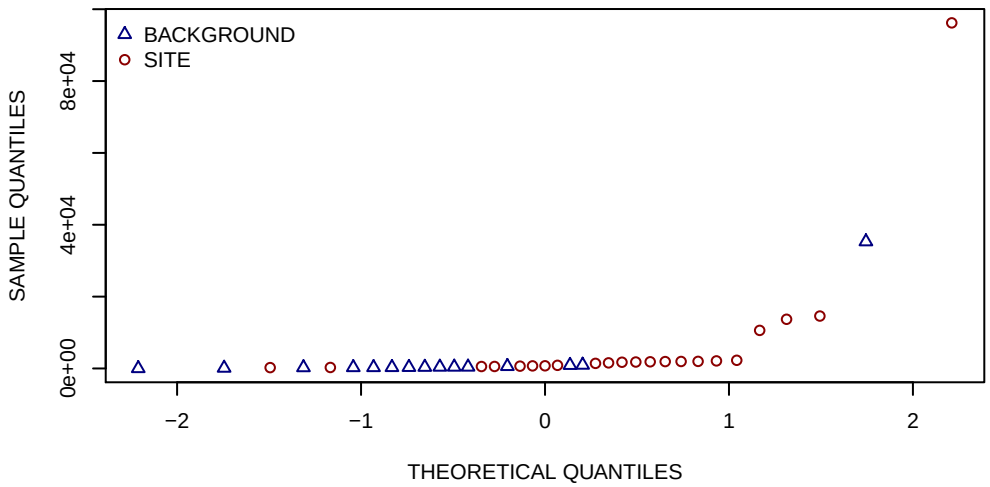
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

CALCIUM SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 7 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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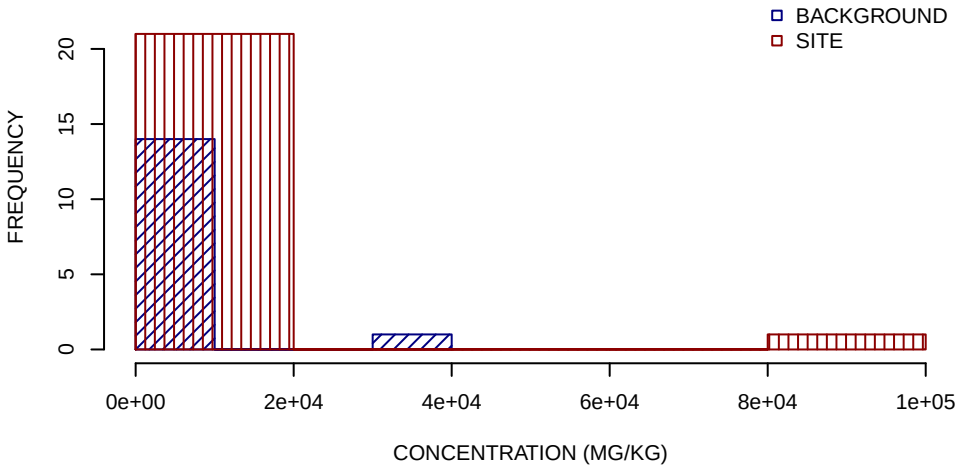


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	5	240
25TH PERCENTILE	280	730
MEDIAN	370	1800
MEAN	2700	7200
75TH PERCENTILE	510	2100
MAXIMUM	35000	96000

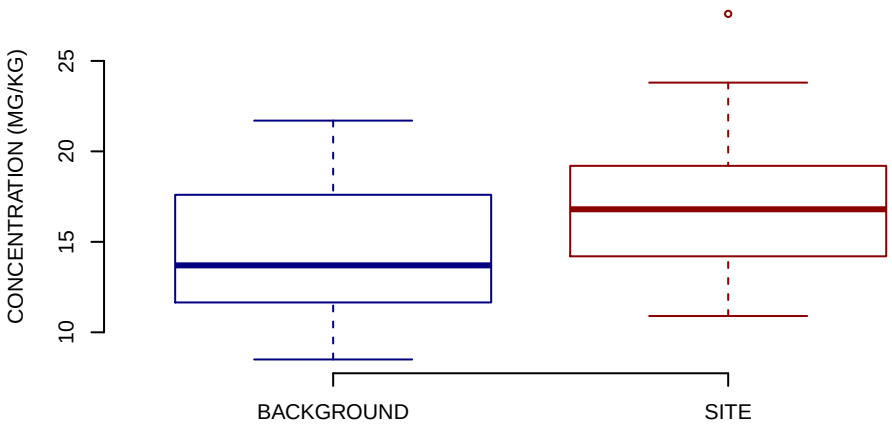
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

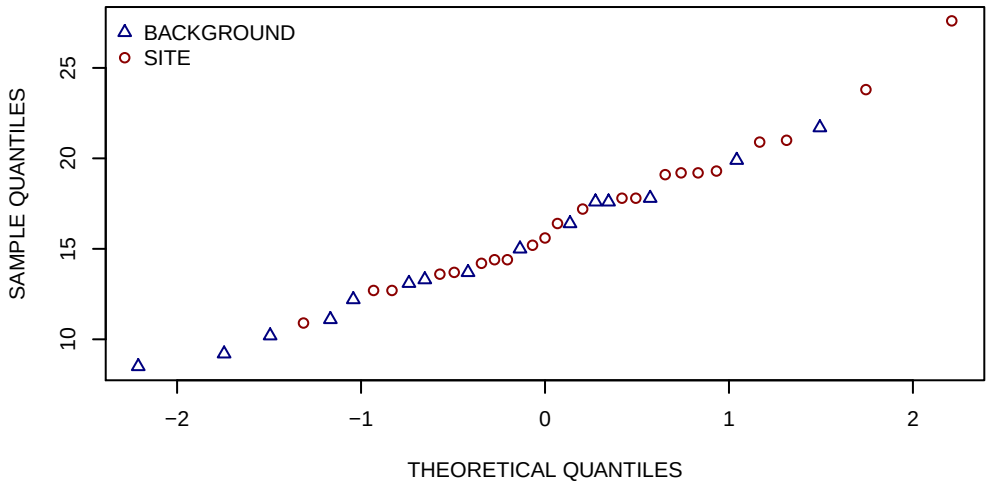
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

CHROMIUM SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 8 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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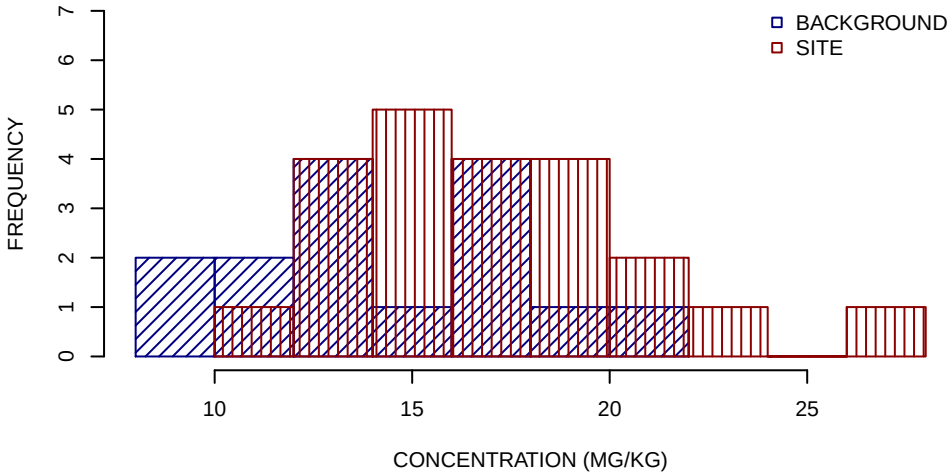


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	8.5	11
25TH PERCENTILE	12	14
MEDIAN	14	17
MEAN	14	17
75TH PERCENTILE	18	19
MAXIMUM	22	28

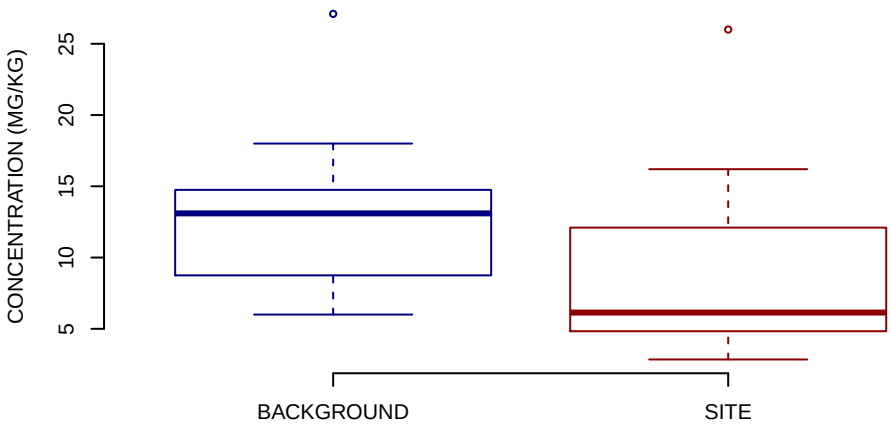
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

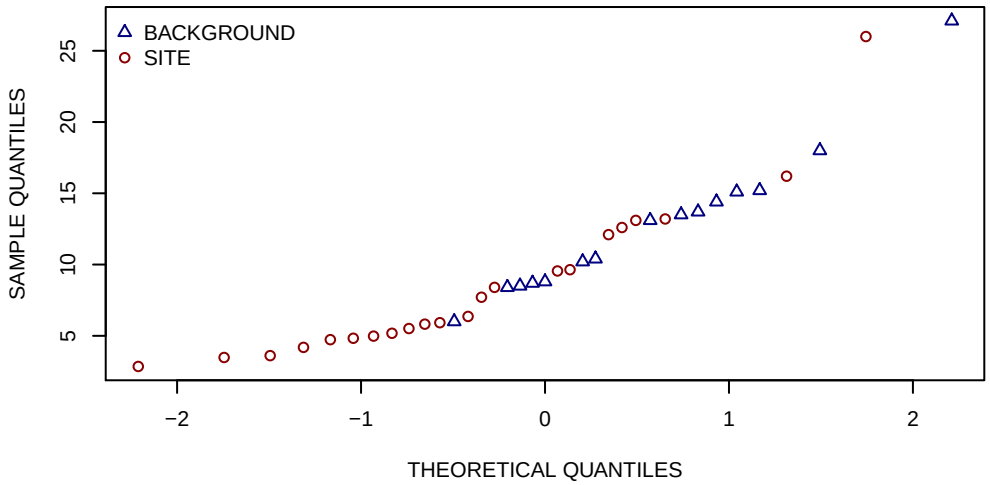
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

COBALT SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 9 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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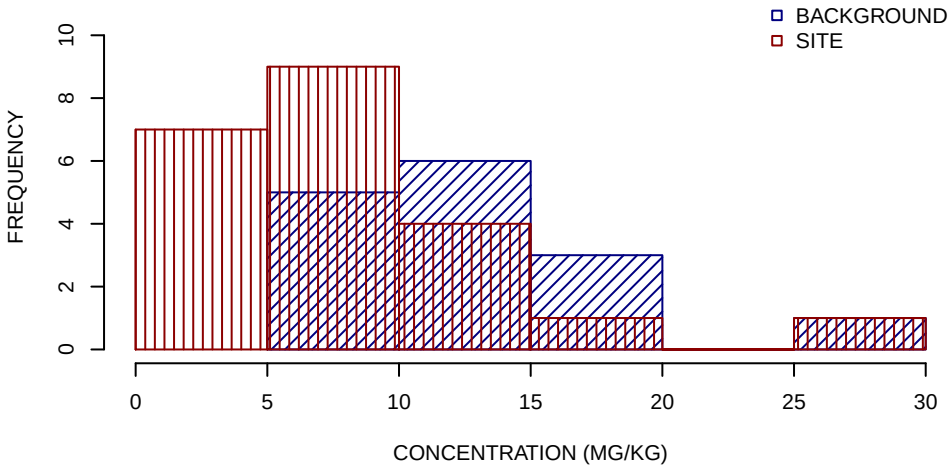


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	6	2.8
25TH PERCENTILE	8.8	4.9
MEDIAN	13	6.1
MEAN	13	8.5
75TH PERCENTILE	15	11
MAXIMUM	27	26

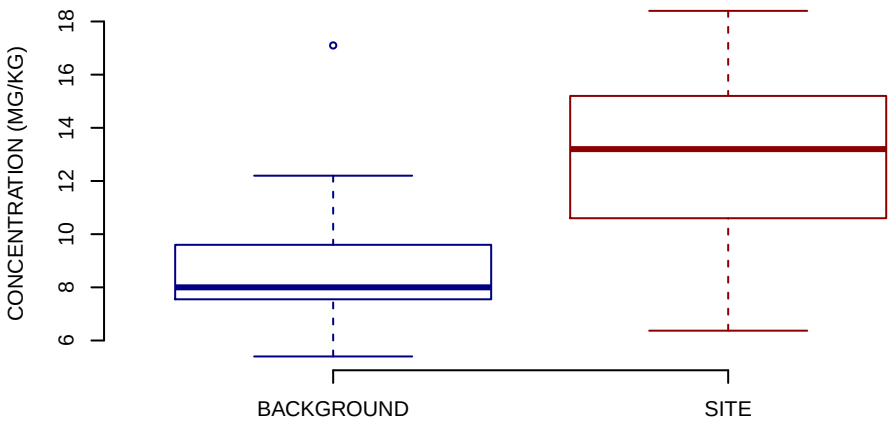
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

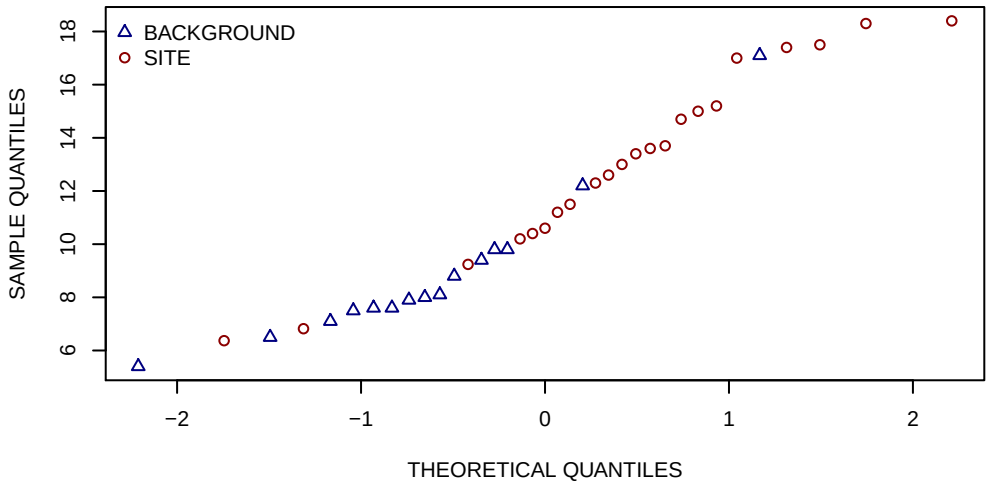
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

COPPER SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 10 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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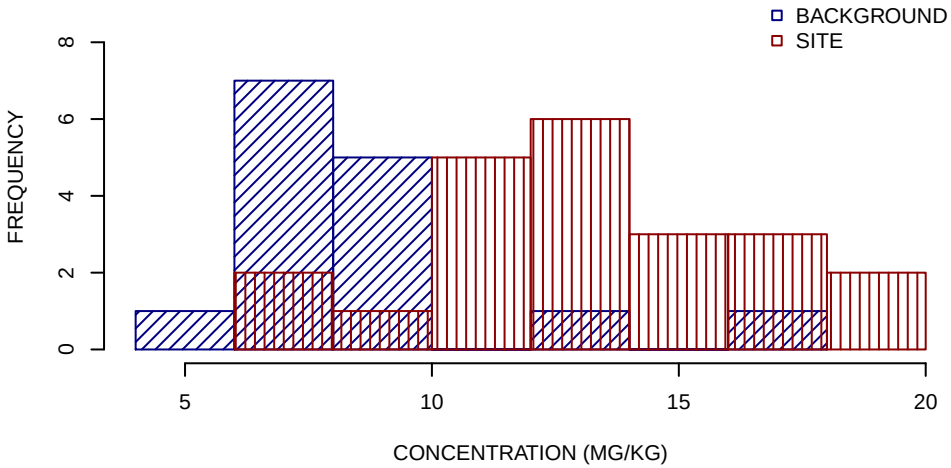


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	5.4	6.4
25TH PERCENTILE	7.6	11
MEDIAN	8	13
MEAN	8.9	13
75TH PERCENTILE	9.6	15
MAXIMUM	17	18

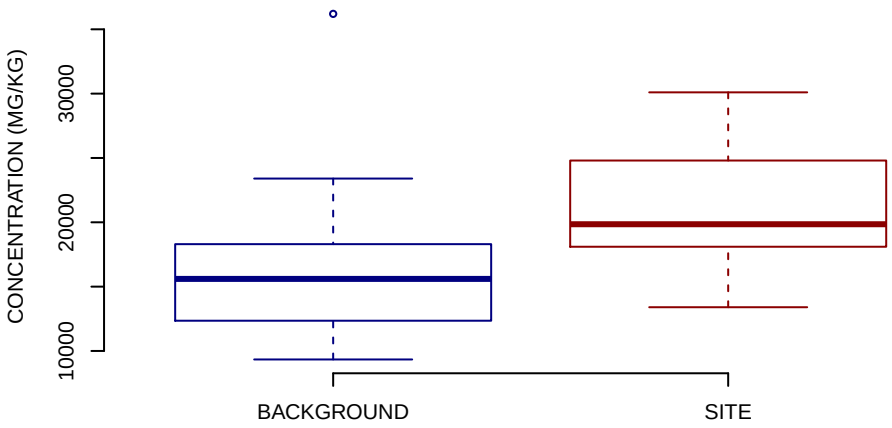
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

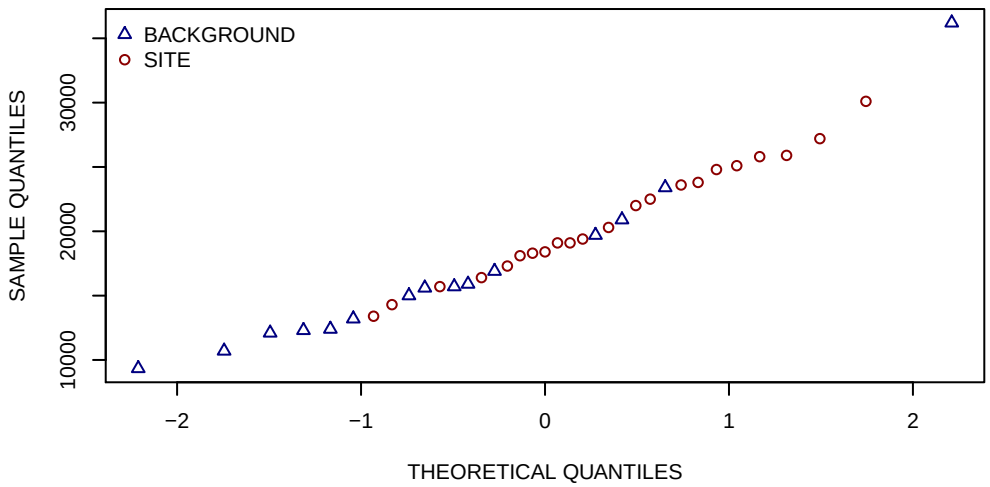
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

IRON SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 11 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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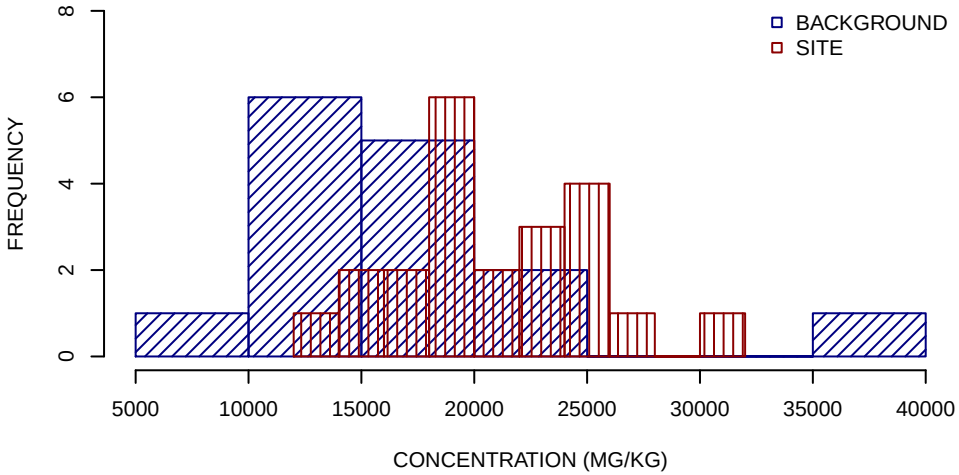


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	9300	13000
25TH PERCENTILE	12000	18000
MEDIAN	16000	20000
MEAN	17000	21000
75TH PERCENTILE	18000	25000
MAXIMUM	36000	30000

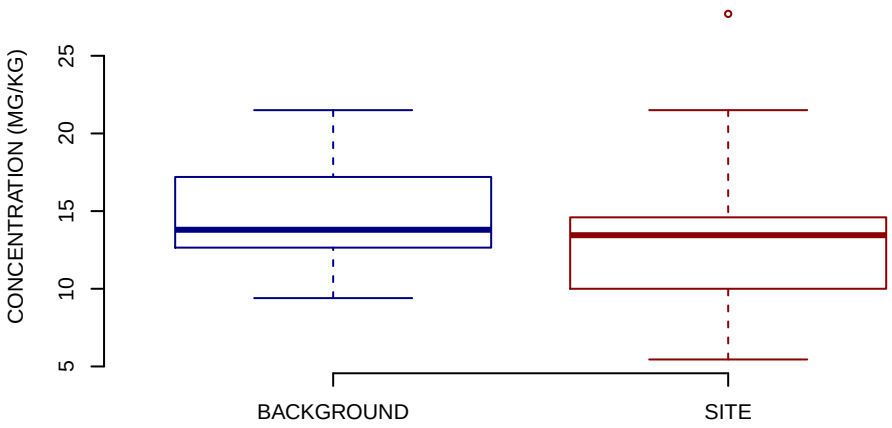
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

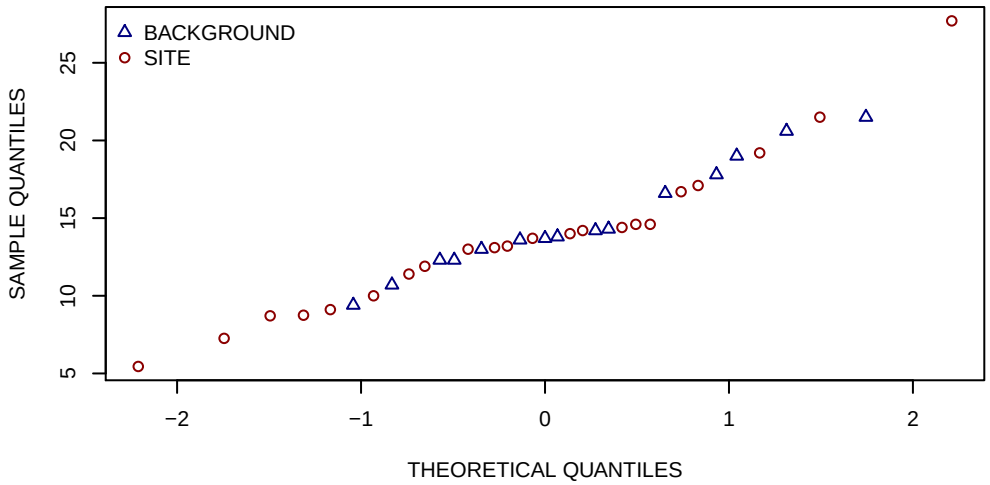
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

LEAD SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 12 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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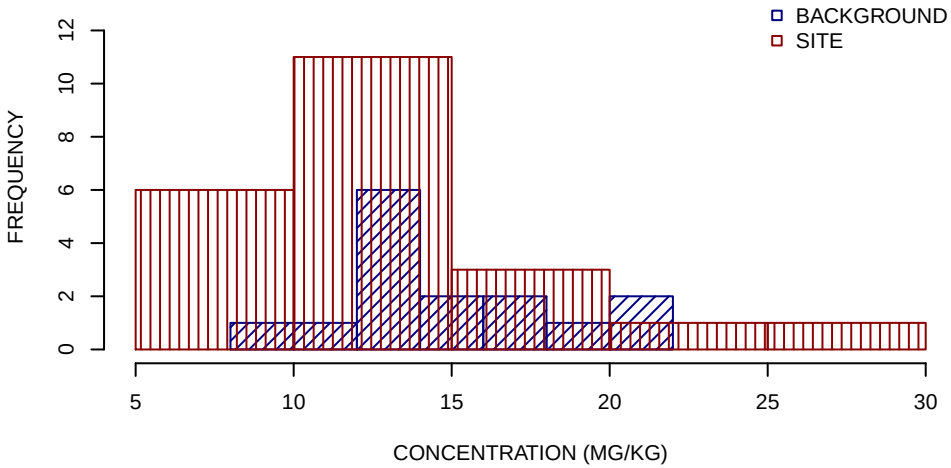


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	9.4	5.4
25TH PERCENTILE	13	10
MEDIAN	14	13
MEAN	15	14
75TH PERCENTILE	17	15
MAXIMUM	22	28

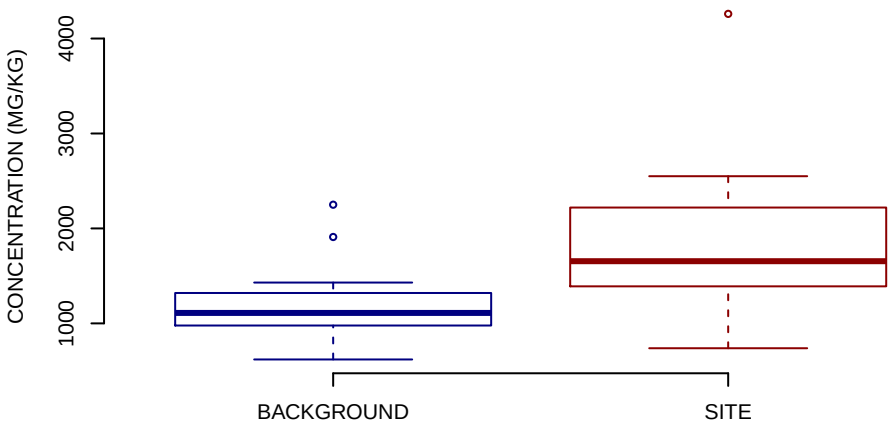
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

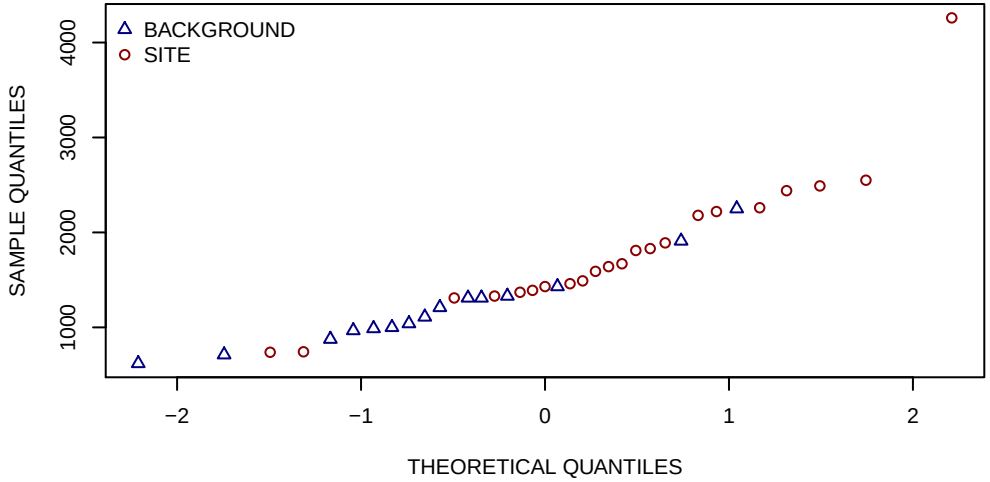
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

MAGNESIUM SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 13 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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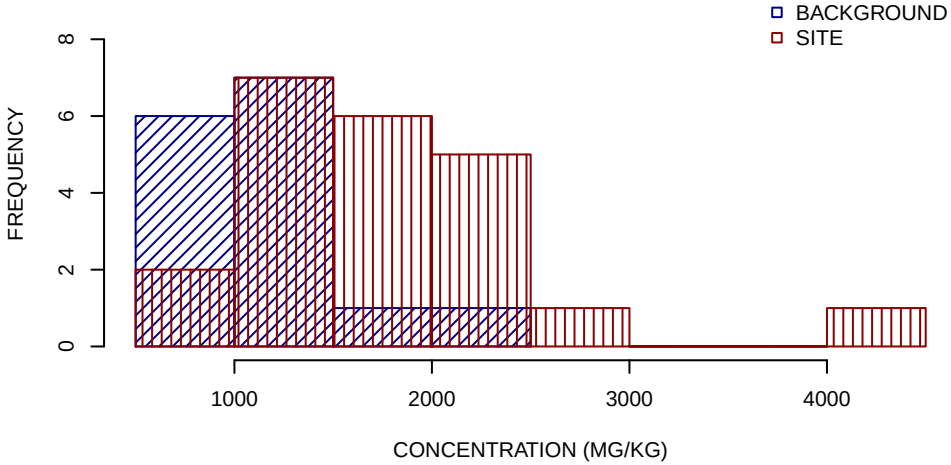


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	620	740
25TH PERCENTILE	980	1400
MEDIAN	1100	1700
MEAN	1200	1800
75TH PERCENTILE	1300	2200
MAXIMUM	2200	4300

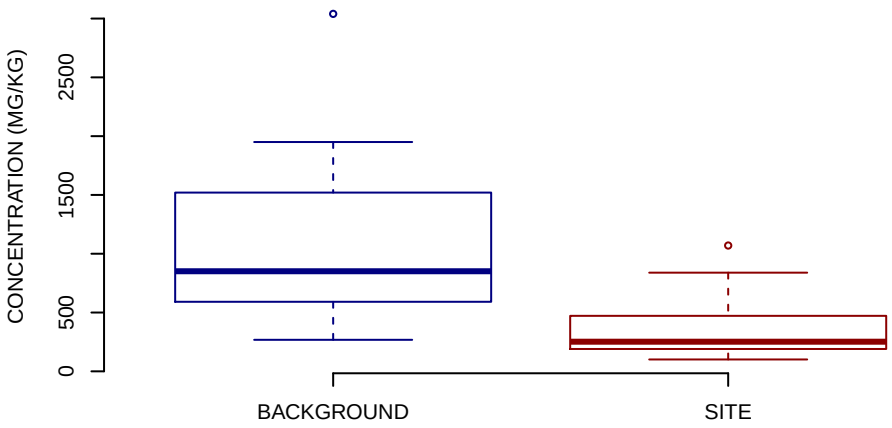
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

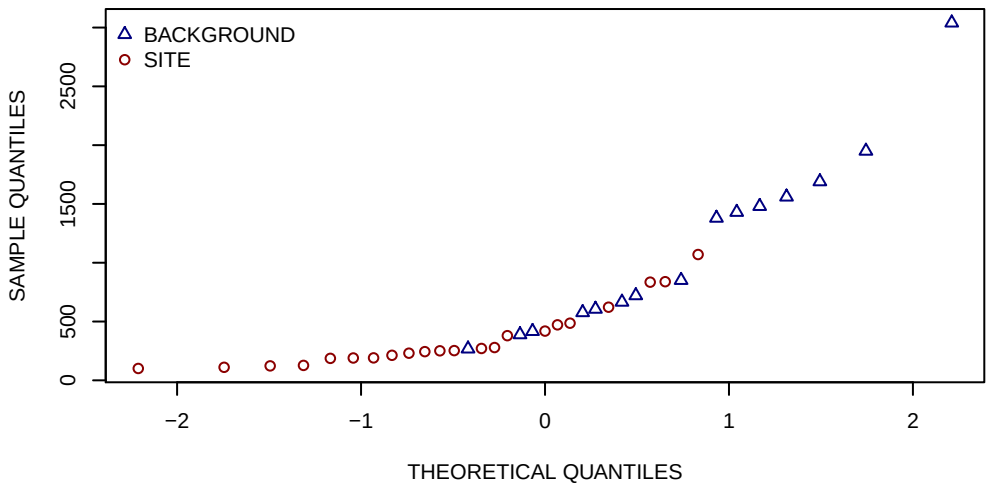
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

MANGANESE SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 14 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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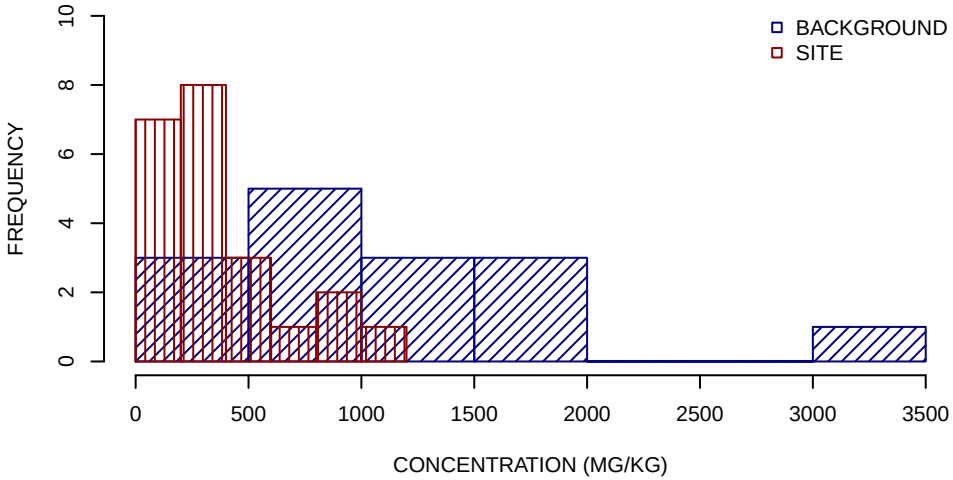


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	270	100
25TH PERCENTILE	590	190
MEDIAN	850	250
MEAN	1100	360
75TH PERCENTILE	1500	460
MAXIMUM	3000	1100

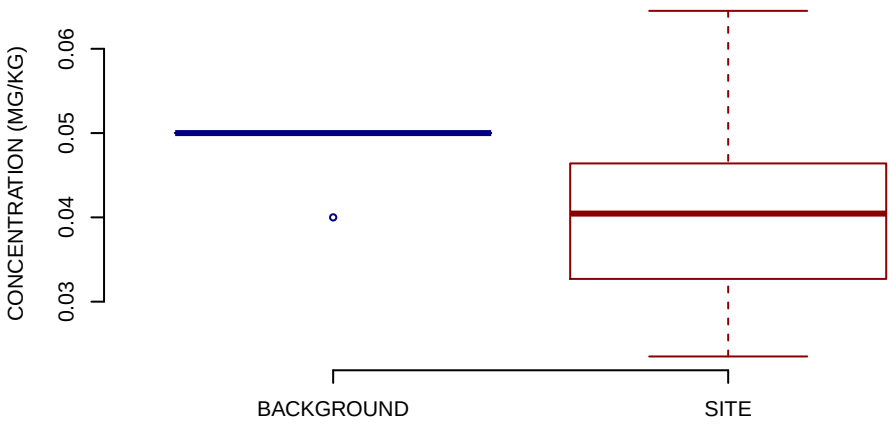
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

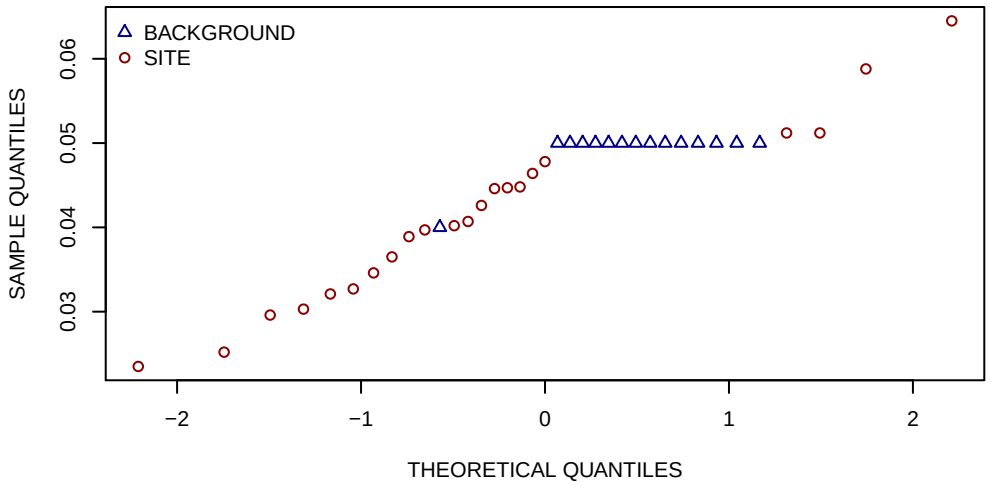
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

MERCURY SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 15 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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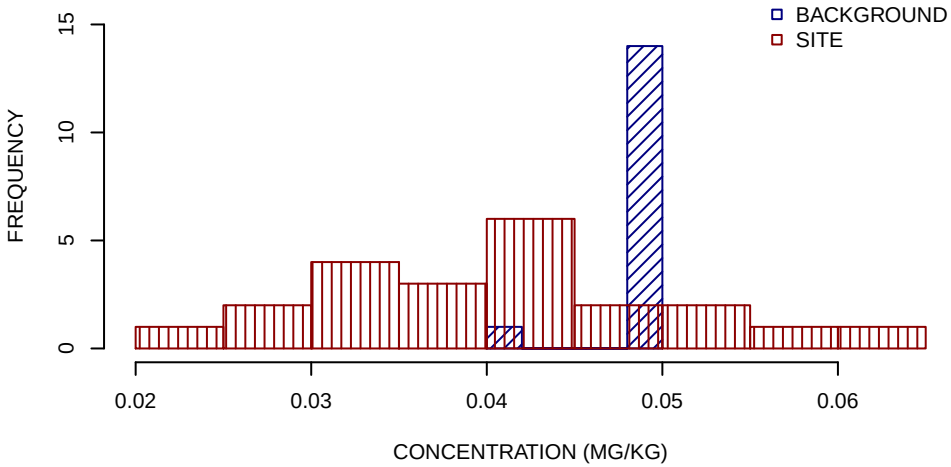


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.04	0.024
25TH PERCENTILE	0.05	0.033
MEDIAN	0.05	0.04
MEAN	0.049	0.041
75TH PERCENTILE	0.05	0.046
MAXIMUM	0.05	0.064

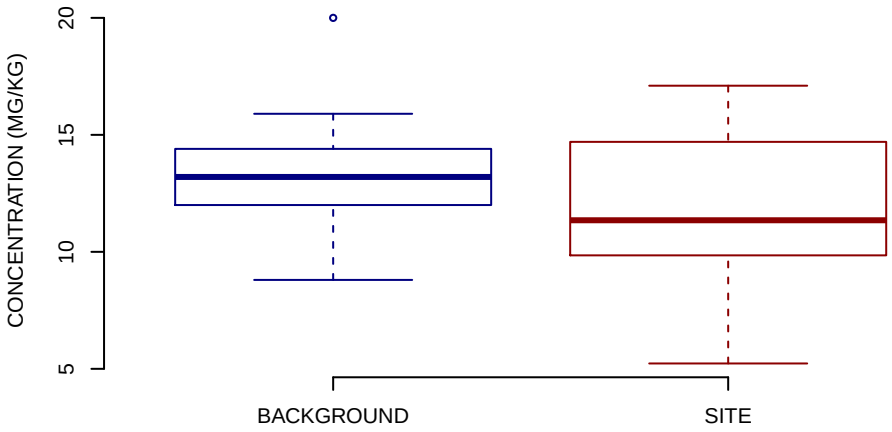
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

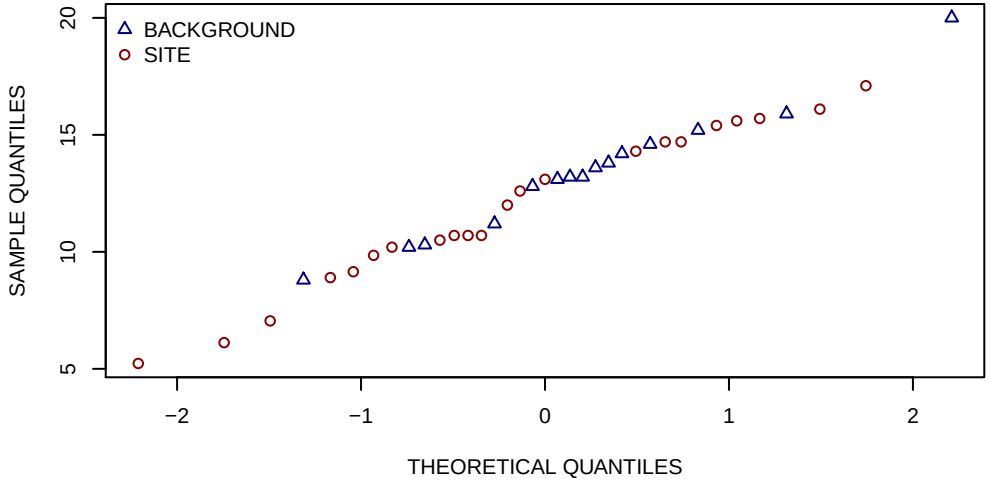
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

NICKEL SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 16 OF 23

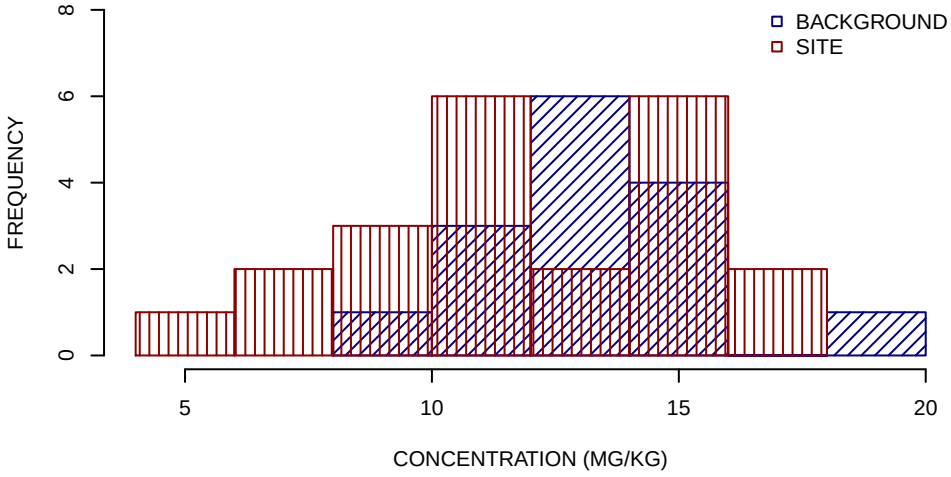
BOXPLOTS



NORMAL Q−Q PLOT



HISTOGRAMS



SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	8.8	5.2
25TH PERCENTILE	12	9.9
MEDIAN	13	11
MEAN	13	12
75TH PERCENTILE	14	15
MAXIMUM	20	17

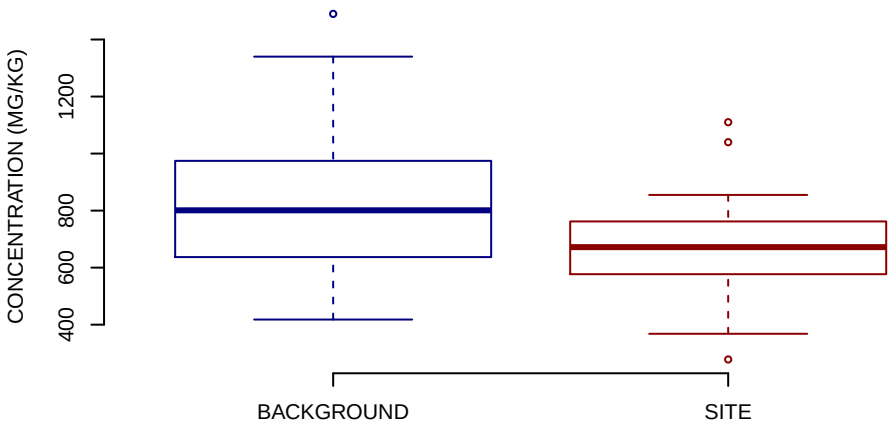
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

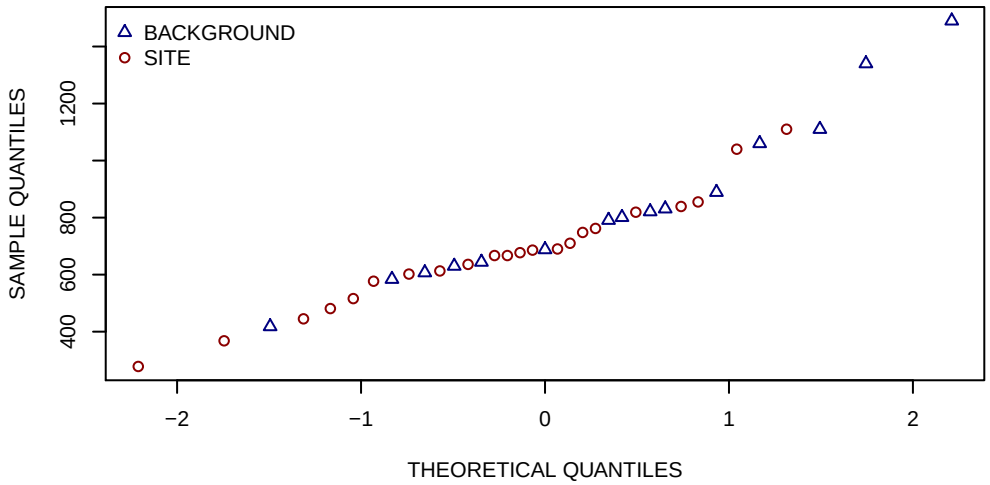
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

POTASSIUM SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 17 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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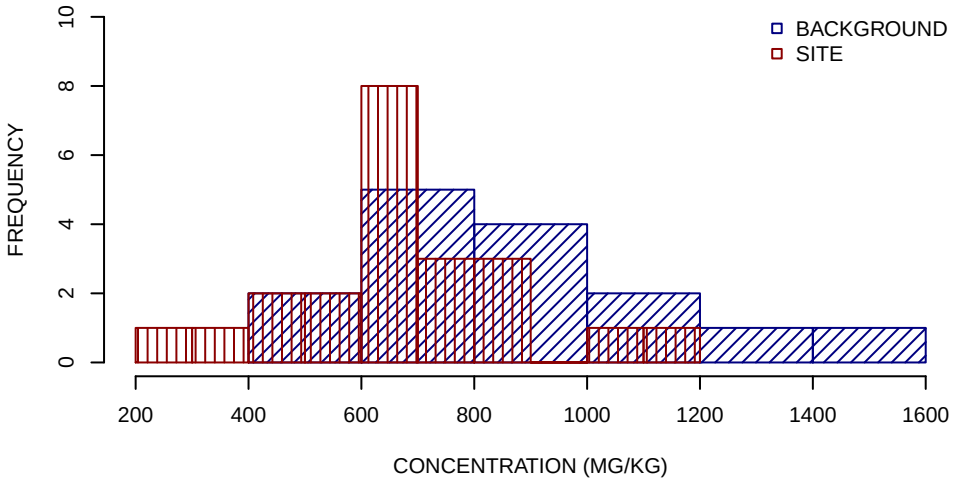


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	420	280
25TH PERCENTILE	640	580
MEDIAN	800	670
MEAN	850	670
75TH PERCENTILE	970	760
MAXIMUM	1500	1100

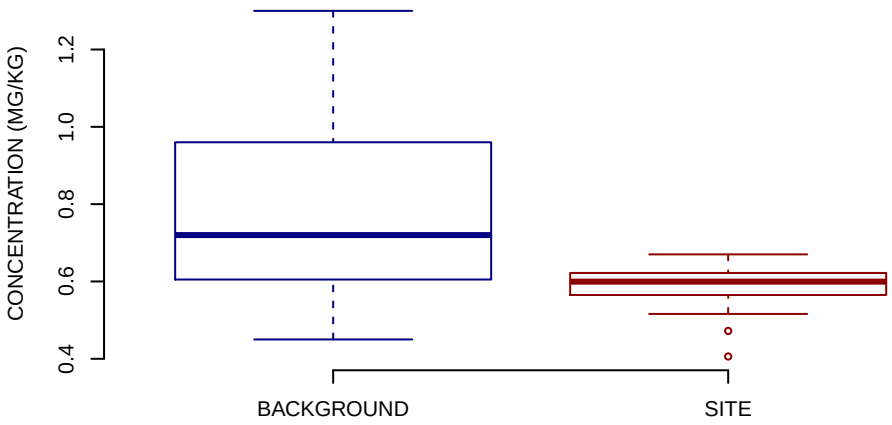
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

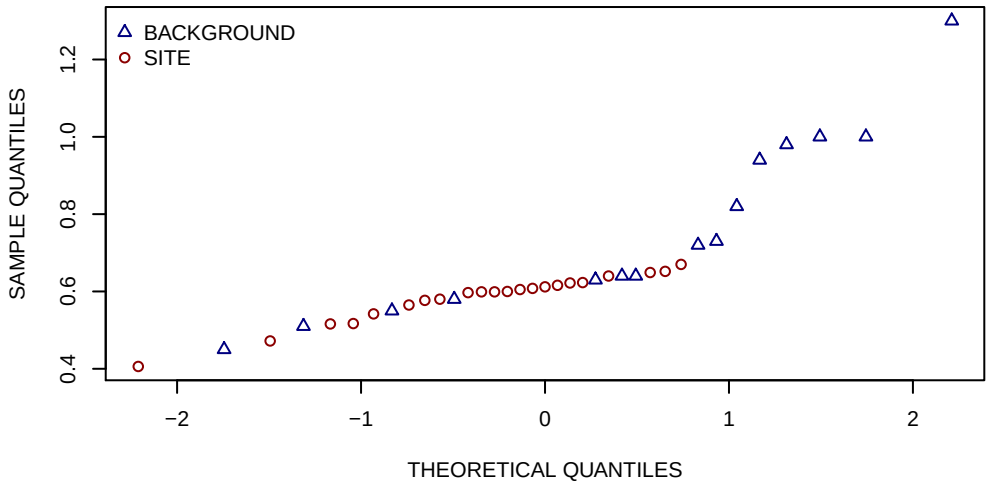
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

SELENIUM SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 18 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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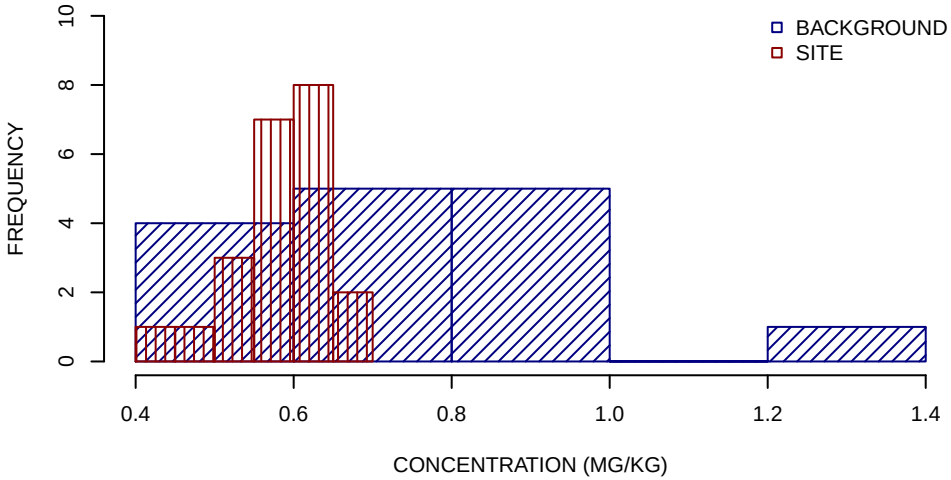


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.45	0.41
25TH PERCENTILE	0.6	0.57
MEDIAN	0.72	0.6
MEAN	0.77	0.58
75TH PERCENTILE	0.96	0.62
MAXIMUM	1.3	0.67

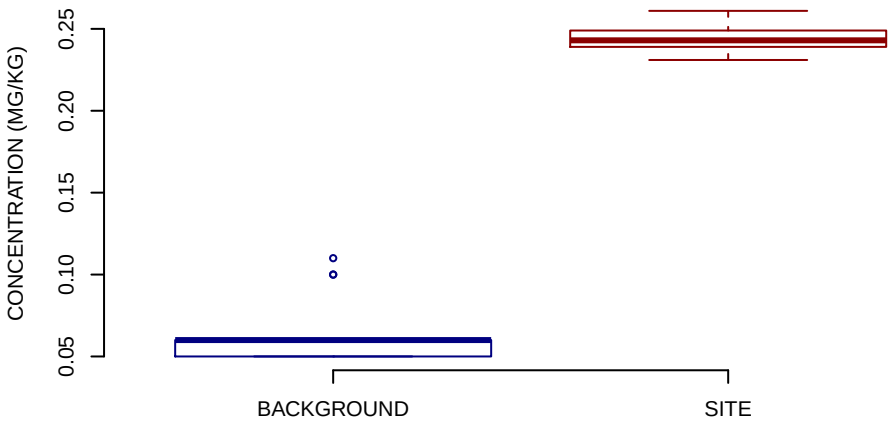
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

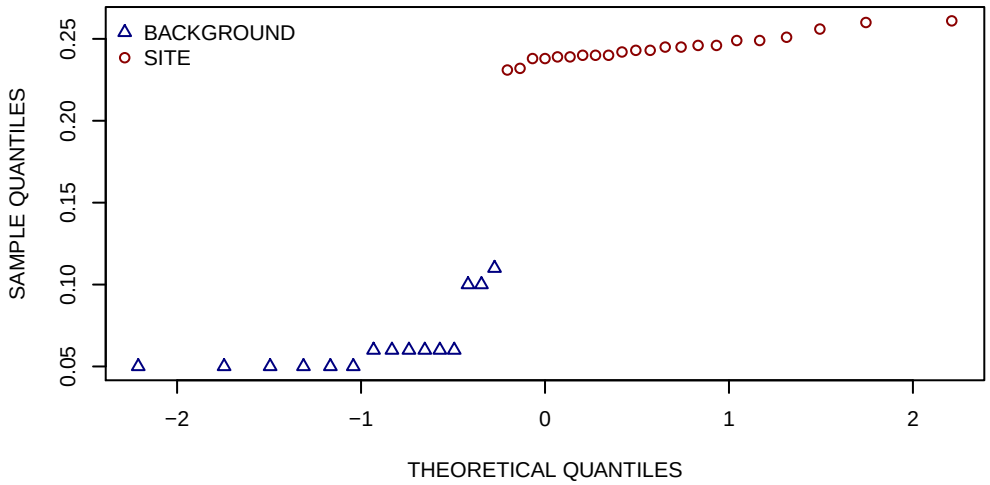
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

SILVER SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 19 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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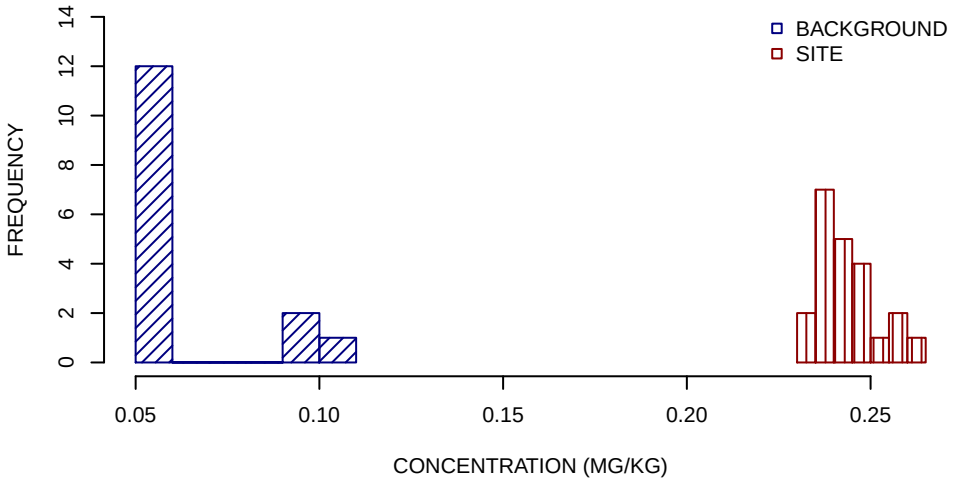


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.05	0.23
25TH PERCENTILE	0.05	0.24
MEDIAN	0.06	0.24
MEAN	0.065	0.24
75TH PERCENTILE	0.06	0.25
MAXIMUM	0.11	0.26

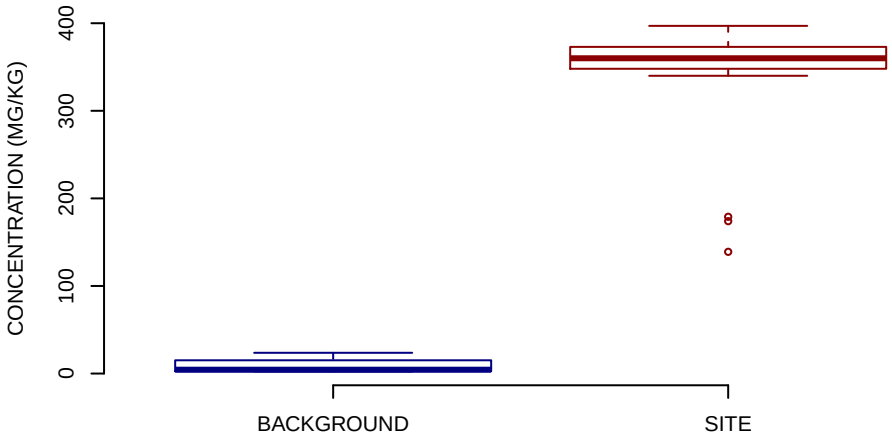
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

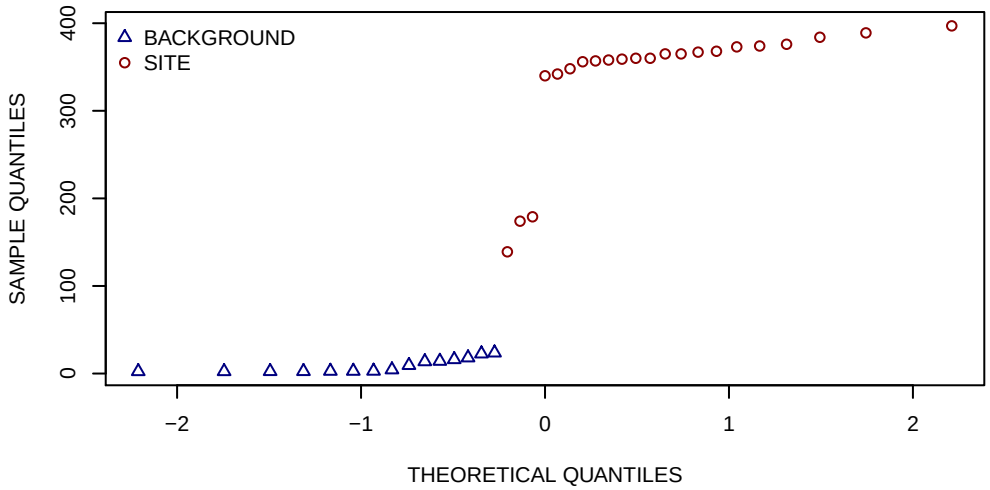
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

SODIUM SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 20 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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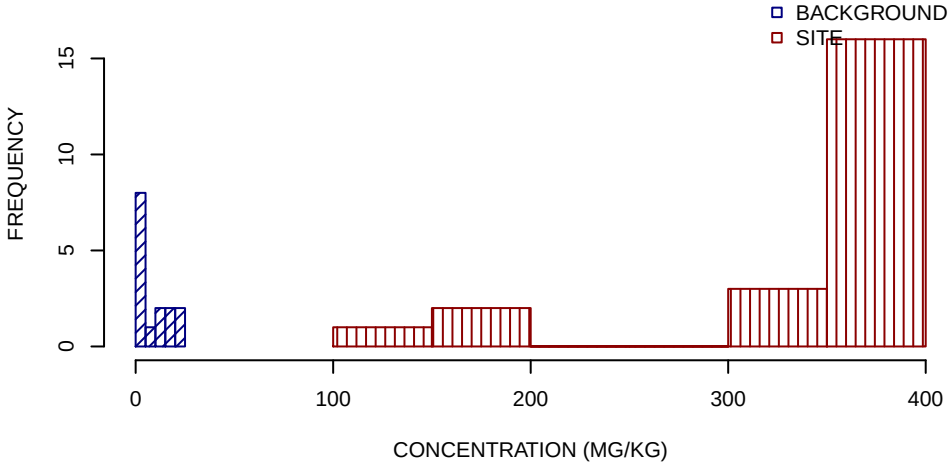


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	2.4	140
25TH PERCENTILE	2.6	350
MEDIAN	4.4	360
MEAN	9.4	340
75TH PERCENTILE	15	370
MAXIMUM	24	400

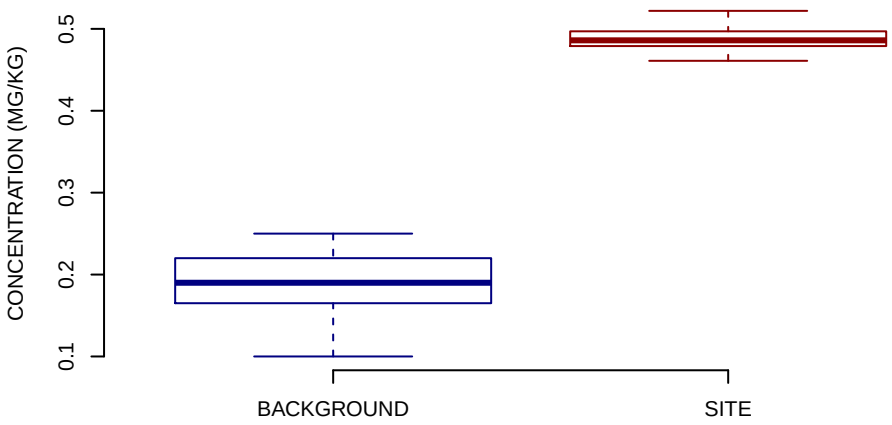
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

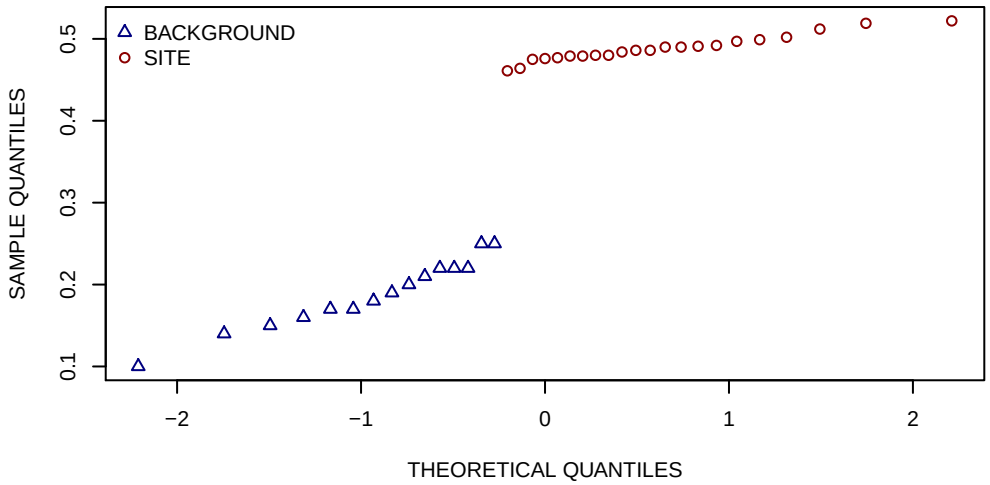
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

THALLIUM SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 21 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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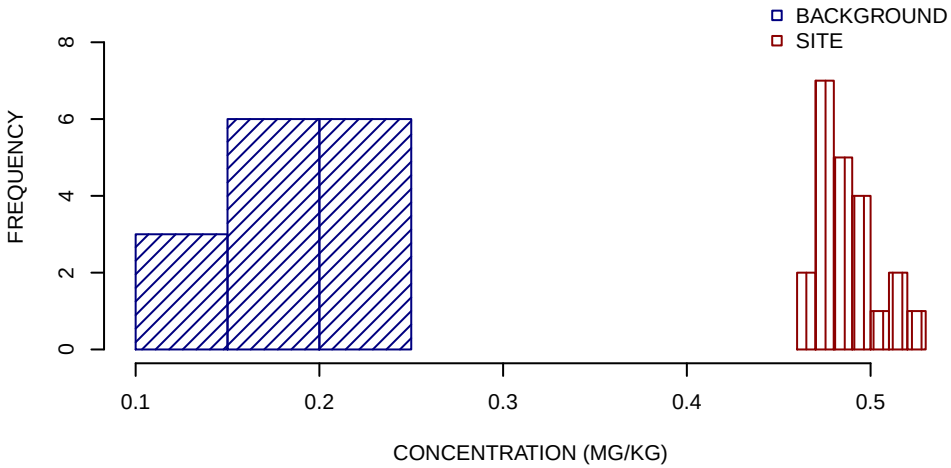


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.1	0.46
25TH PERCENTILE	0.16	0.48
MEDIAN	0.19	0.49
MEAN	0.19	0.49
75TH PERCENTILE	0.22	0.5
MAXIMUM	0.25	0.52

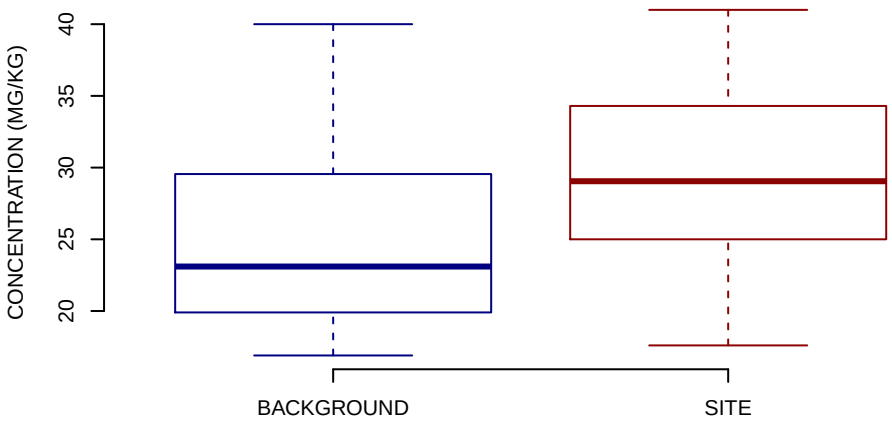
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

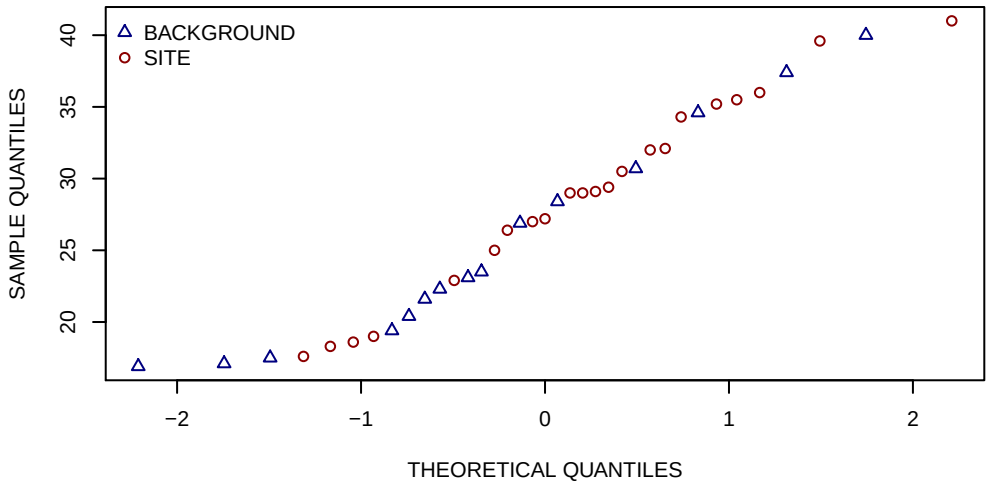
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

VANADIUM SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 22 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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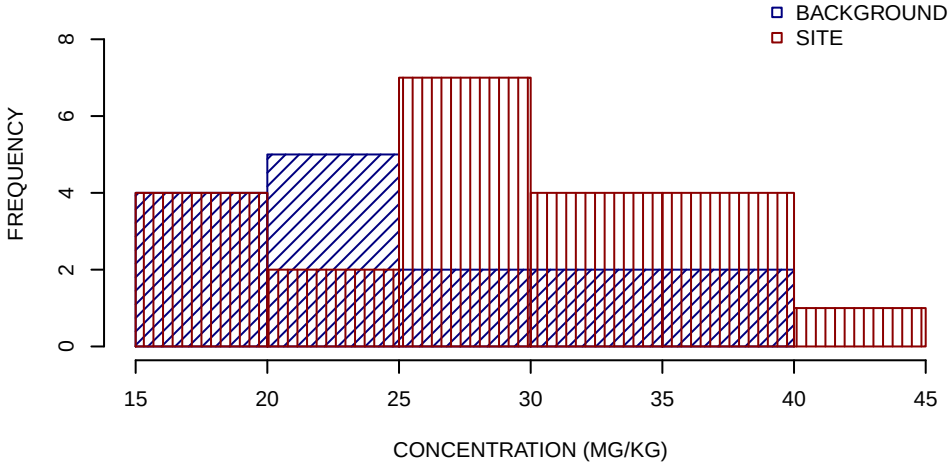


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	17	18
25TH PERCENTILE	20	25
MEDIAN	23	29
MEAN	25	29
75TH PERCENTILE	30	34
MAXIMUM	40	41

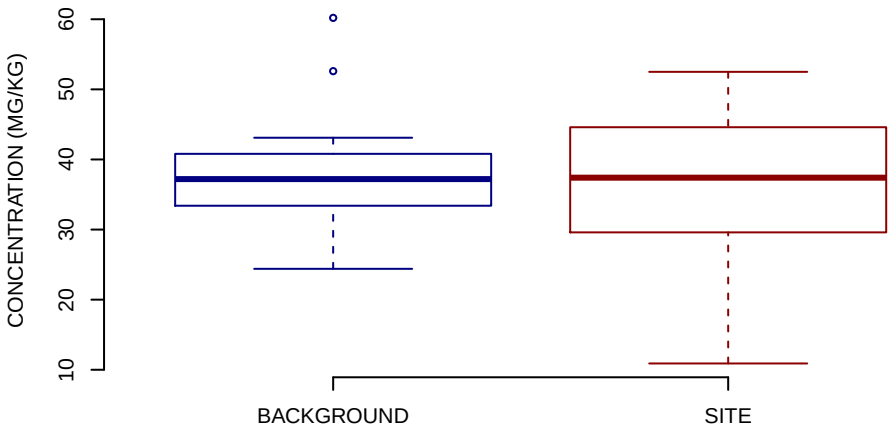
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

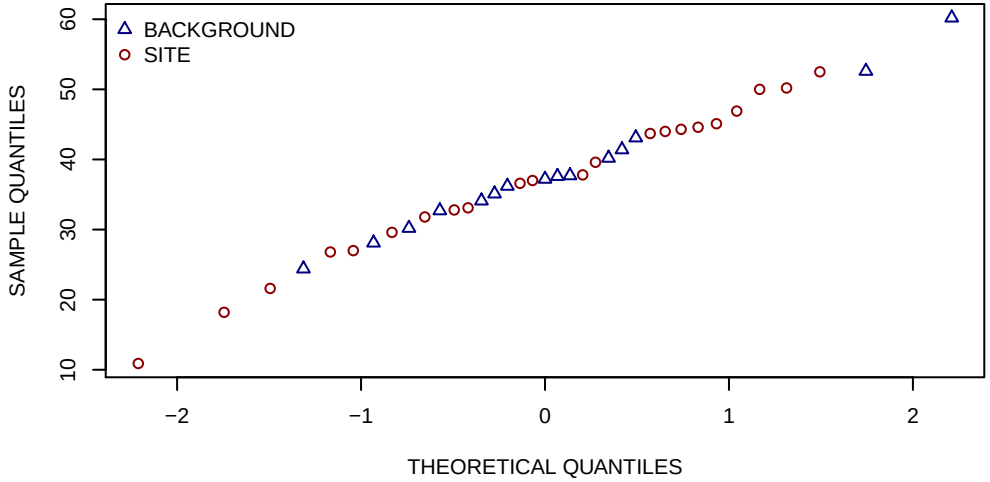
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

ZINC SURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 23 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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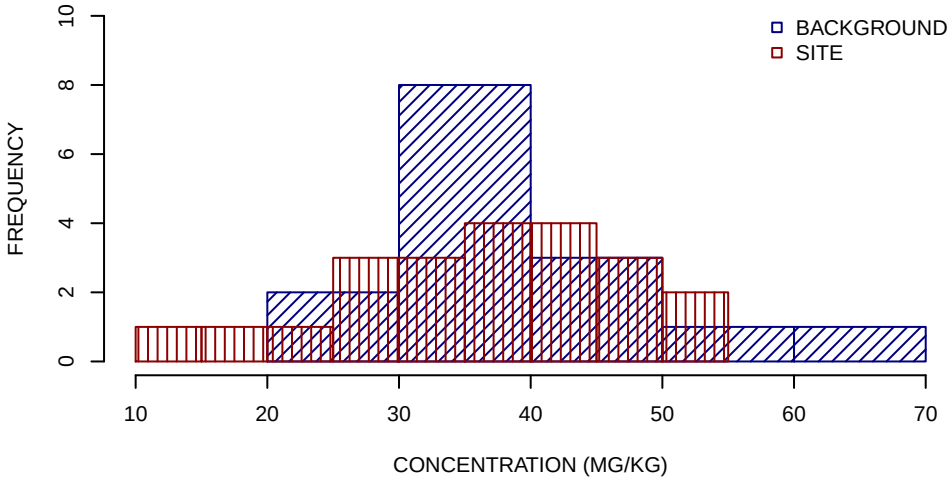


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	24	11
25TH PERCENTILE	33	30
MEDIAN	37	37
MEAN	38	37
75TH PERCENTILE	41	45
MAXIMUM	60	52

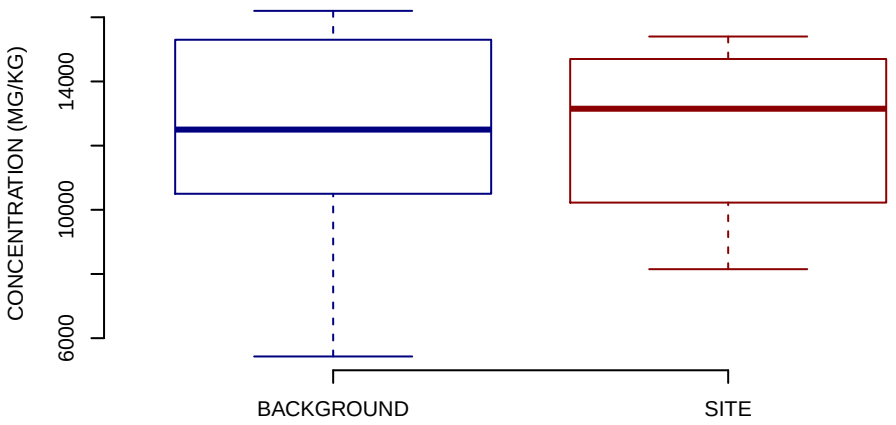
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

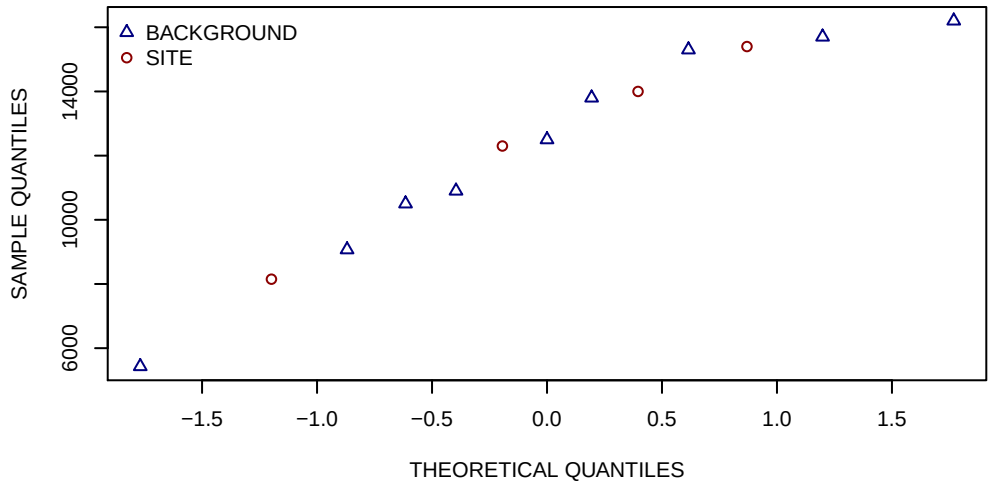
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

ALUMINUM SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 1 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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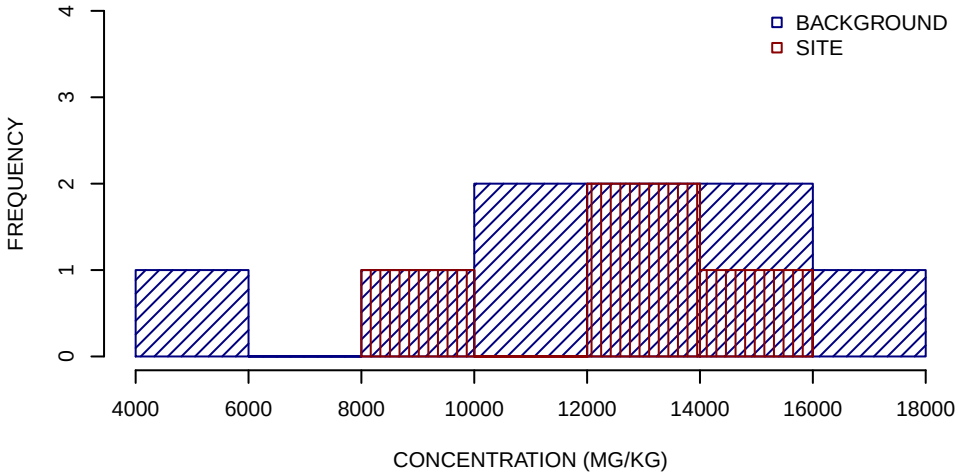


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	5400	8200
25TH PERCENTILE	10000	11000
MEDIAN	12000	13000
MEAN	12000	12000
75TH PERCENTILE	15000	14000
MAXIMUM	16000	15000

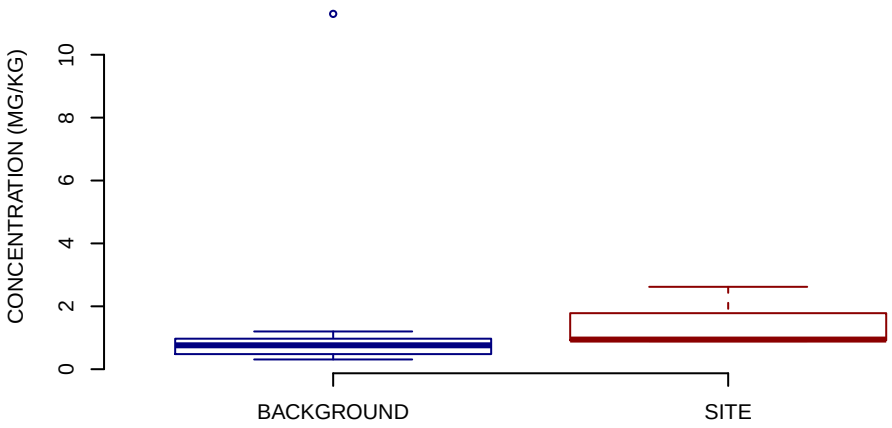
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

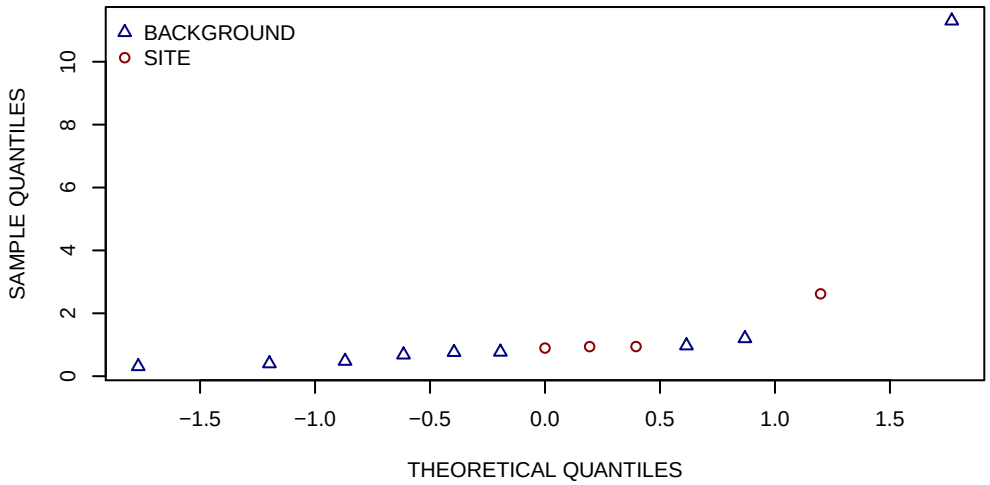
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

ANTIMONY SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 2 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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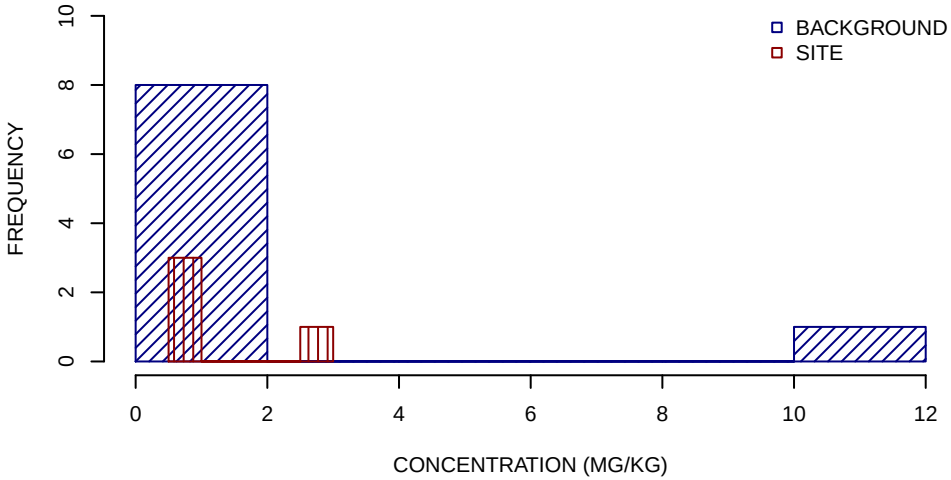


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.31	0.9
25TH PERCENTILE	0.48	0.93
MEDIAN	0.76	0.94
MEAN	1.9	1.4
75TH PERCENTILE	0.97	1.4
MAXIMUM	11	2.6

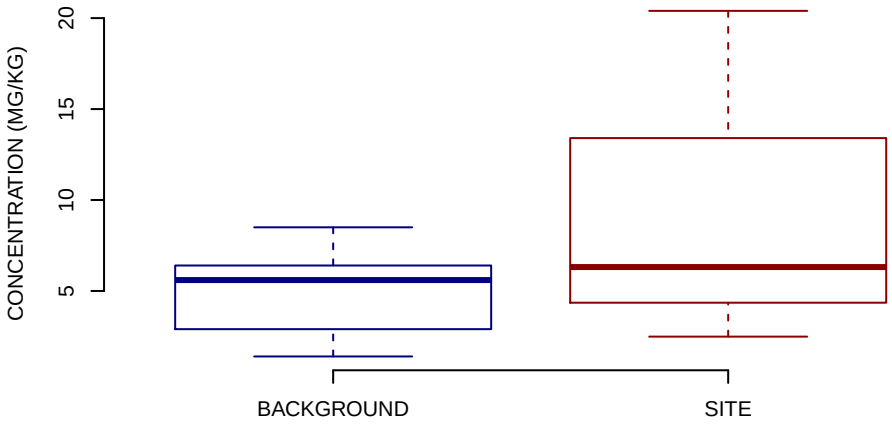
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

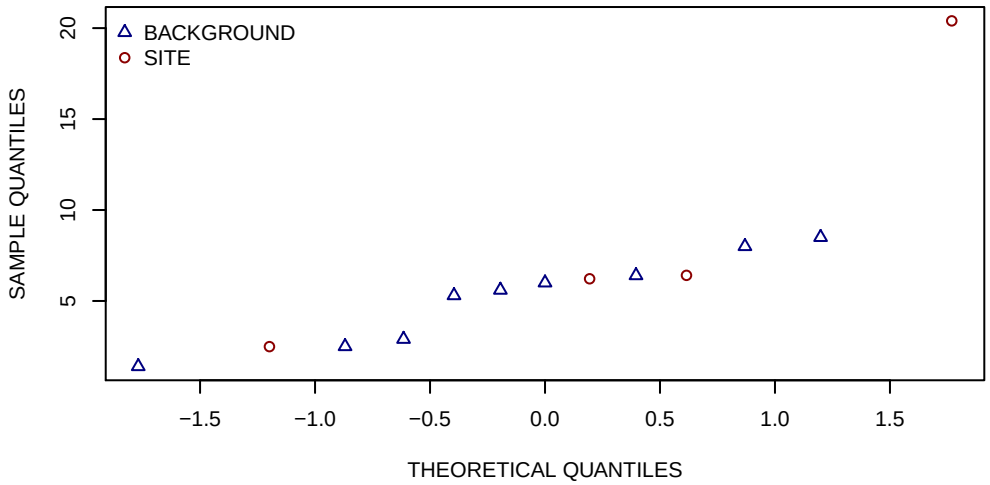
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

ARSENIC SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 3 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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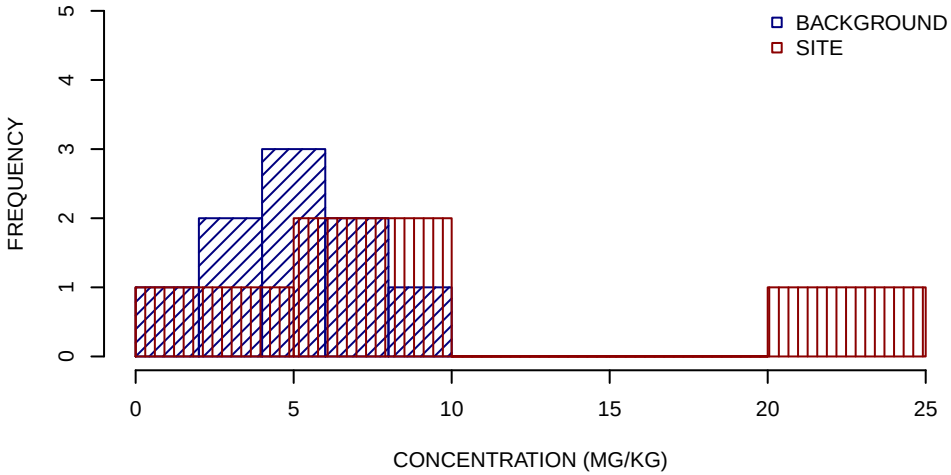


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	1.4	2.5
25TH PERCENTILE	2.9	5.3
MEDIAN	5.6	6.3
MEAN	5.2	8.9
75TH PERCENTILE	6.4	9.9
MAXIMUM	8.5	20

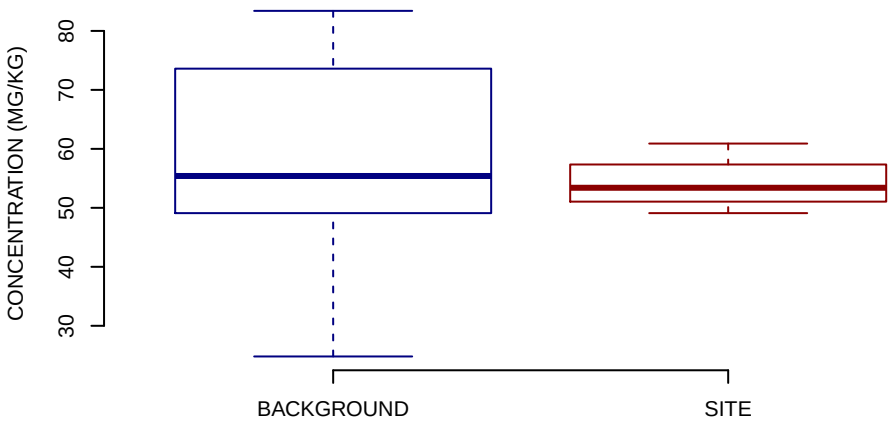
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

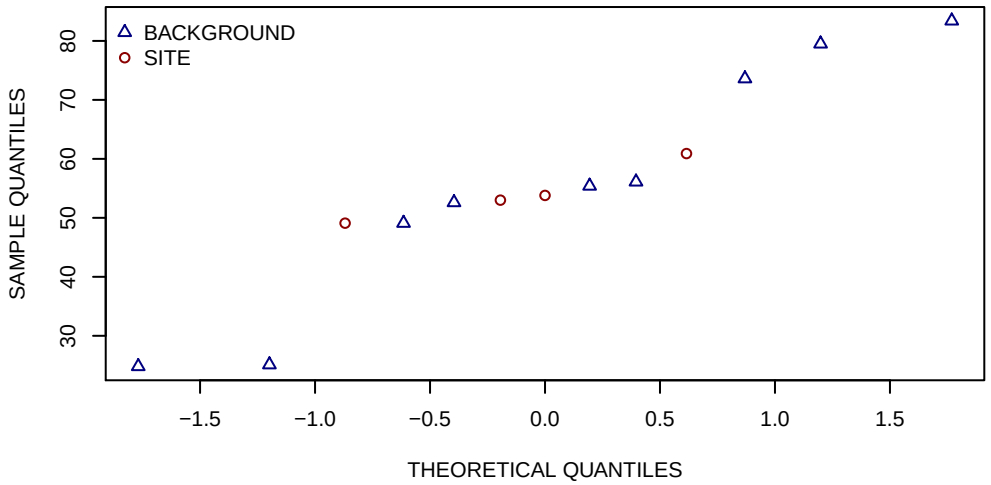
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

BARIUM SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 4 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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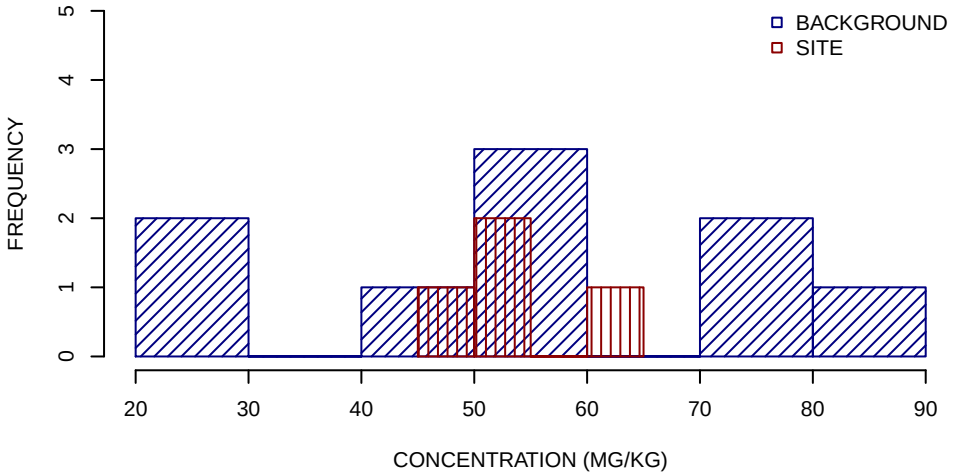


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	25	49
25TH PERCENTILE	49	52
MEDIAN	55	53
MEAN	56	54
75TH PERCENTILE	74	56
MAXIMUM	83	61

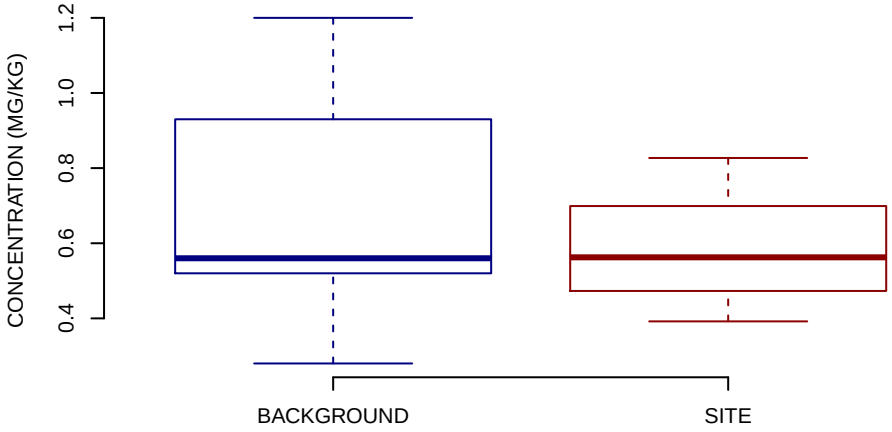
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

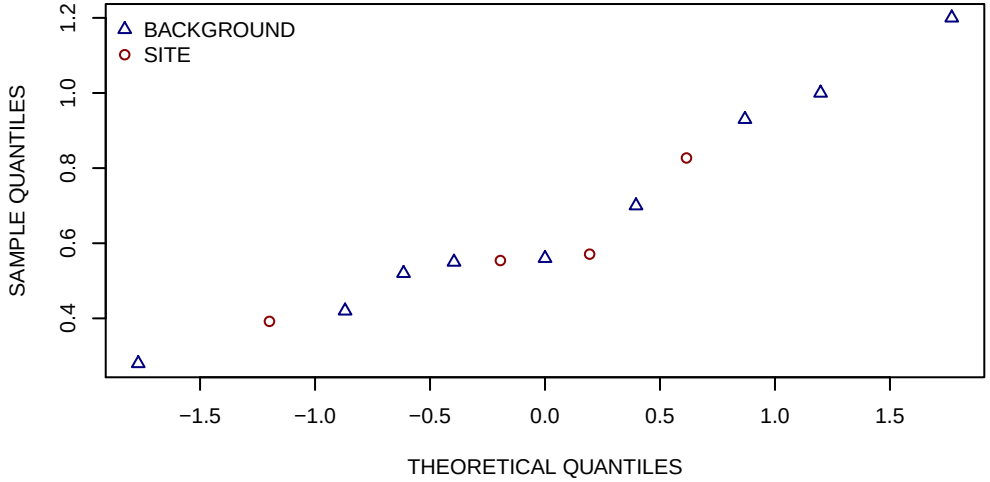
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

BERYLLIUM SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 5 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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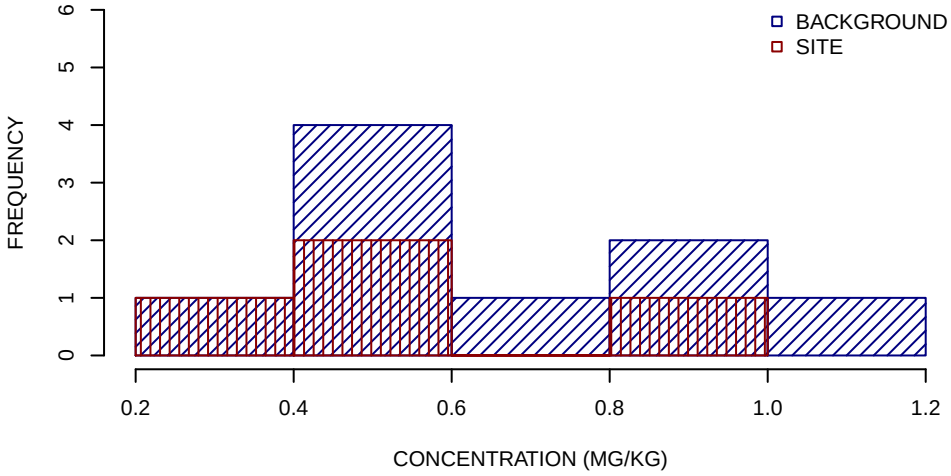


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.28	0.39
25TH PERCENTILE	0.52	0.51
MEDIAN	0.56	0.56
MEAN	0.68	0.59
75TH PERCENTILE	0.93	0.64
MAXIMUM	1.2	0.83

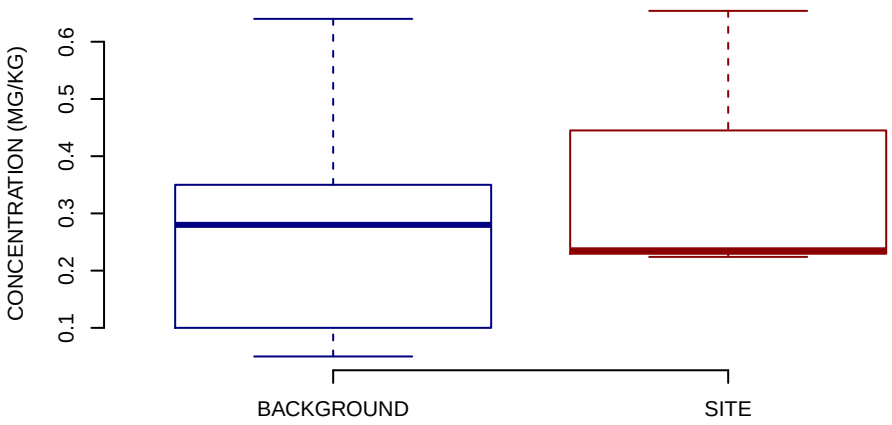
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

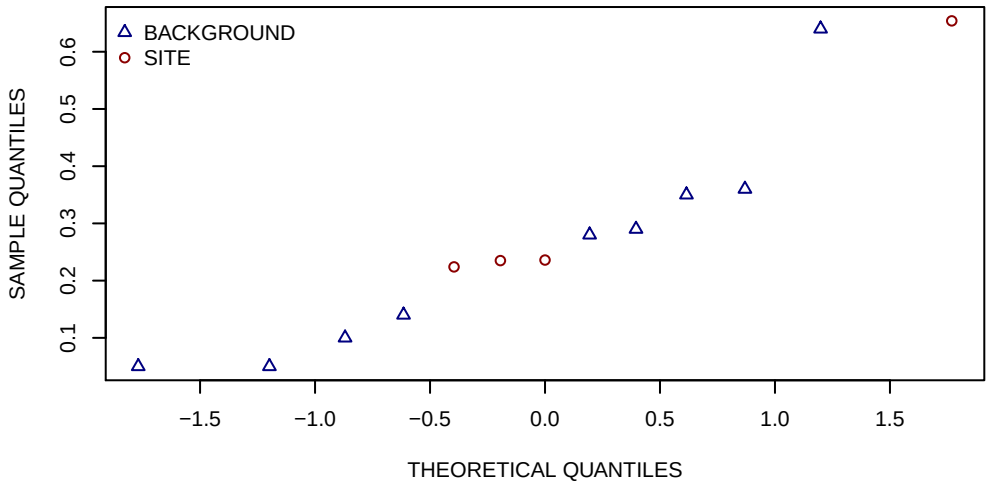
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

CADMIUM SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 6 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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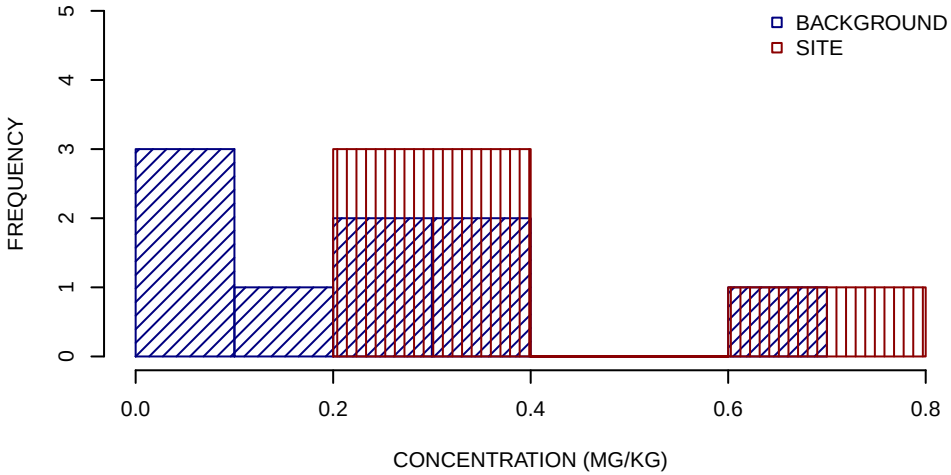


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.05	0.22
25TH PERCENTILE	0.1	0.23
MEDIAN	0.28	0.24
MEAN	0.25	0.34
75TH PERCENTILE	0.35	0.34
MAXIMUM	0.64	0.65

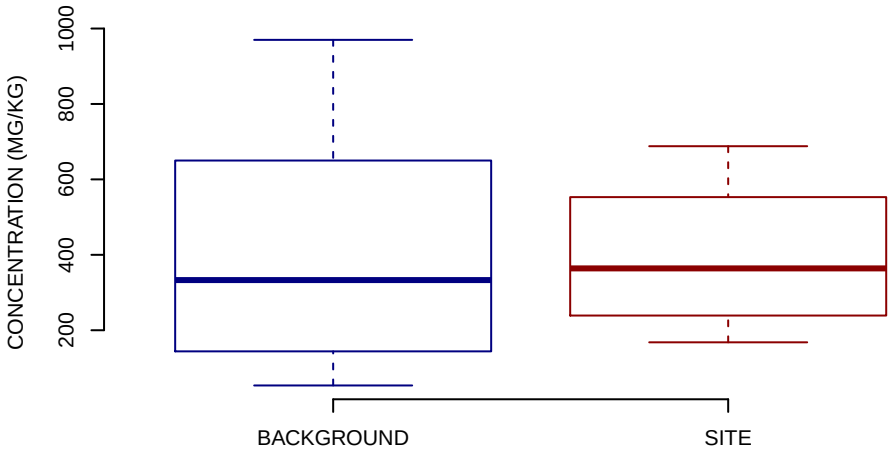
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

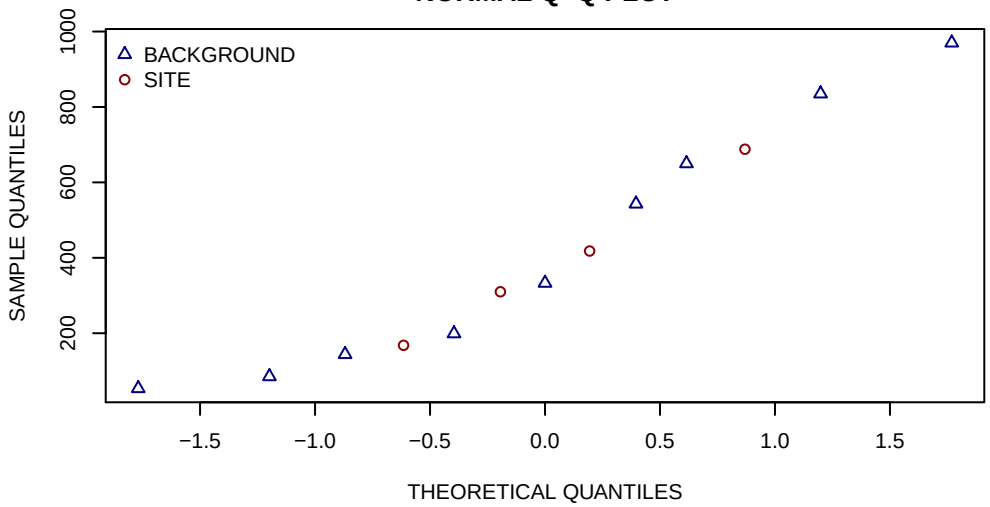
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

CALCIUM SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 7 OF 23

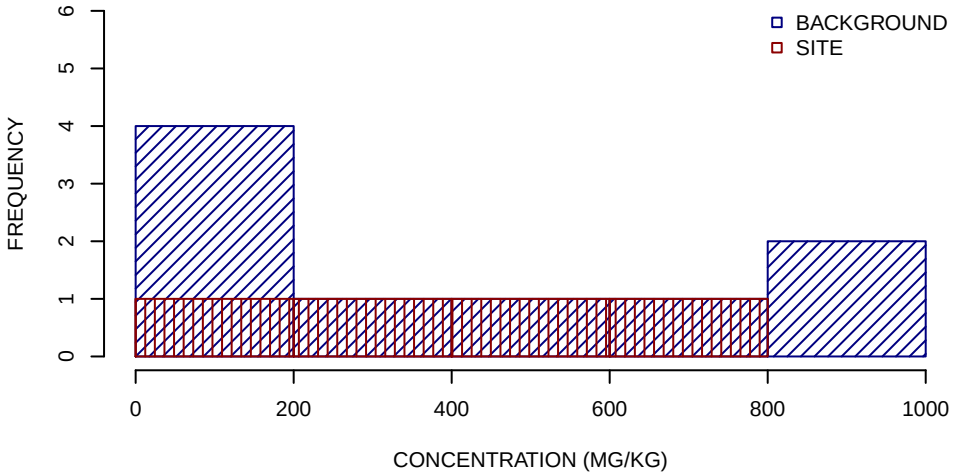
BOXPLOTS



NORMAL Q−Q PLOT



HISTOGRAMS



SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	54	170
25TH PERCENTILE	140	270
MEDIAN	330	360
MEAN	420	400
75TH PERCENTILE	650	490
MAXIMUM	970	690

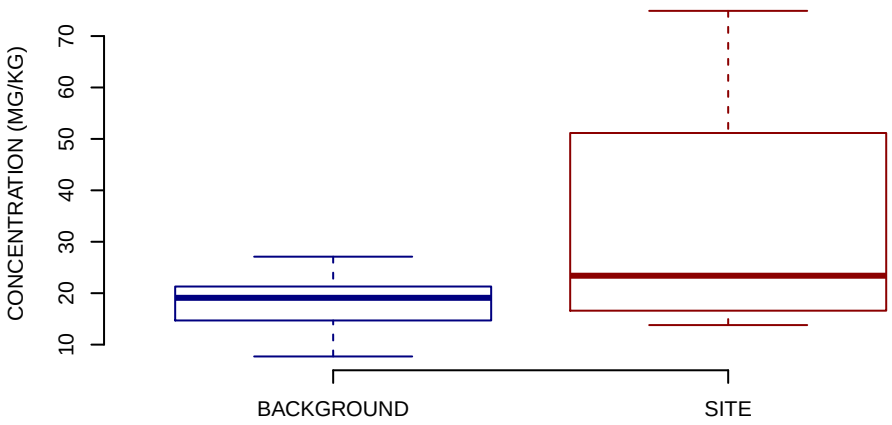
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

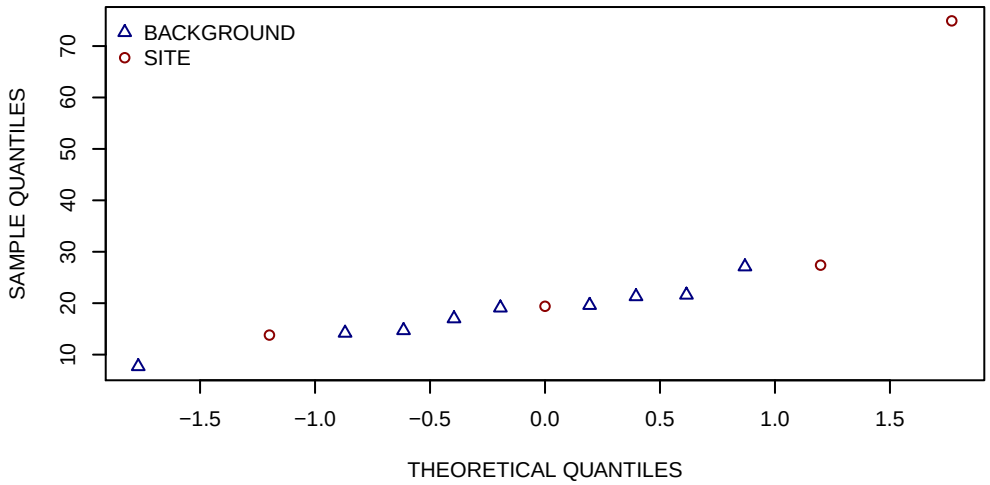
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

CHROMIUM SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 8 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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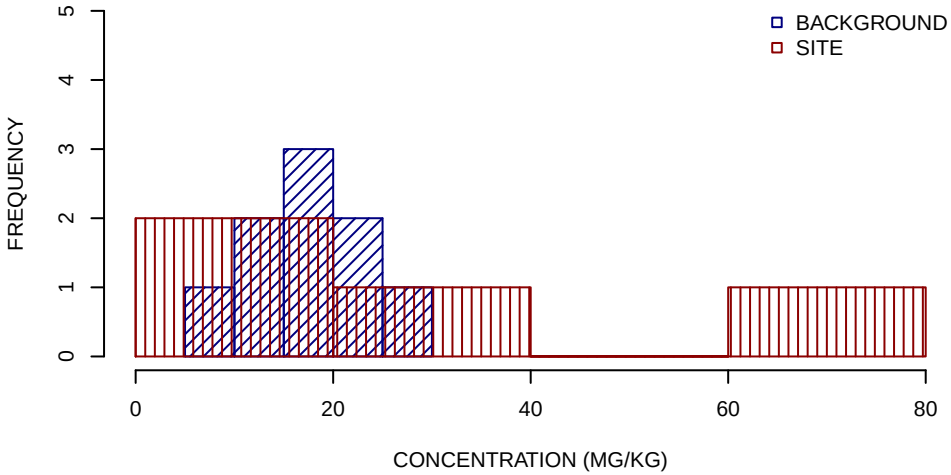


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	7.7	14
25TH PERCENTILE	15	18
MEDIAN	19	23
MEAN	18	34
75TH PERCENTILE	21	39
MAXIMUM	27	75

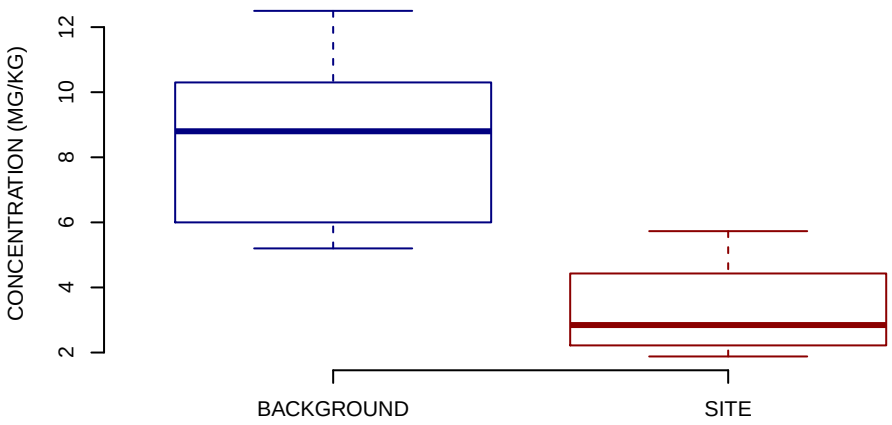
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

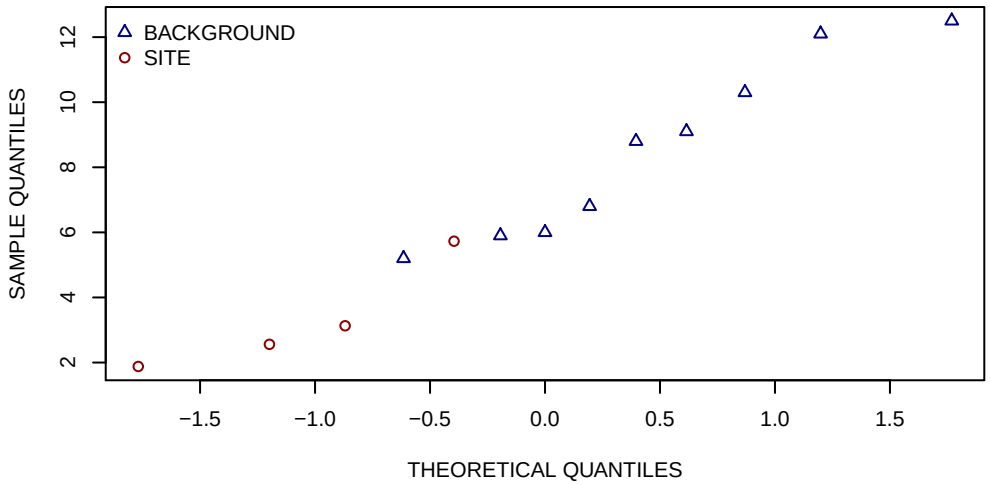
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

COBALT SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 9 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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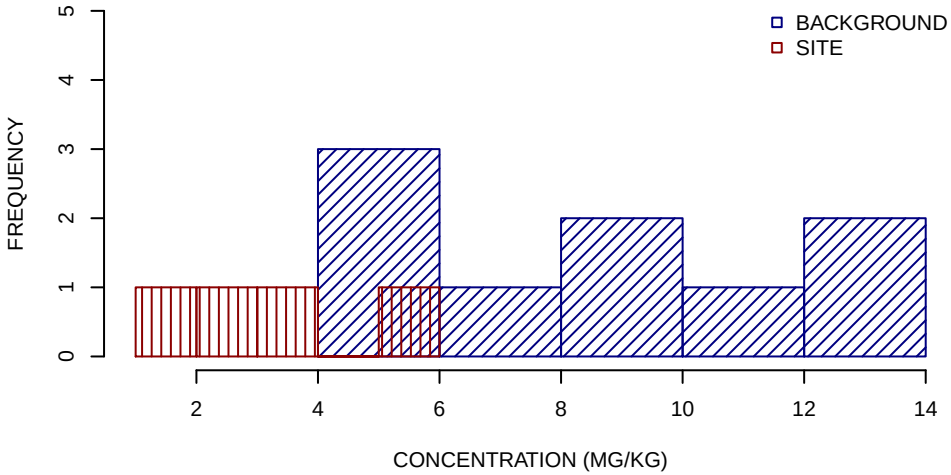


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	5.2	1.9
25TH PERCENTILE	6	2.4
MEDIAN	8.8	2.8
MEAN	8.5	3.3
75TH PERCENTILE	10	3.8
MAXIMUM	12	5.7

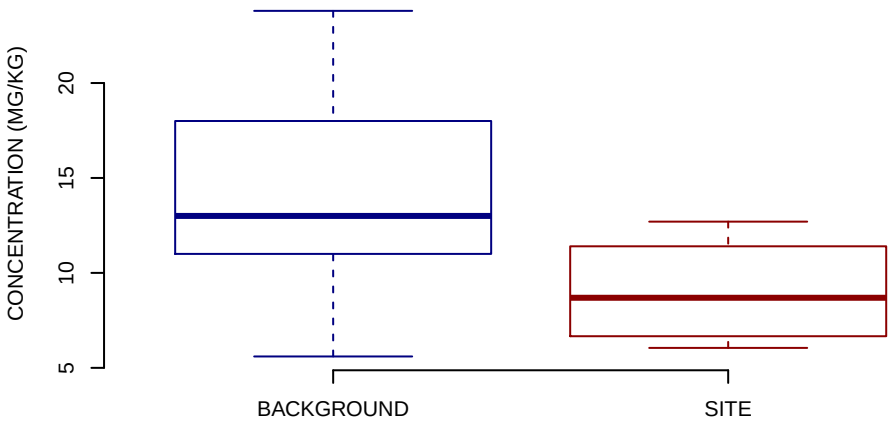
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

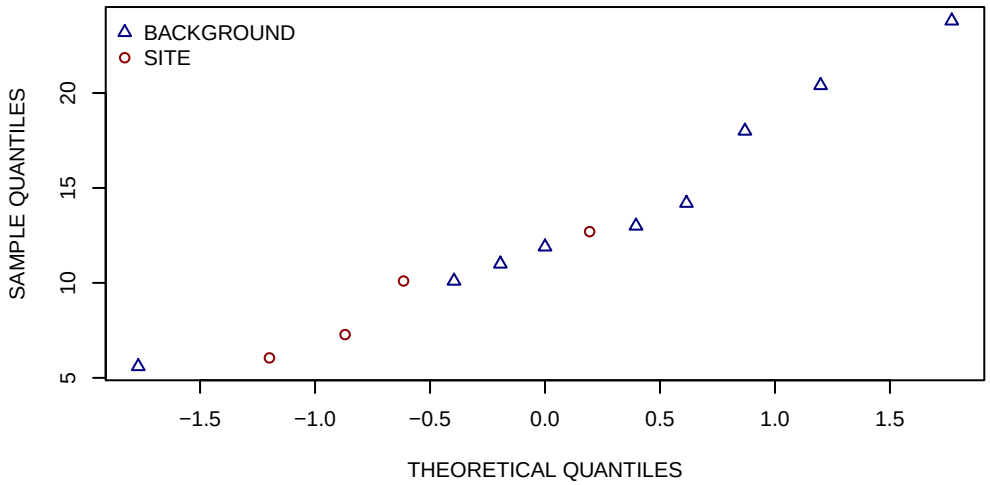
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

COPPER SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 10 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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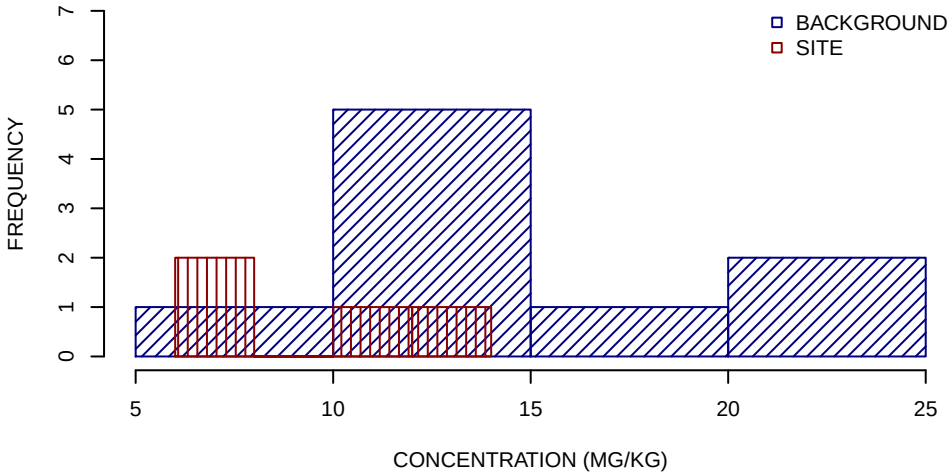


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	5.6	6
25TH PERCENTILE	11	7
MEDIAN	13	8.7
MEAN	14	9
75TH PERCENTILE	18	11
MAXIMUM	24	13

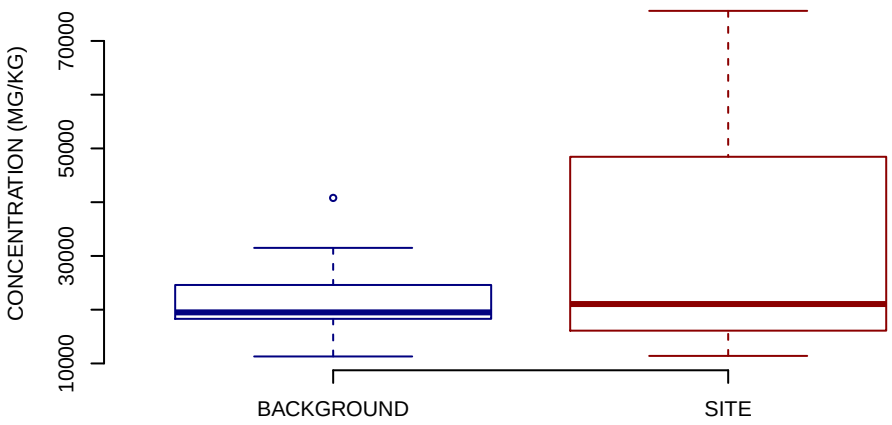
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

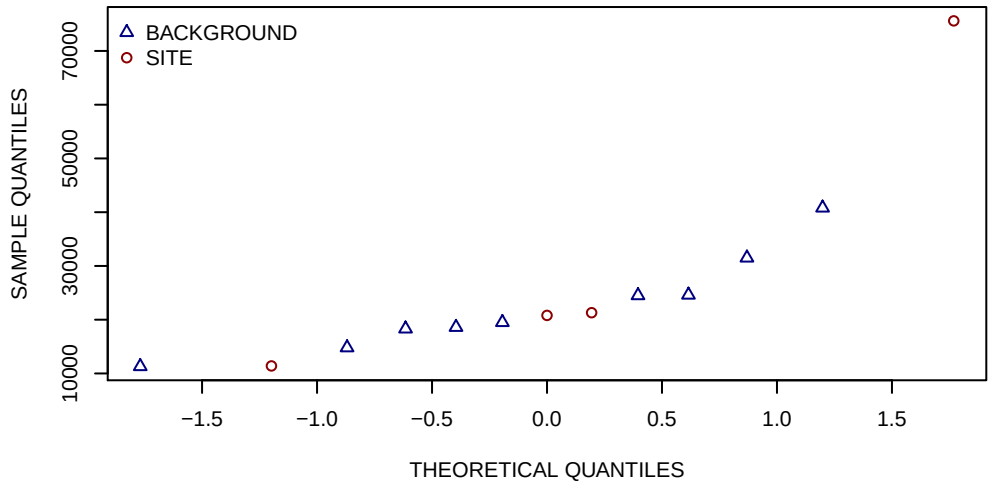
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

IRON SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 11 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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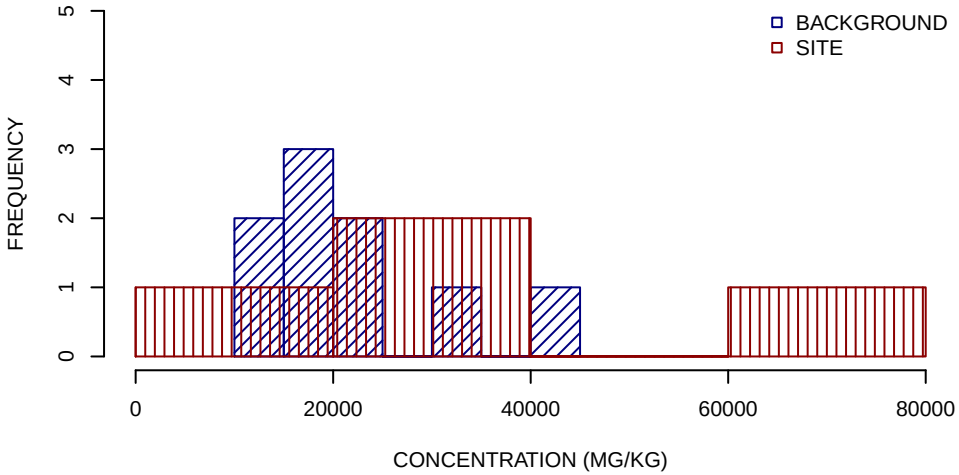


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	11000	11000
25TH PERCENTILE	18000	18000
MEDIAN	20000	21000
MEAN	23000	32000
75TH PERCENTILE	25000	35000
MAXIMUM	41000	76000

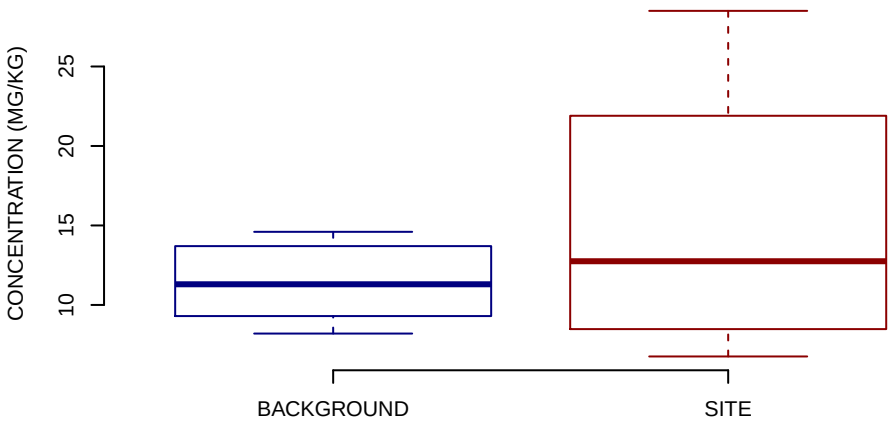
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

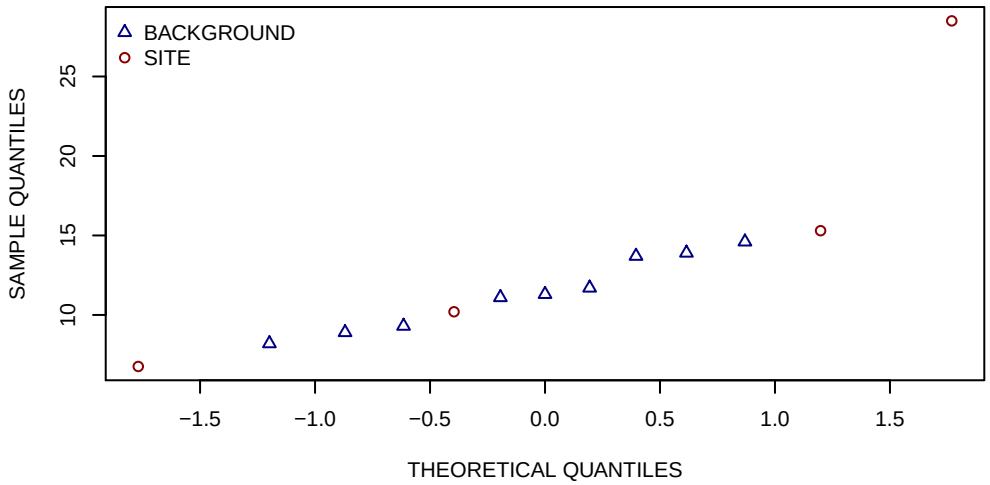
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

LEAD SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 12 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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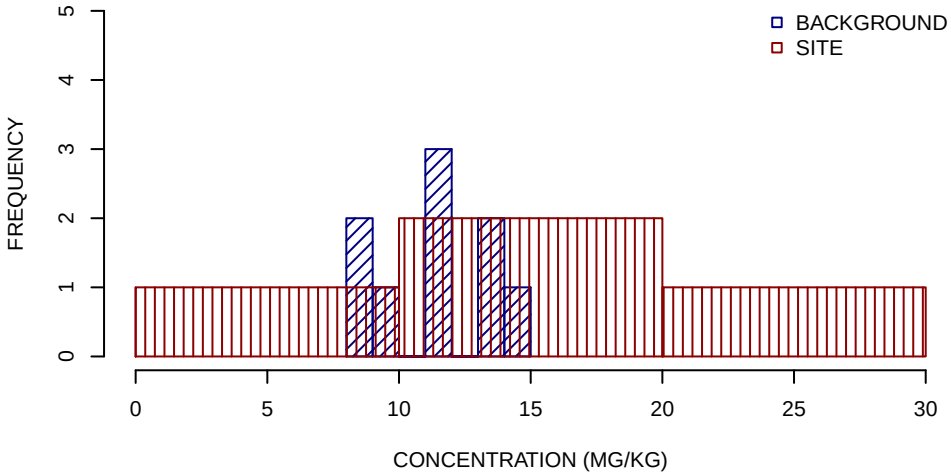


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	8.2	6.8
25TH PERCENTILE	9.3	9.3
MEDIAN	11	13
MEAN	11	15
75TH PERCENTILE	14	19
MAXIMUM	15	28

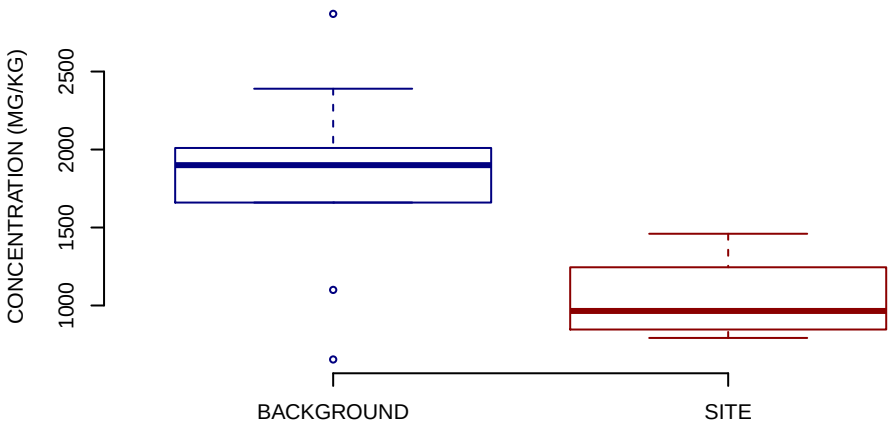
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

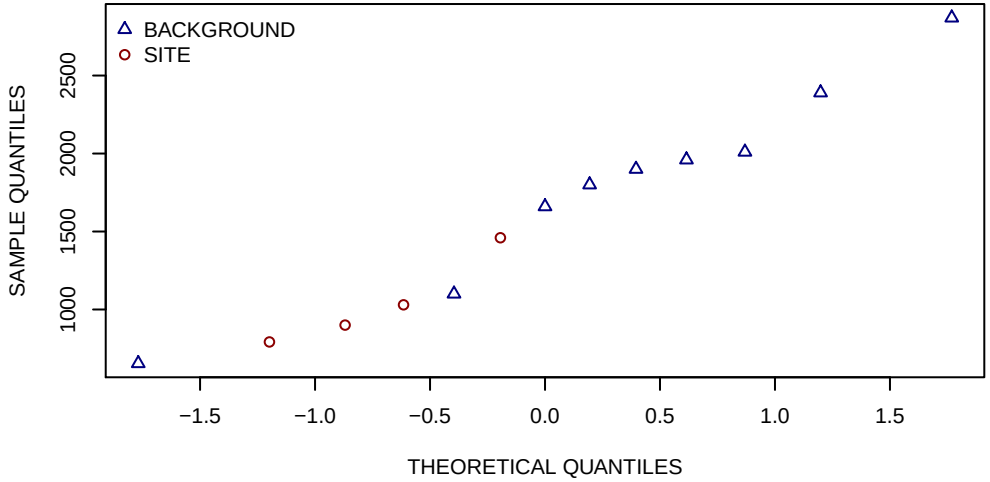
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

MAGNESIUM SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 13 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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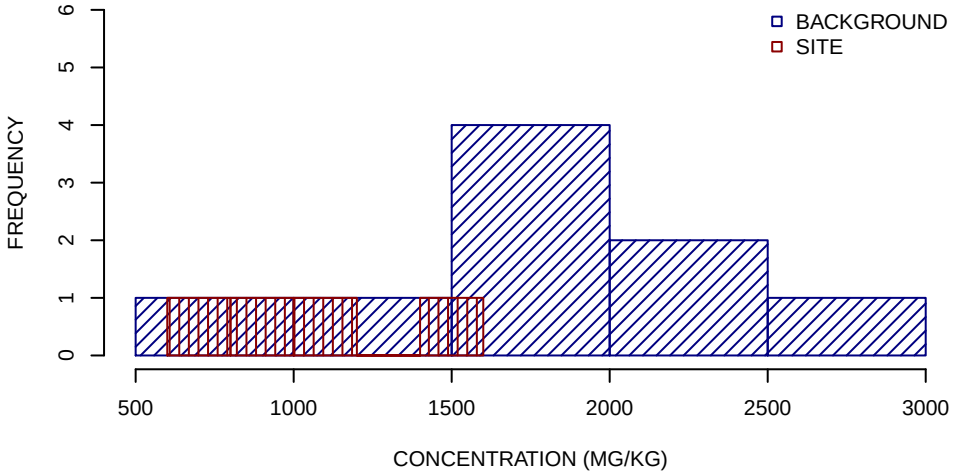


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	650	790
25TH PERCENTILE	1700	870
MEDIAN	1900	960
MEAN	1800	1000
75TH PERCENTILE	2000	1100
MAXIMUM	2900	1500

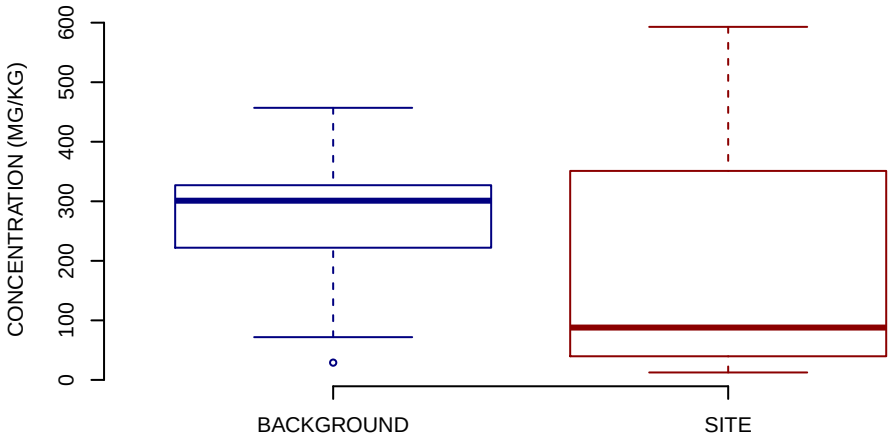
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

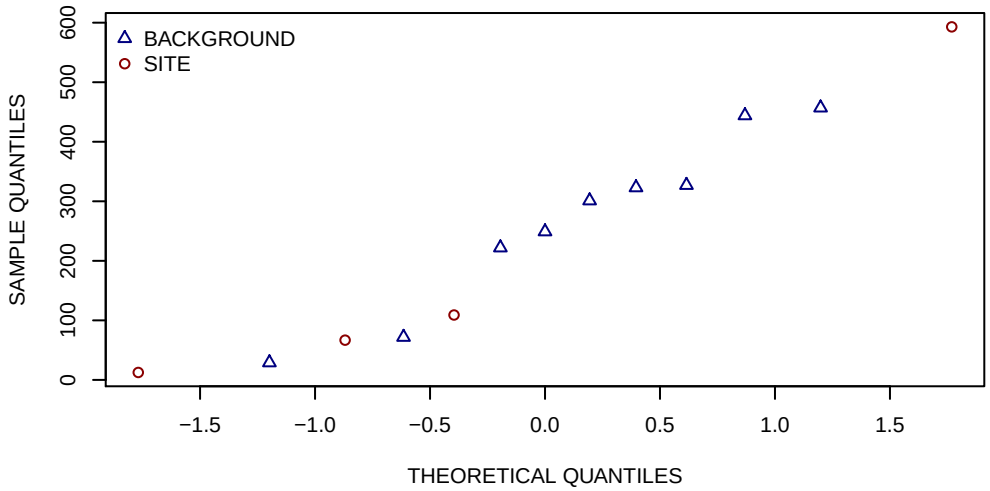
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

MANGANESE SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 14 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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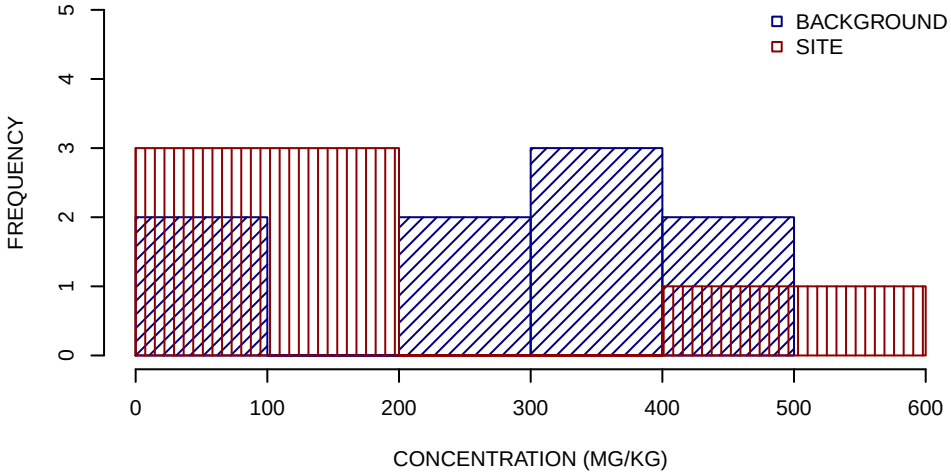


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	29	12
25TH PERCENTILE	220	53
MEDIAN	300	88
MEAN	270	200
75TH PERCENTILE	330	230
MAXIMUM	460	590

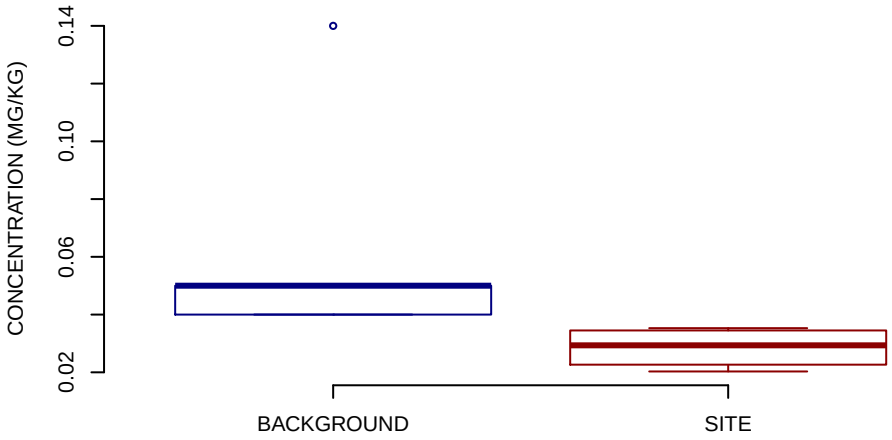
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

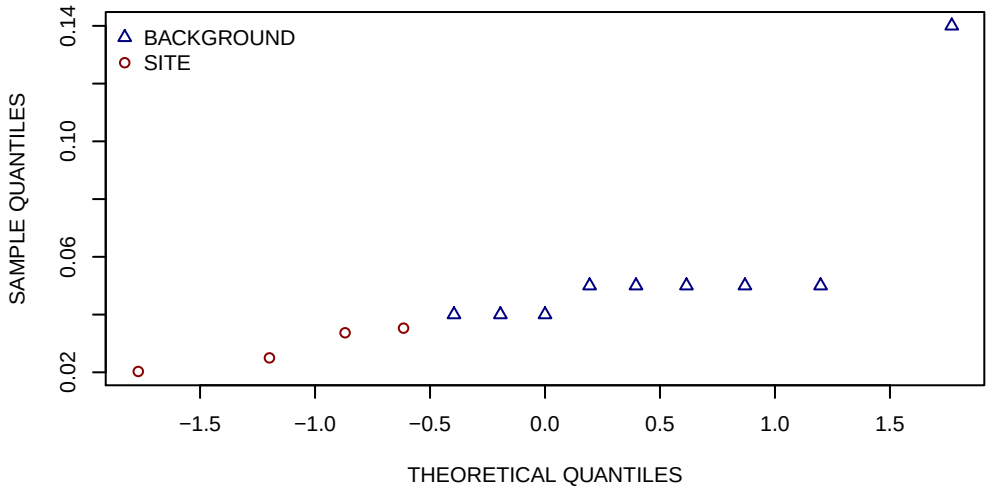
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

MERCURY SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 15 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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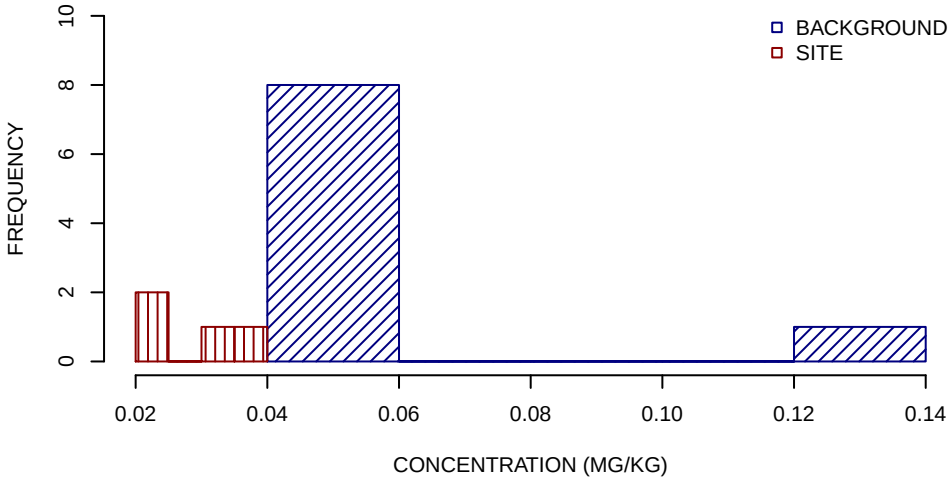


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.04	0.02
25TH PERCENTILE	0.04	0.024
MEDIAN	0.05	0.029
MEAN	0.057	0.029
75TH PERCENTILE	0.05	0.034
MAXIMUM	0.14	0.035

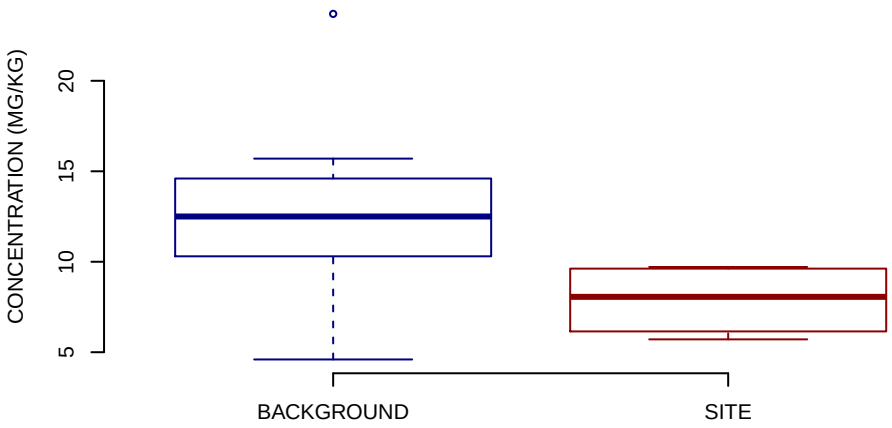
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

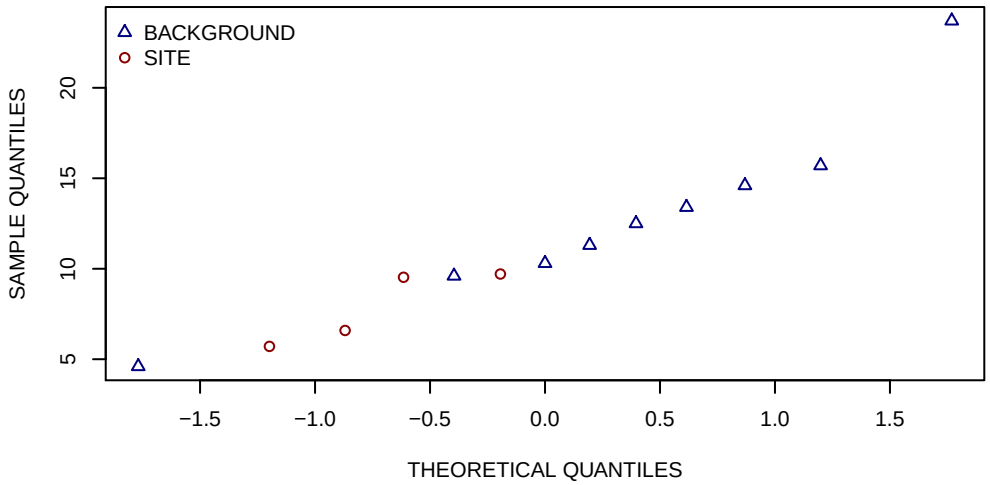
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

NICKEL SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 16 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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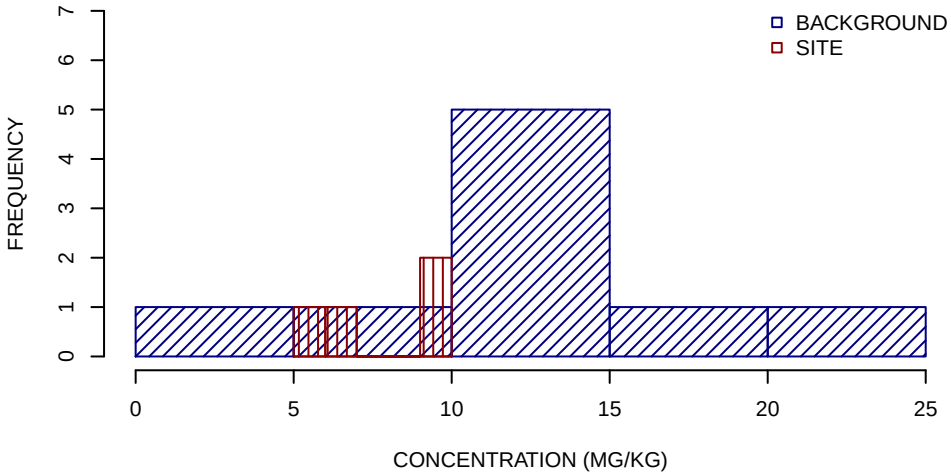


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	4.6	5.7
25TH PERCENTILE	10	6.4
MEDIAN	12	8.1
MEAN	13	7.9
75TH PERCENTILE	15	9.6
MAXIMUM	24	9.7

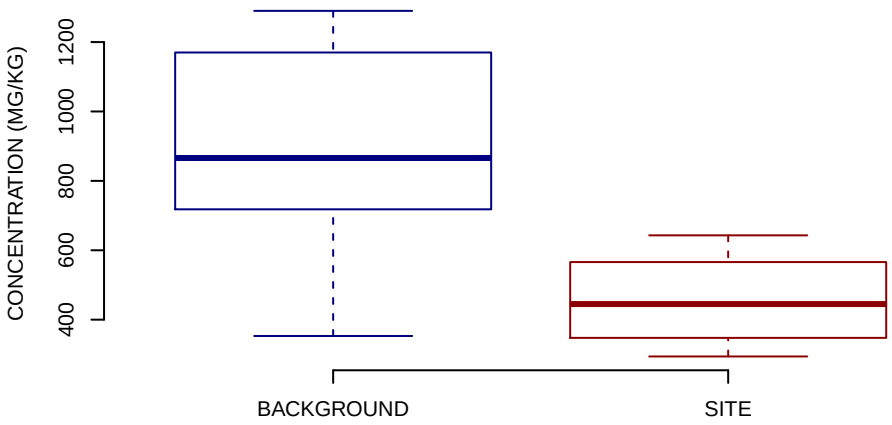
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

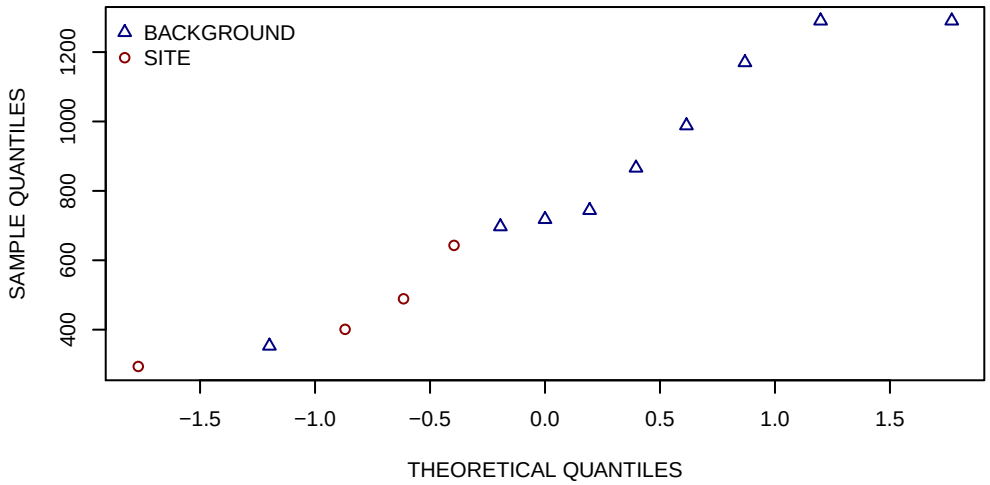
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

POTASSIUM SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 17 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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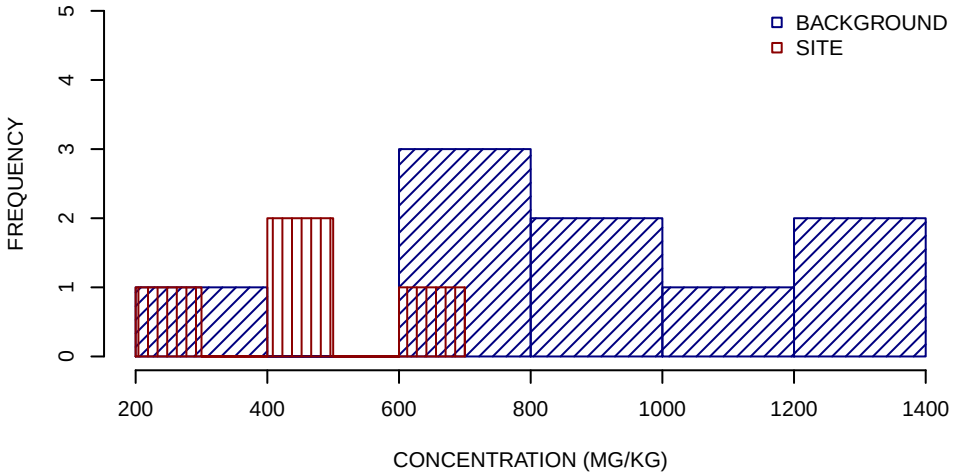


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	350	290
25TH PERCENTILE	720	370
MEDIAN	870	440
MEAN	900	460
75TH PERCENTILE	1200	530
MAXIMUM	1300	640

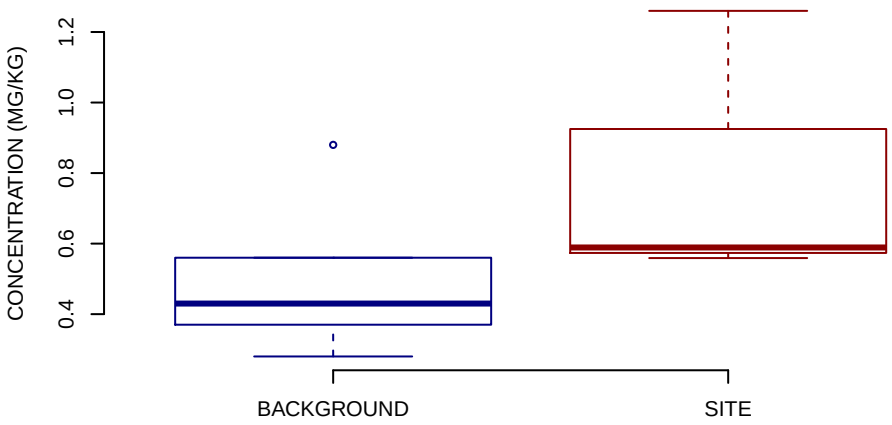
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

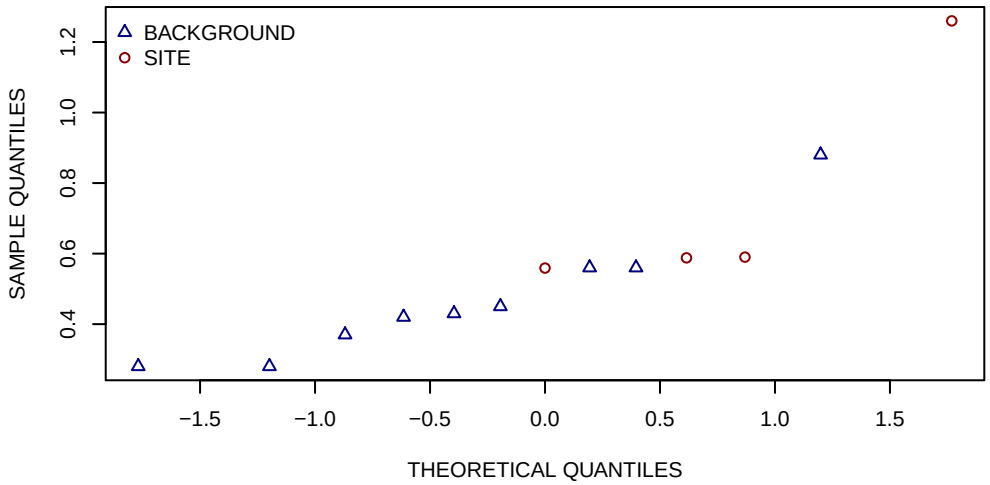
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

SELENIUM SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 18 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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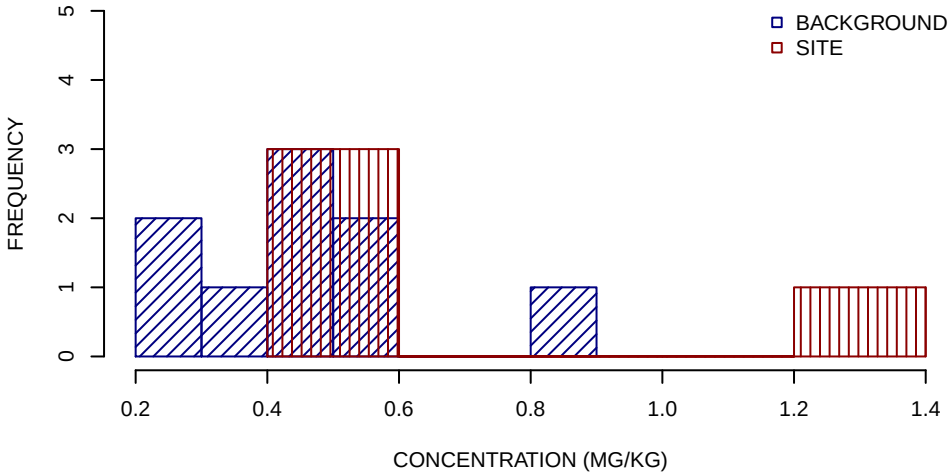


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.28	0.56
25TH PERCENTILE	0.37	0.58
MEDIAN	0.43	0.59
MEAN	0.47	0.75
75TH PERCENTILE	0.56	0.76
MAXIMUM	0.88	1.3

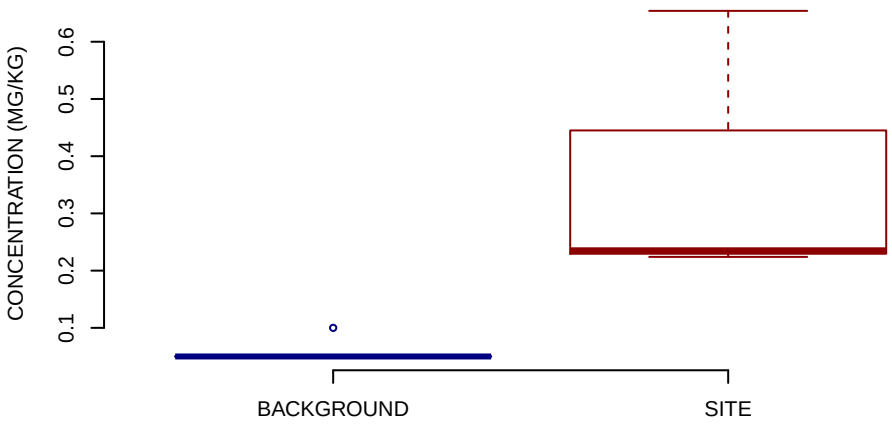
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

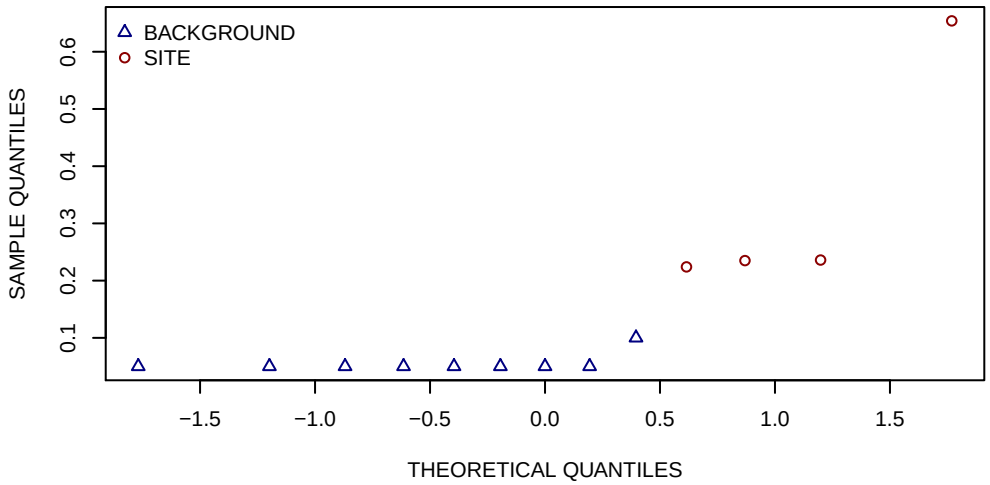
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

SILVER SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 19 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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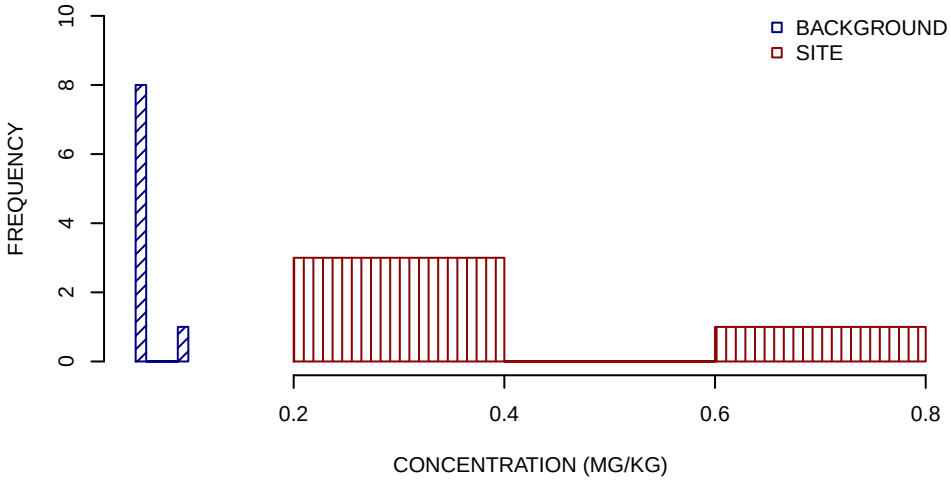


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.05	0.22
25TH PERCENTILE	0.05	0.23
MEDIAN	0.05	0.24
MEAN	0.056	0.34
75TH PERCENTILE	0.05	0.34
MAXIMUM	0.1	0.65

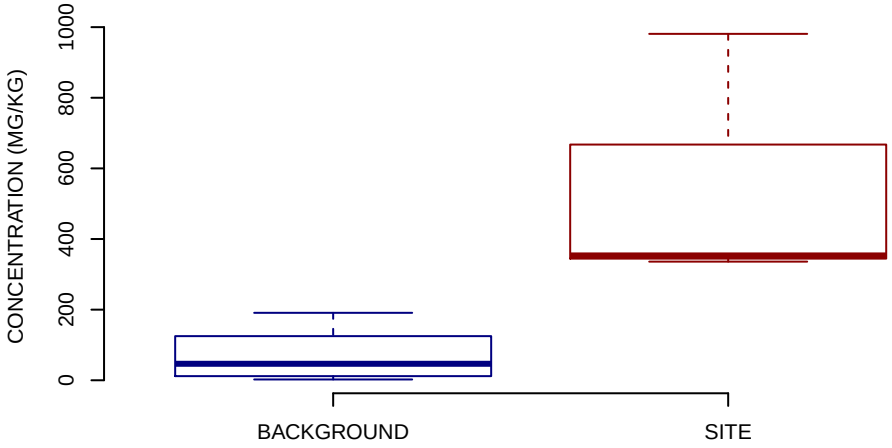
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

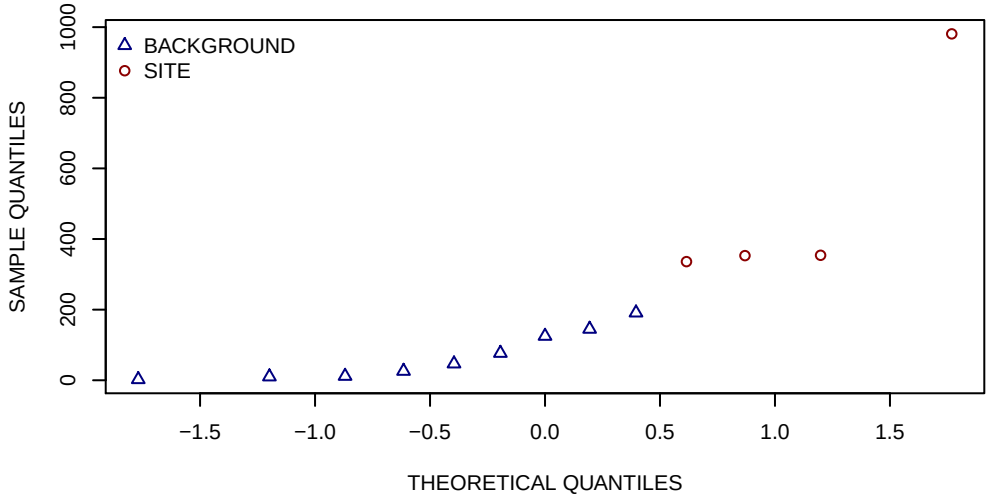
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

SODIUM SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 20 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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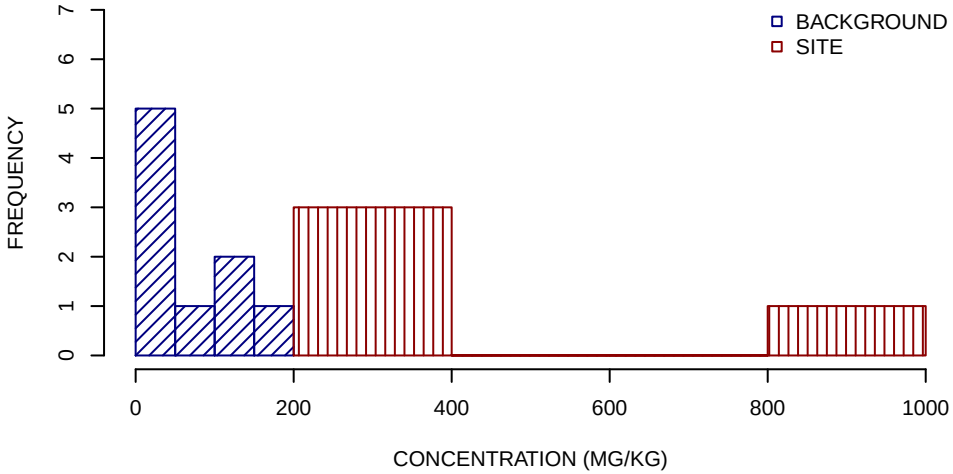


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	2.3	340
25TH PERCENTILE	12	350
MEDIAN	47	350
MEAN	70	510
75TH PERCENTILE	120	510
MAXIMUM	190	980

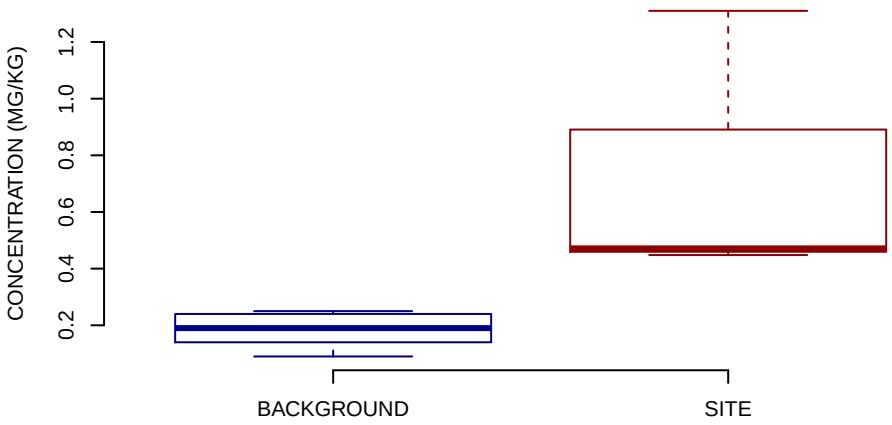
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

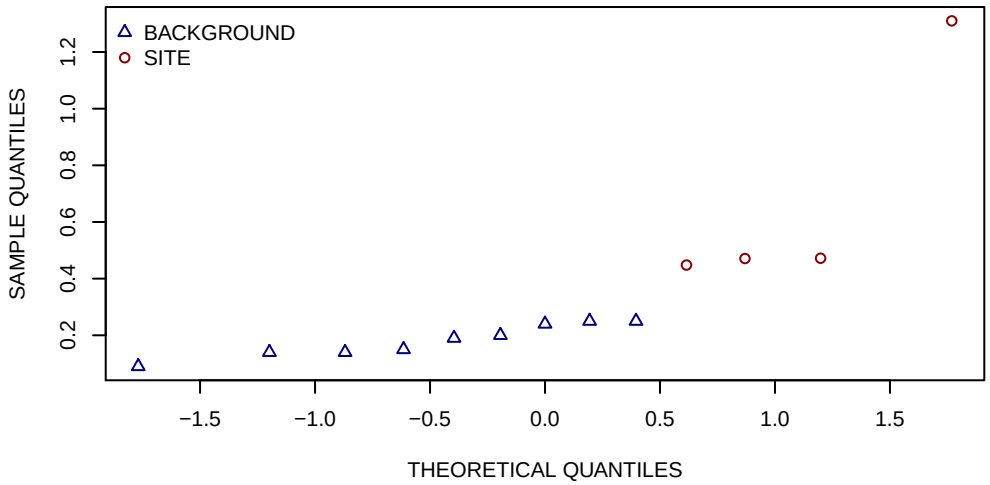
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

THALLIUM SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 21 OF 23

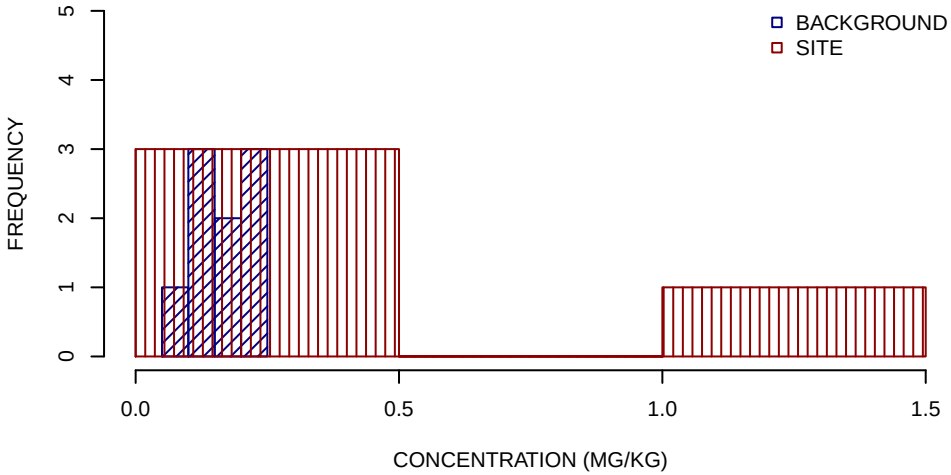
BOXPLOTS



NORMAL Q−Q PLOT



HISTOGRAMS



SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.09	0.45
25TH PERCENTILE	0.14	0.47
MEDIAN	0.19	0.47
MEAN	0.18	0.68
75TH PERCENTILE	0.24	0.68
MAXIMUM	0.25	1.3

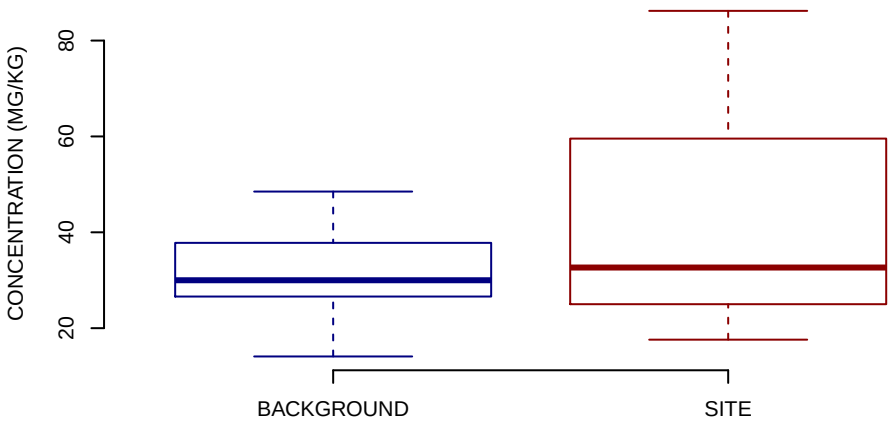
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

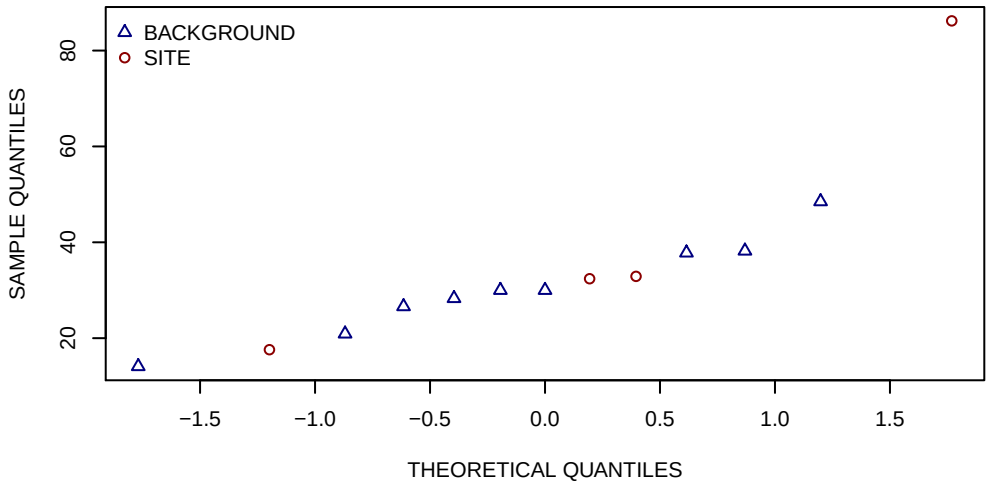
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

VANADIUM SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 22 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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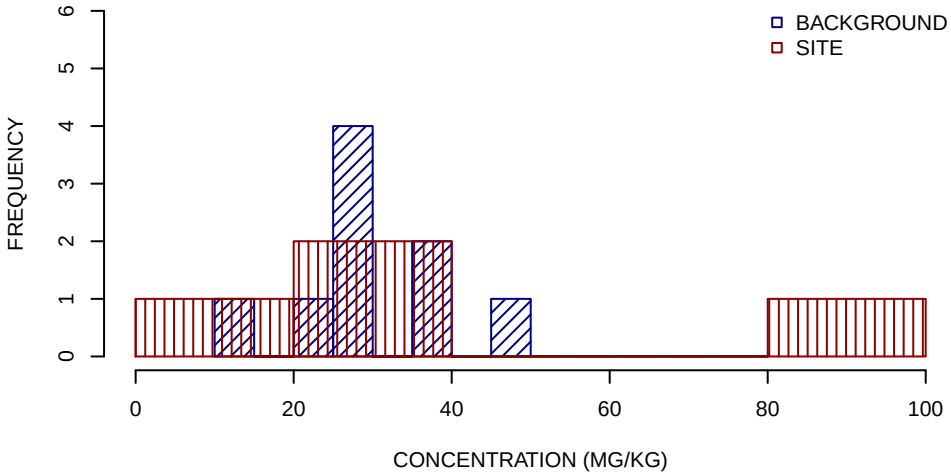


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	14	18
25TH PERCENTILE	27	29
MEDIAN	30	33
MEAN	30	42
75TH PERCENTILE	38	46
MAXIMUM	48	86

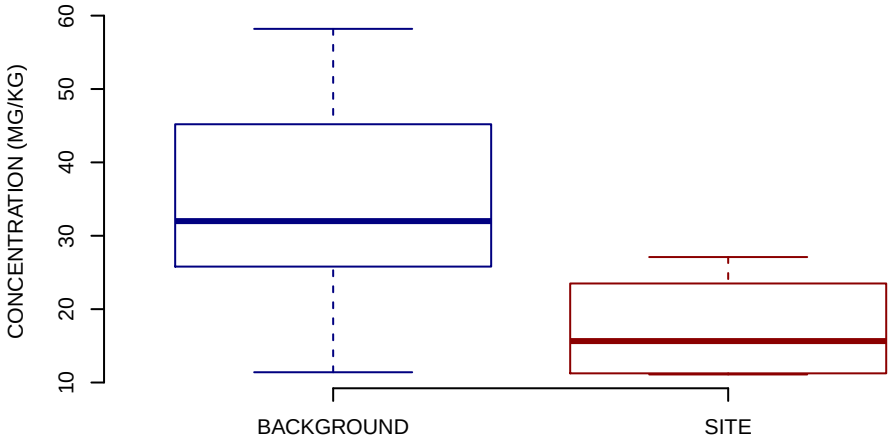
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

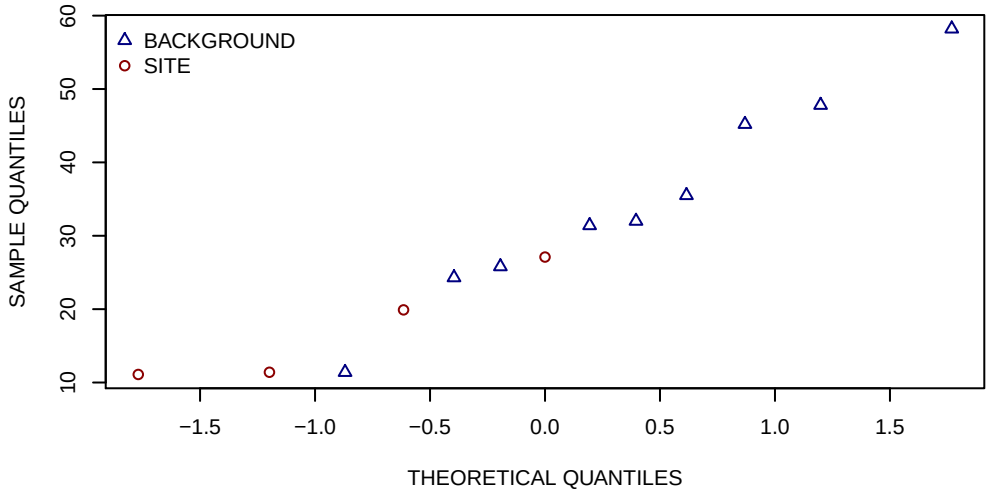
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

ZINC SUBSURFACE SOIL GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 23 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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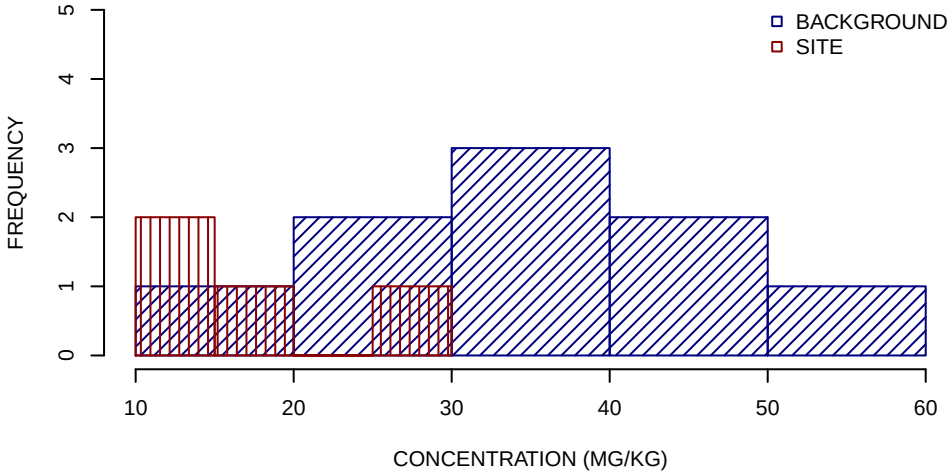


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	11	11
25TH PERCENTILE	26	11
MEDIAN	32	16
MEAN	35	17
75TH PERCENTILE	45	22
MAXIMUM	58	27

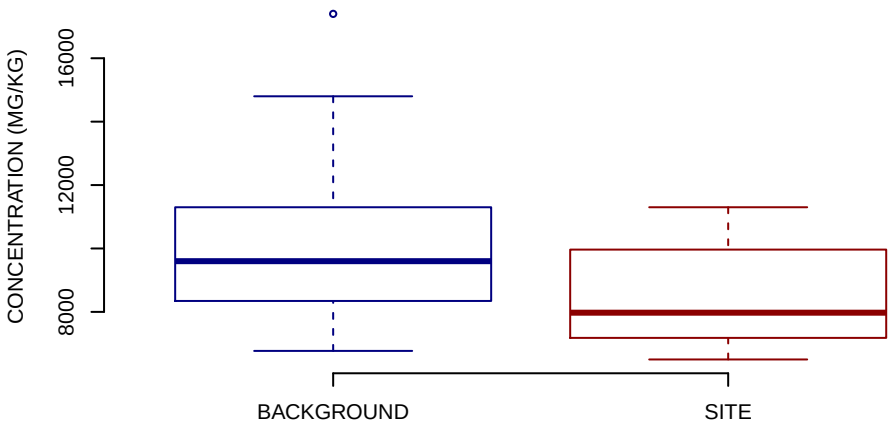
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

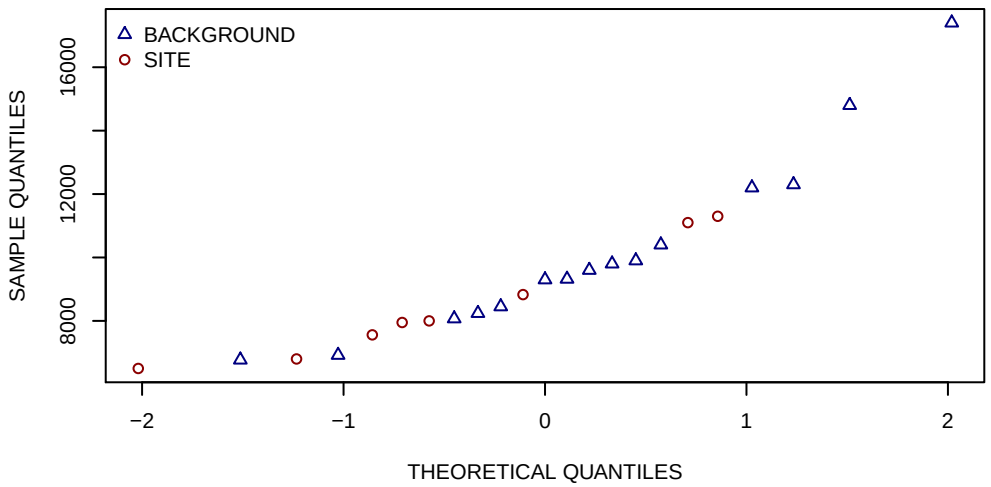
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

ALUMINUM SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 1 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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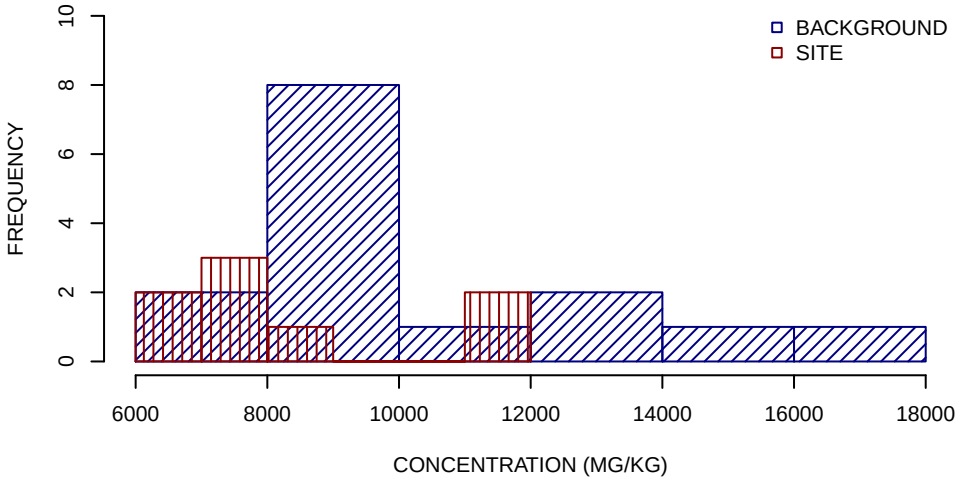


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	6800	6500
25TH PERCENTILE	8300	7400
MEDIAN	9600	8000
MEAN	10000	8500
75TH PERCENTILE	11000	9400
MAXIMUM	17000	11000

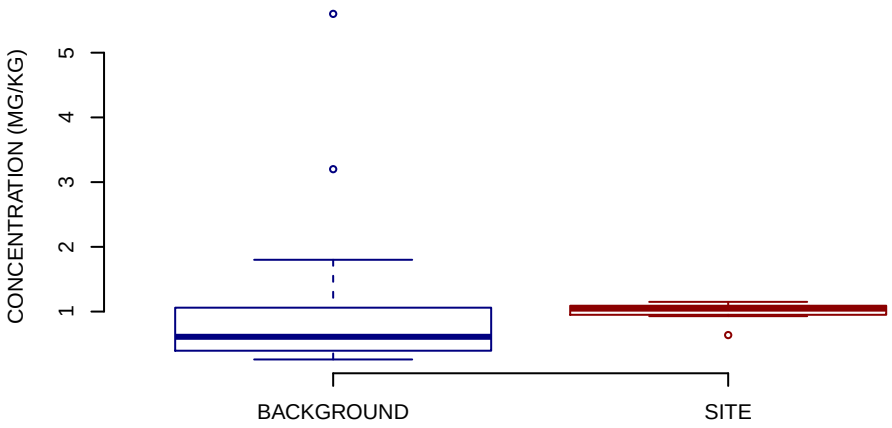
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

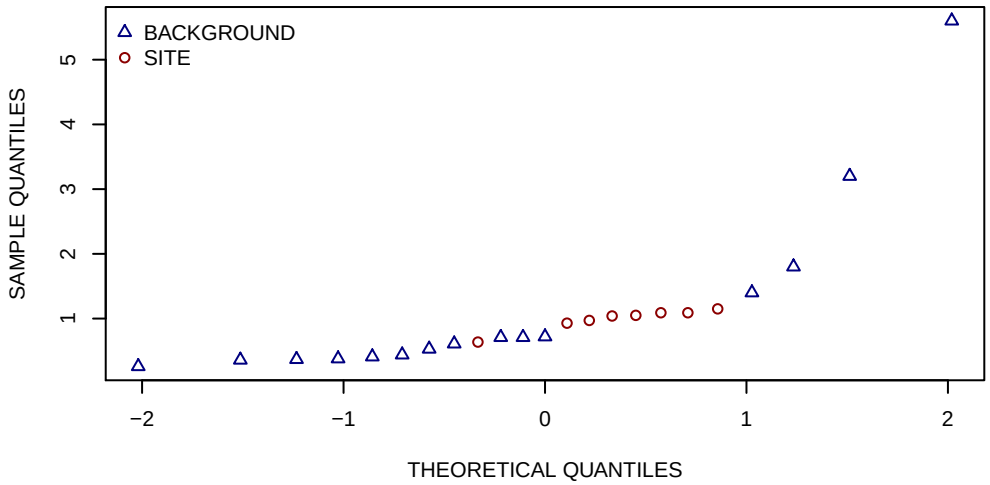
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

ANTIMONY SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 2 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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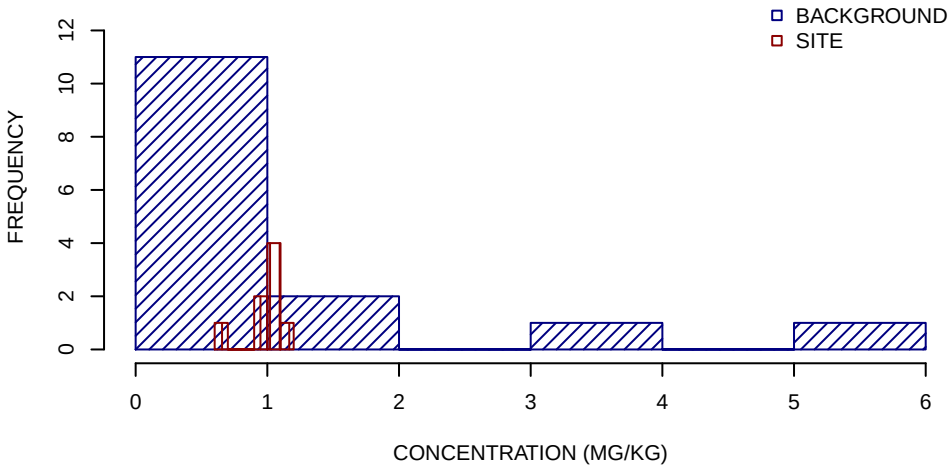


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.26	0.64
25TH PERCENTILE	0.4	0.96
MEDIAN	0.61	1
MEAN	1.2	0.99
75TH PERCENTILE	1.1	1.1
MAXIMUM	5.6	1.2

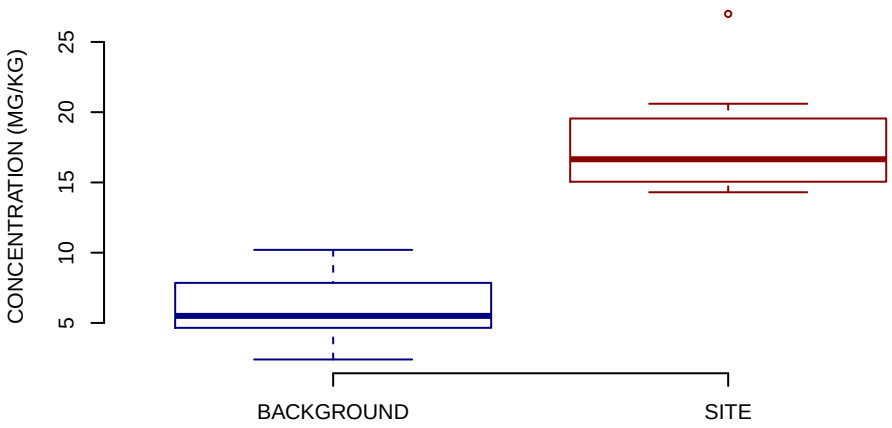
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

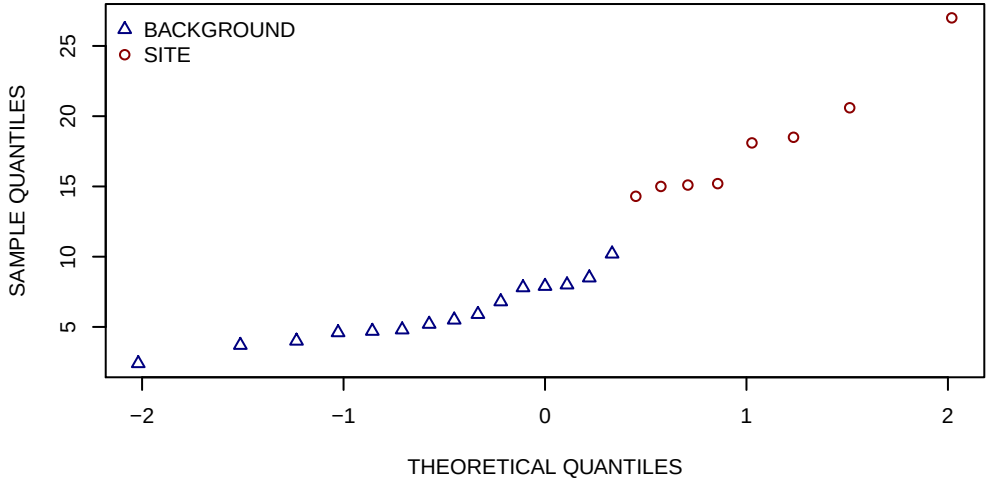
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

ARSENIC SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 3 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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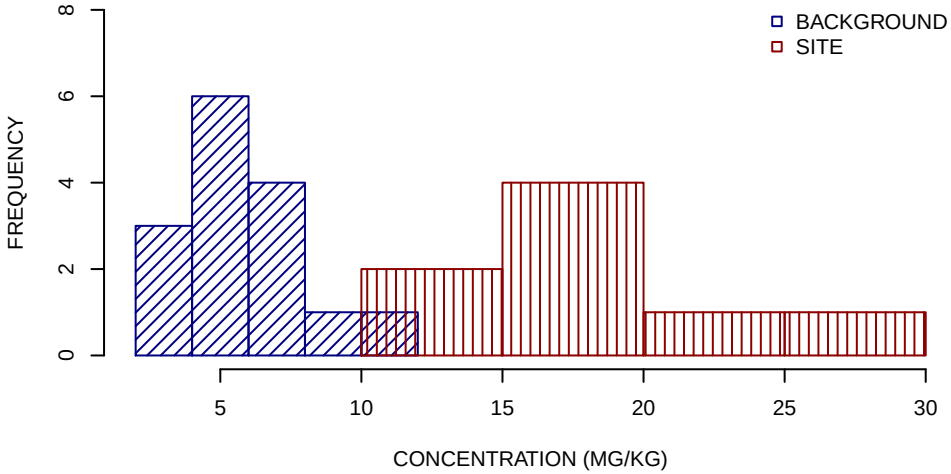


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	2.4	14
25TH PERCENTILE	4.6	15
MEDIAN	5.5	17
MEAN	6	18
75TH PERCENTILE	7.8	19
MAXIMUM	10	27

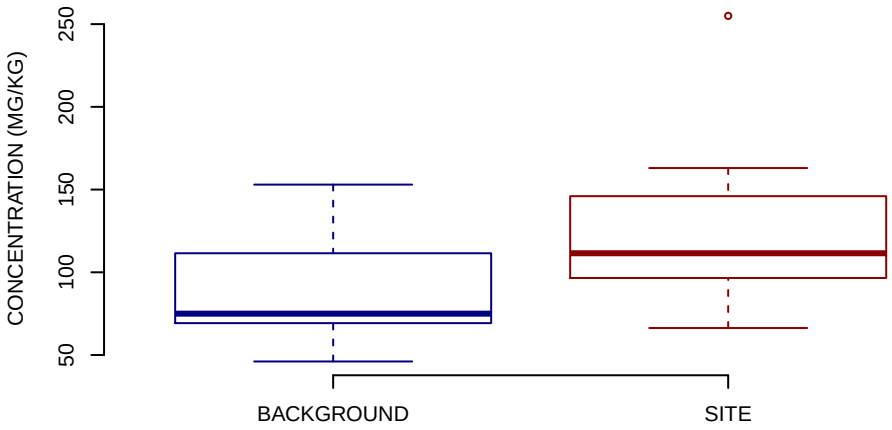
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

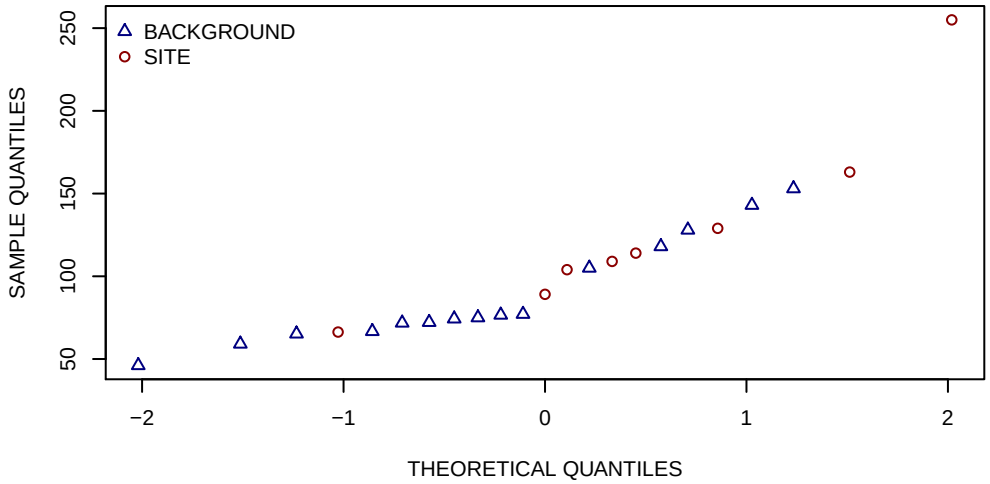
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

BARIUM SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 4 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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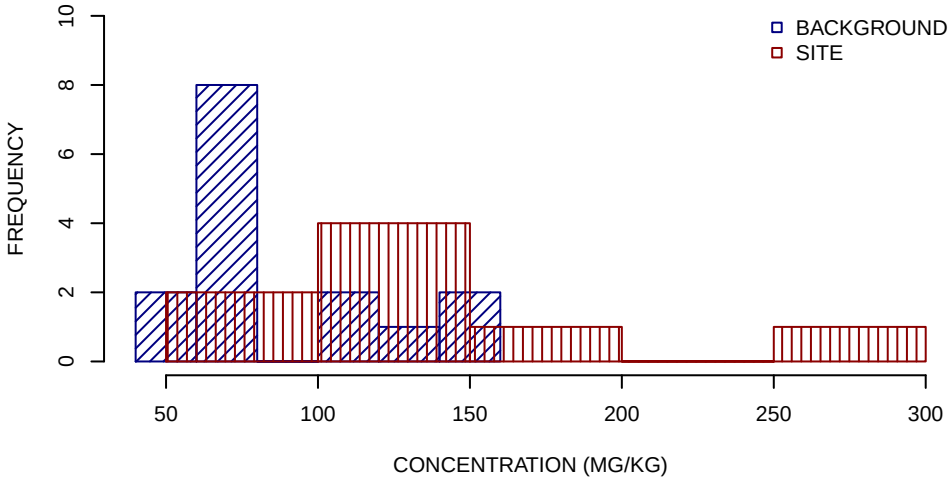


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	46	66
25TH PERCENTILE	69	100
MEDIAN	75	110
MEAN	89	130
75TH PERCENTILE	110	140
MAXIMUM	150	260

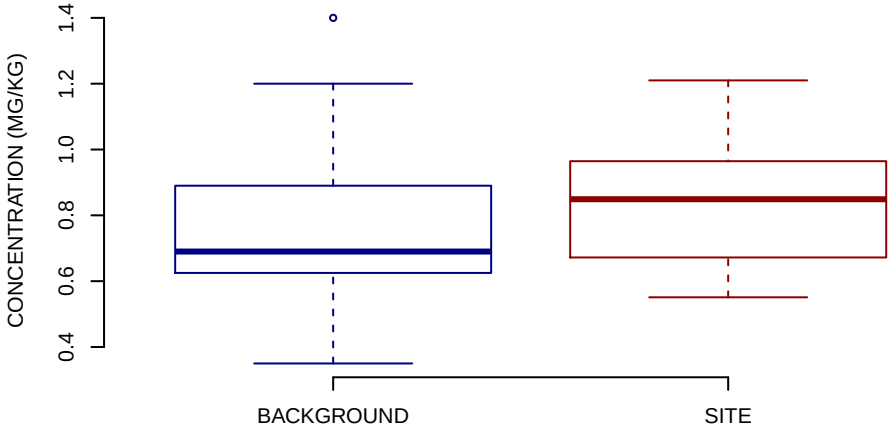
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

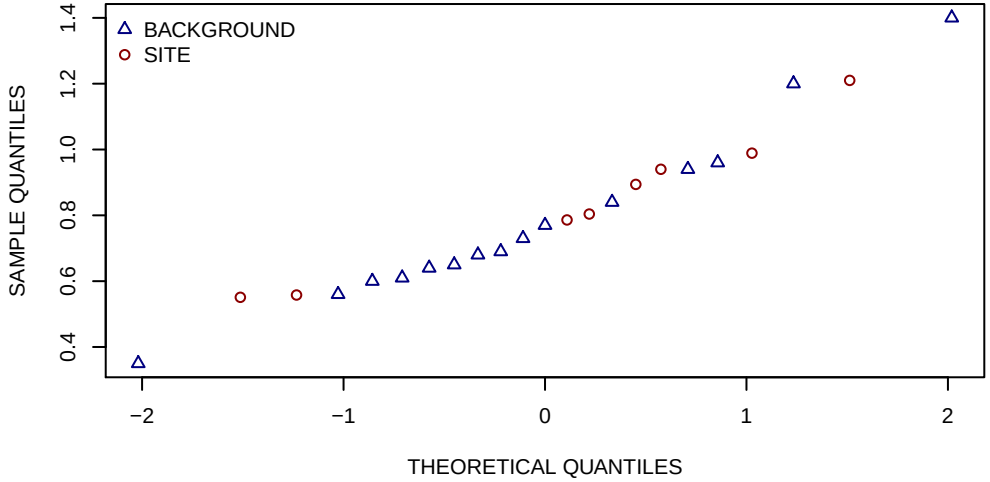
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

BERYLLIUM SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 5 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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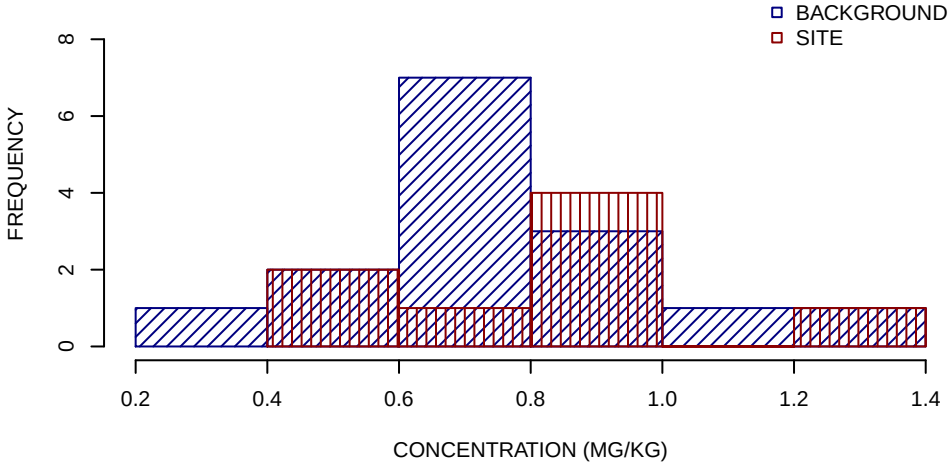


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.35	0.55
25TH PERCENTILE	0.62	0.73
MEDIAN	0.69	0.85
MEAN	0.77	0.84
75TH PERCENTILE	0.89	0.95
MAXIMUM	1.4	1.2

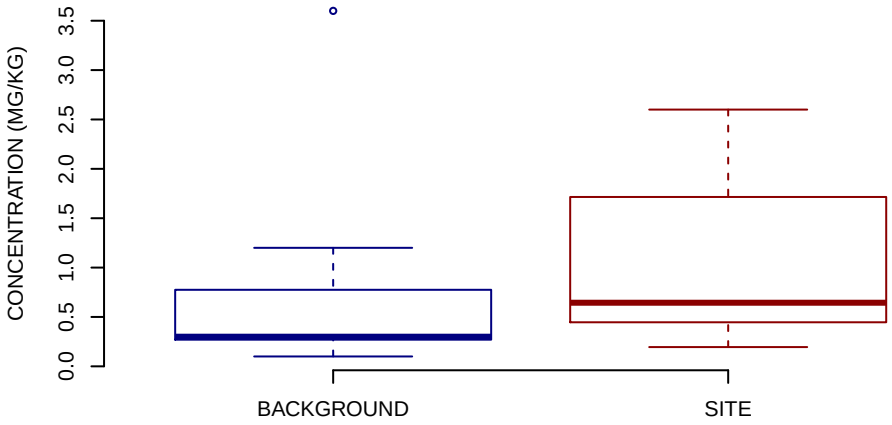
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

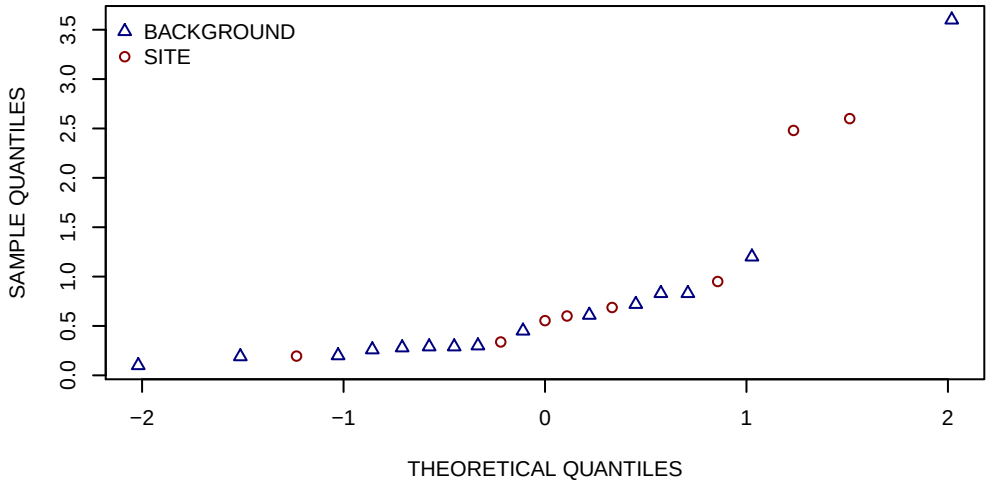
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

CADMIUM SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 6 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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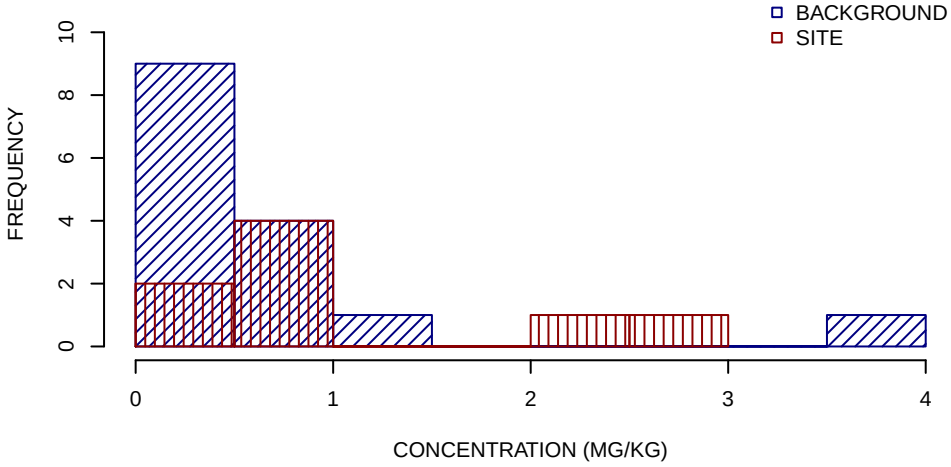


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.1	0.2
25TH PERCENTILE	0.27	0.5
MEDIAN	0.3	0.64
MEAN	0.68	1.1
75TH PERCENTILE	0.78	1.3
MAXIMUM	3.6	2.6

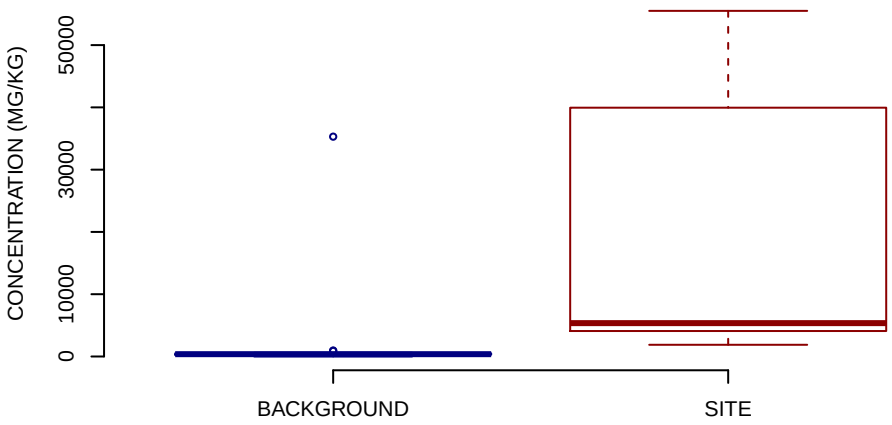
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

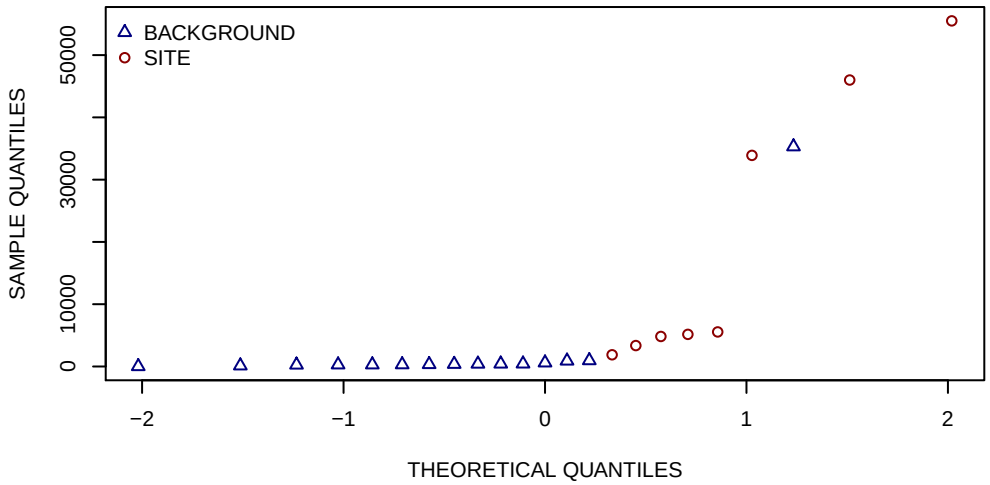
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

CALCIUM SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 7 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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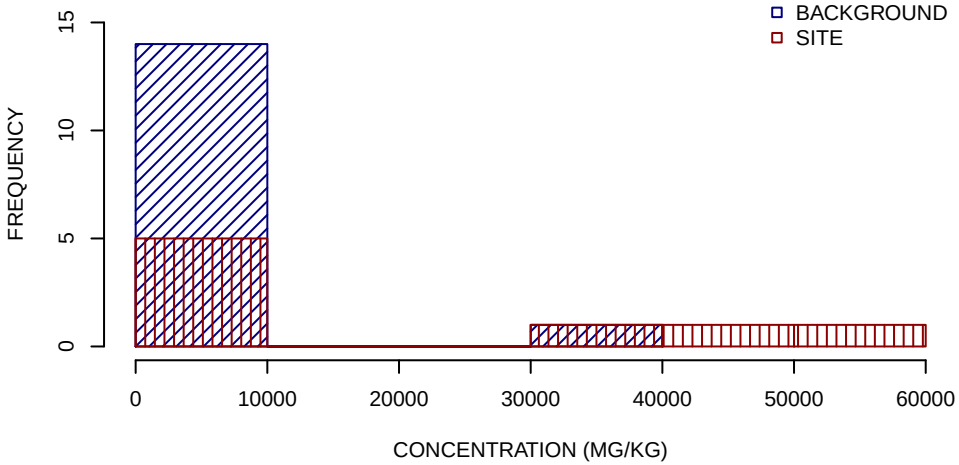


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	5	1900
25TH PERCENTILE	280	4500
MEDIAN	370	5400
MEAN	2700	20000
75TH PERCENTILE	510	37000
MAXIMUM	35000	56000

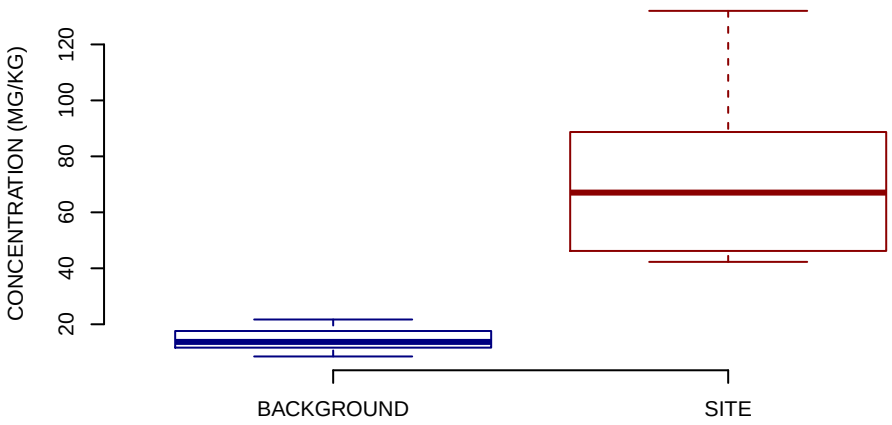
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

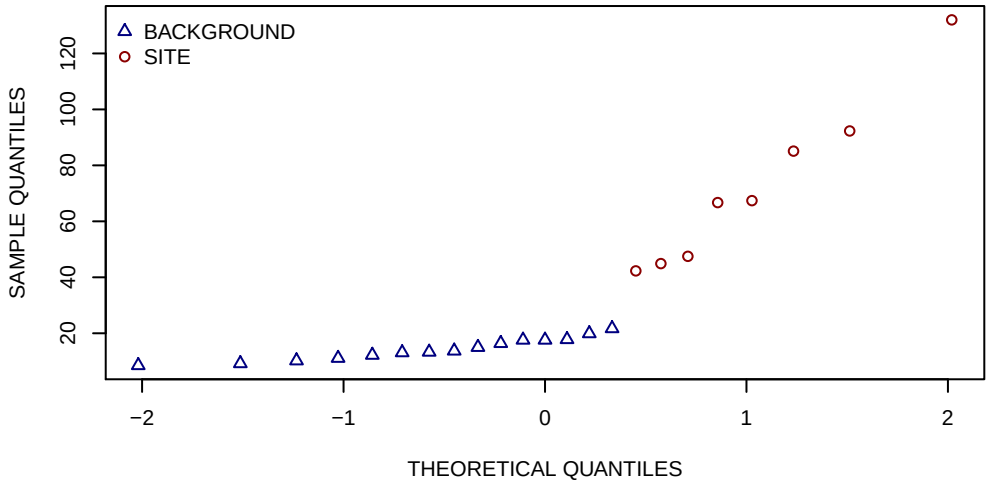
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

CHROMIUM SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 8 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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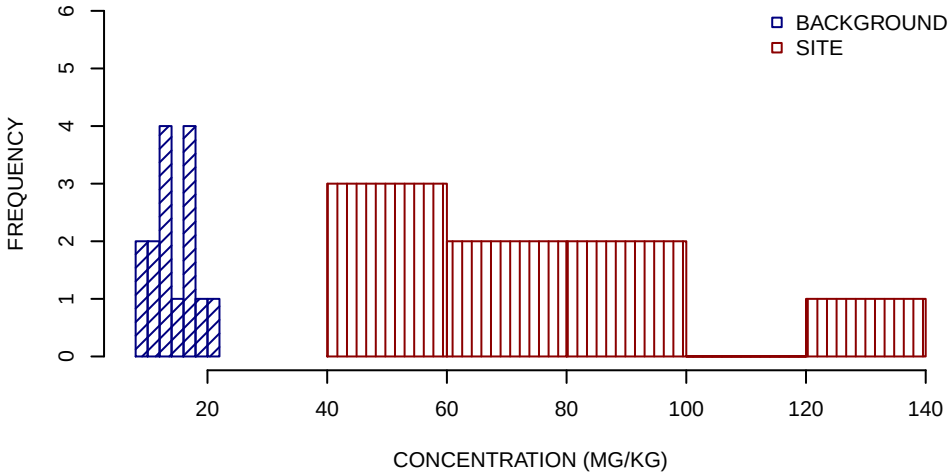


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	8.5	42
25TH PERCENTILE	12	47
MEDIAN	14	67
MEAN	14	72
75TH PERCENTILE	18	87
MAXIMUM	22	130

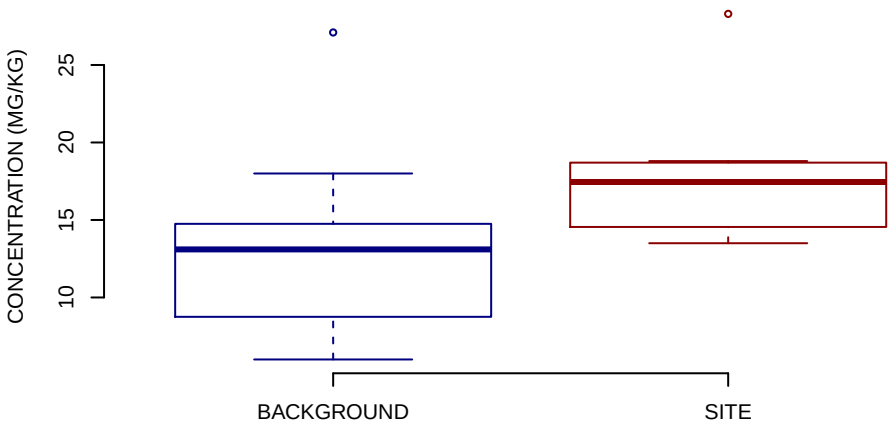
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

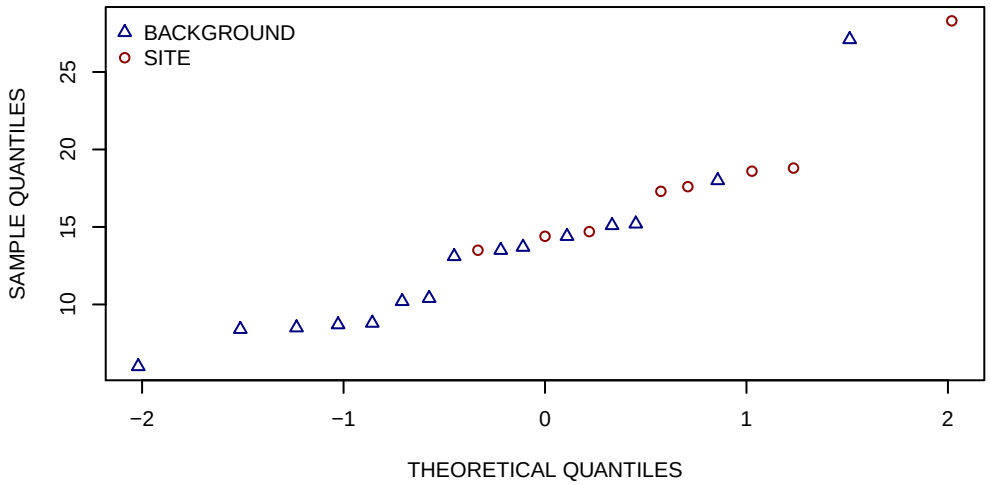
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

COBALT SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 9 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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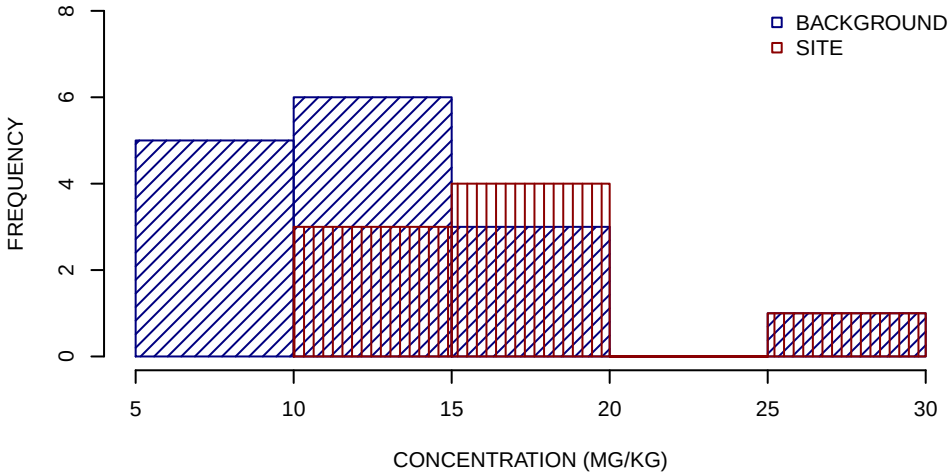


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	6	14
25TH PERCENTILE	8.8	15
MEDIAN	13	17
MEAN	13	18
75TH PERCENTILE	15	19
MAXIMUM	27	28

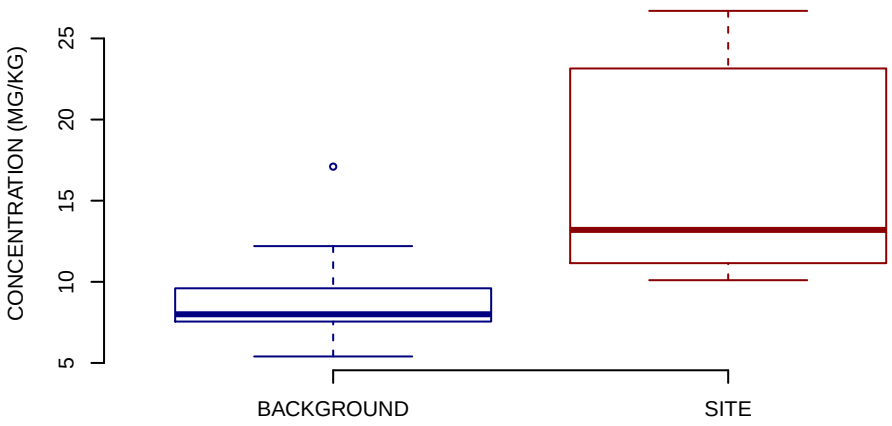
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

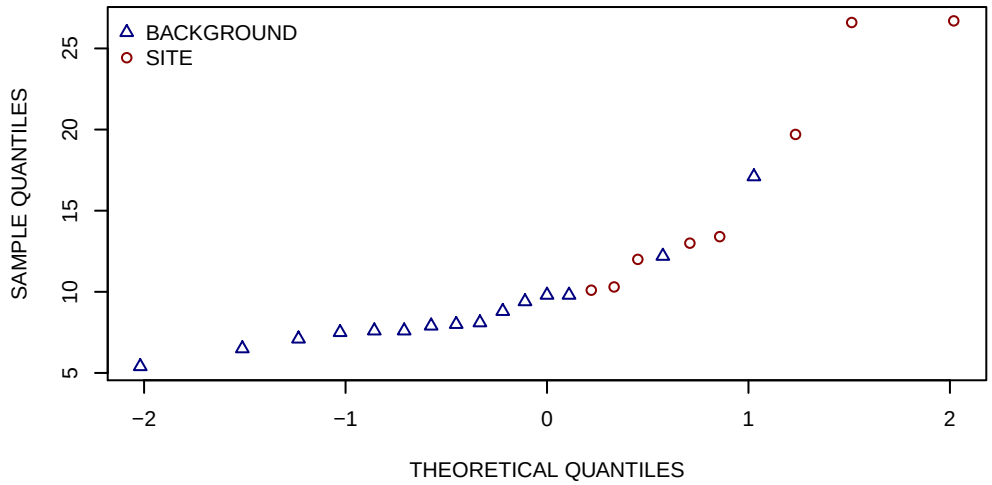
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

COPPER SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 10 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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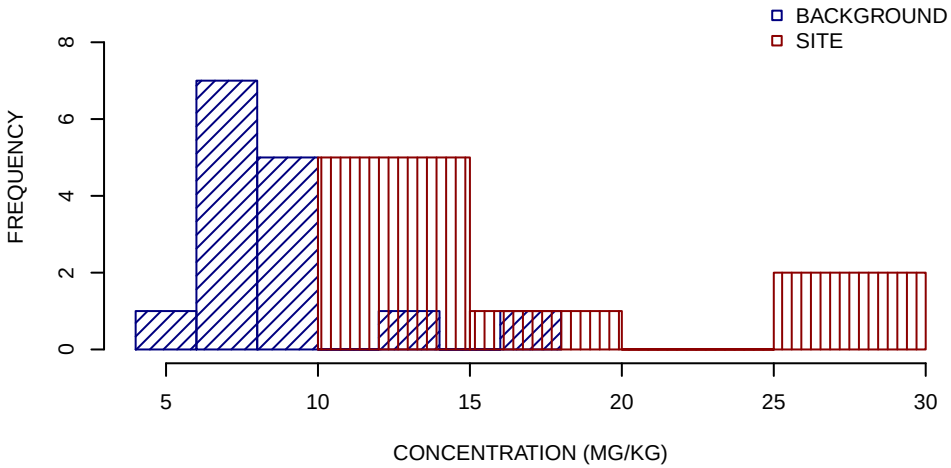


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	5.4	10
25TH PERCENTILE	7.6	12
MEDIAN	8	13
MEAN	8.9	16
75TH PERCENTILE	9.6	21
MAXIMUM	17	27

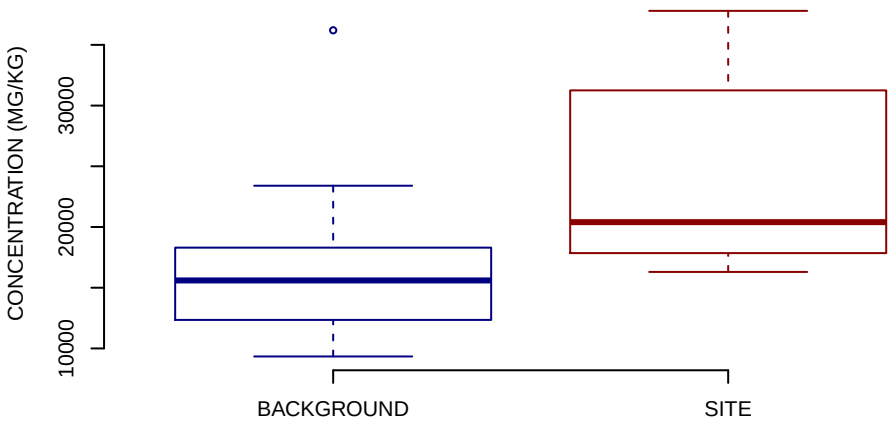
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

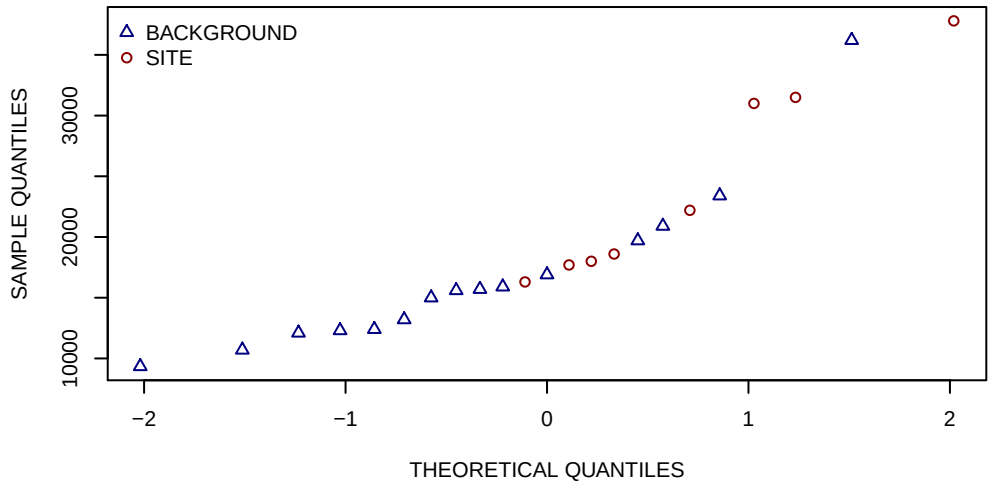
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

IRON SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 11 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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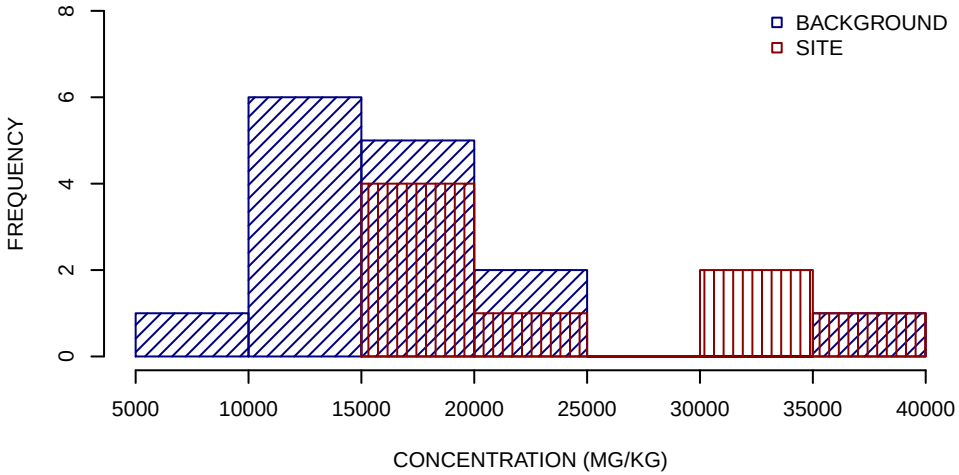


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	9300	16000
25TH PERCENTILE	12000	18000
MEDIAN	16000	20000
MEAN	17000	24000
75TH PERCENTILE	18000	31000
MAXIMUM	36000	38000

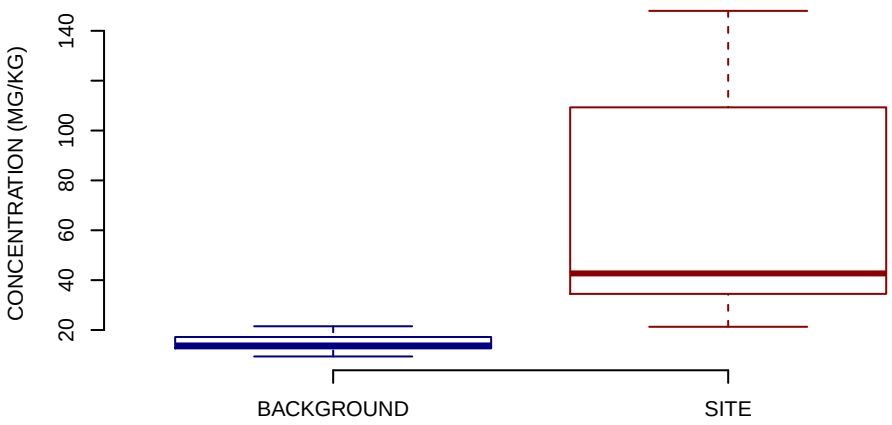
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

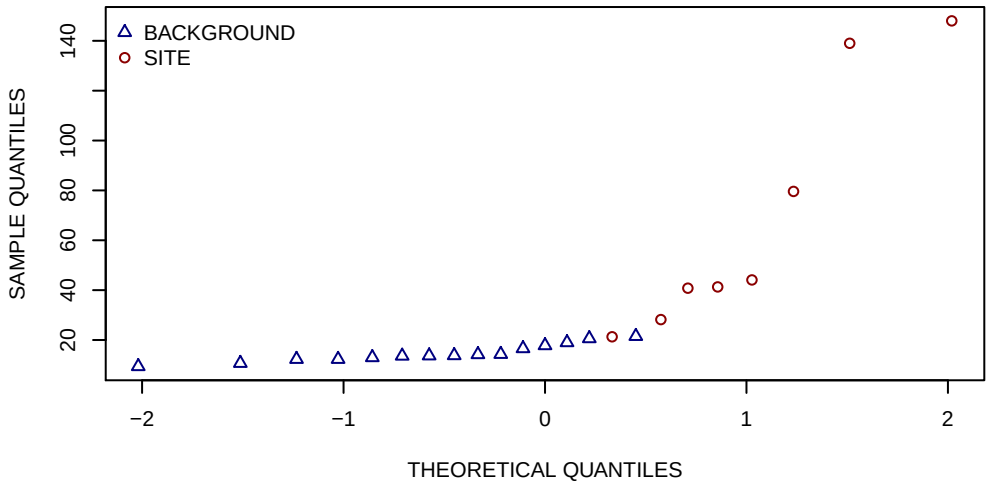
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

LEAD SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 12 OF 23

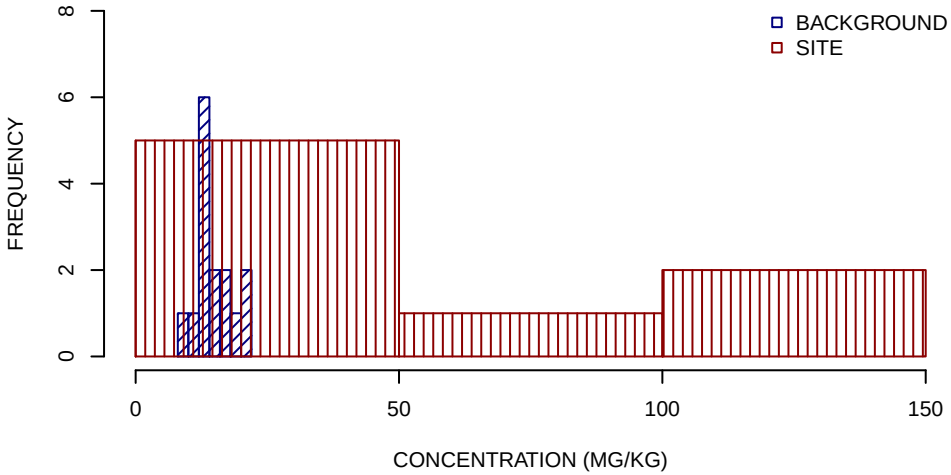
BOXPLOTS



NORMAL Q−Q PLOT



HISTOGRAMS



SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	9.4	21
25TH PERCENTILE	13	38
MEDIAN	14	43
MEAN	15	68
75TH PERCENTILE	17	94
MAXIMUM	22	150

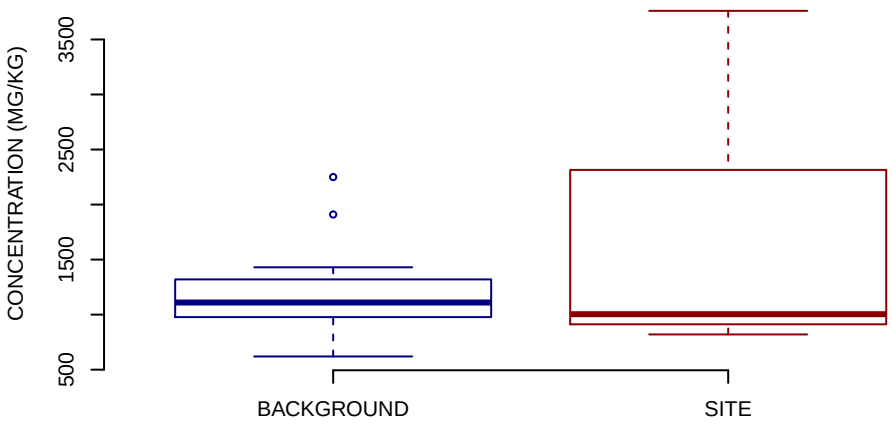
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

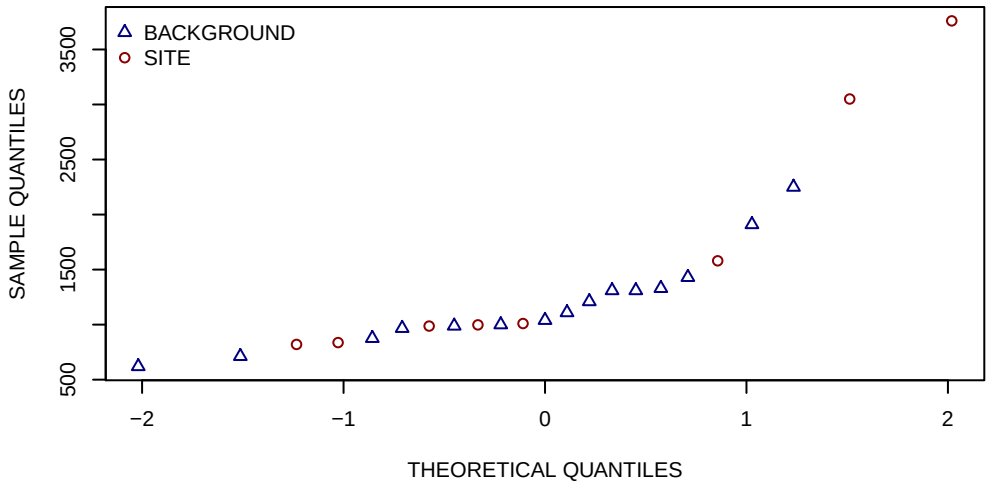
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

MAGNESIUM SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 13 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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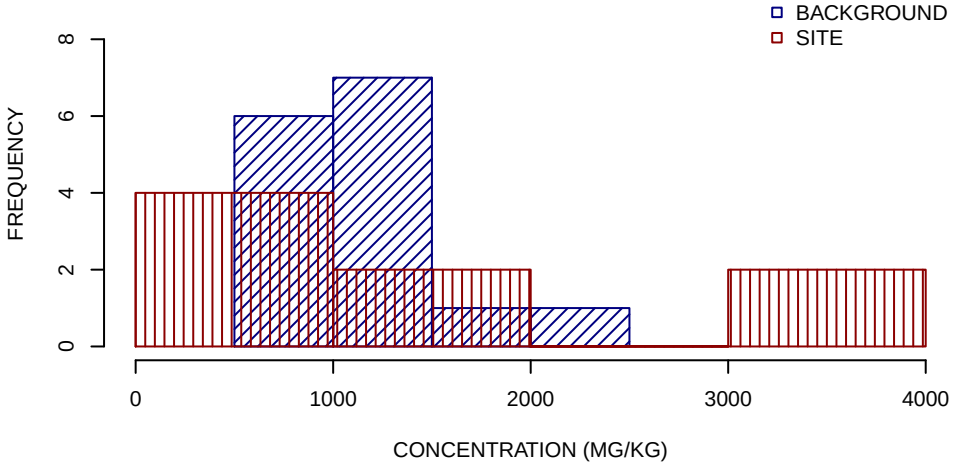


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	620	820
25TH PERCENTILE	980	950
MEDIAN	1100	1000
MEAN	1200	1600
75TH PERCENTILE	1300	1900
MAXIMUM	2200	3800

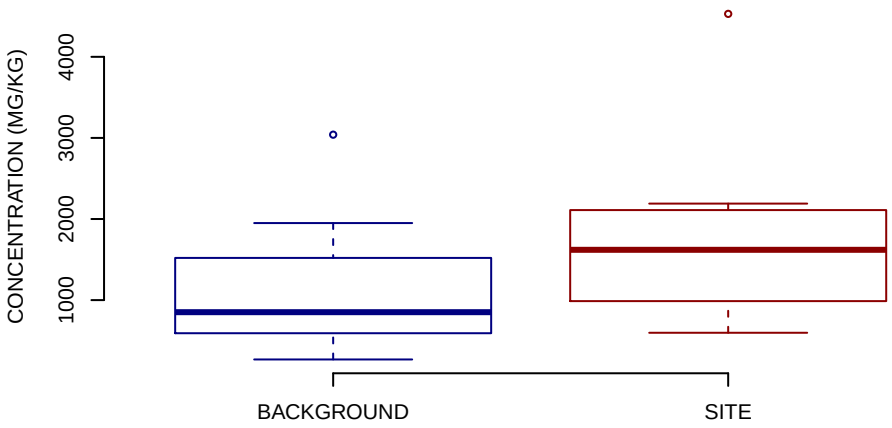
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

MANGANESE SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 14 OF 23

BOXPLOTS



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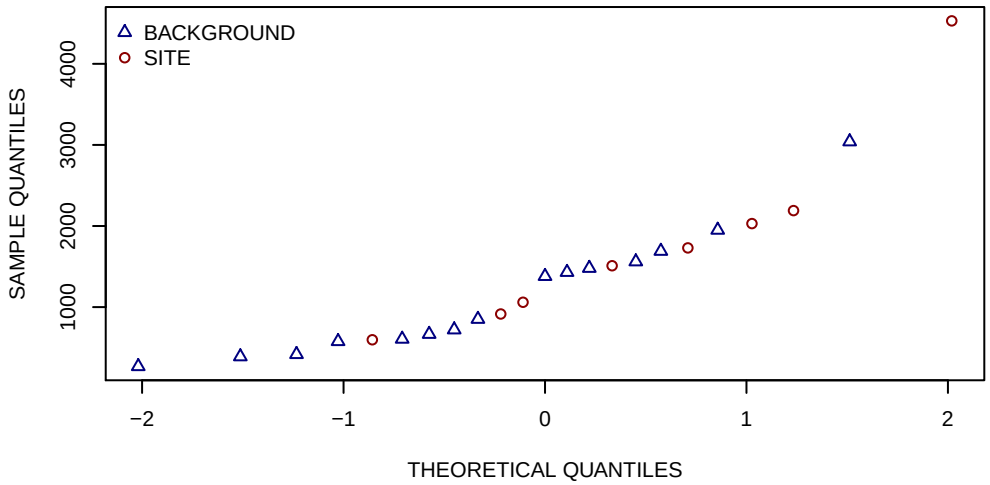

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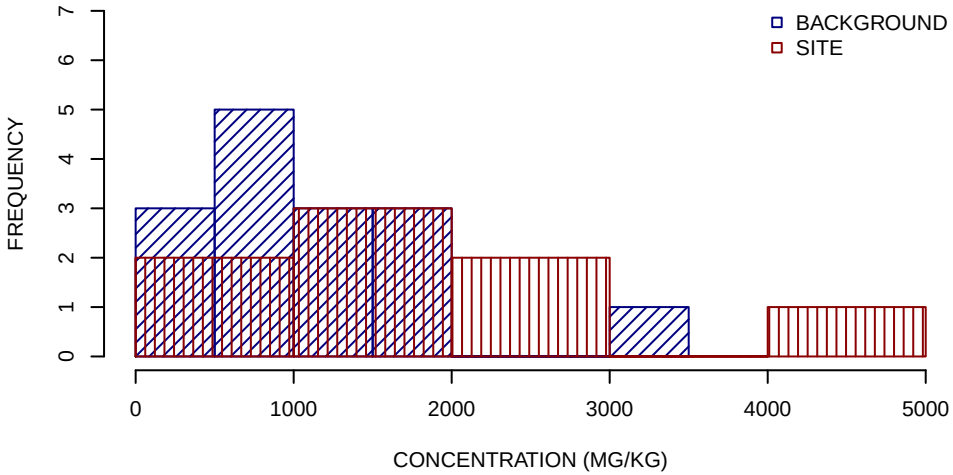


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	270	600
25TH PERCENTILE	590	1000
MEDIAN	850	1600
MEAN	1100	1800
75TH PERCENTILE	1500	2100
MAXIMUM	3000	4500

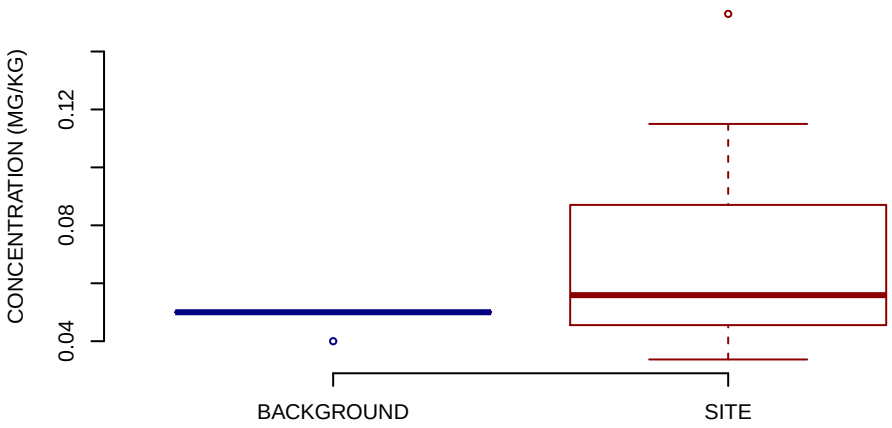
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

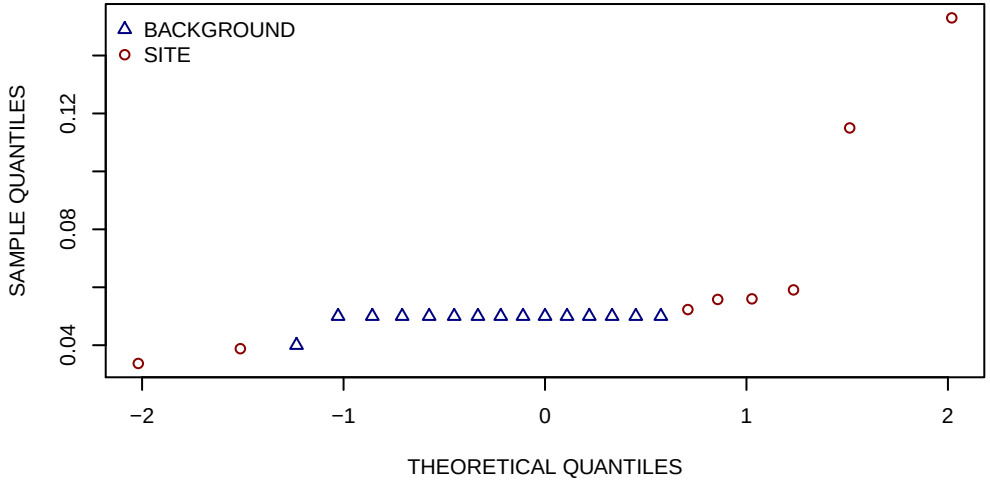
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

MERCURY SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 15 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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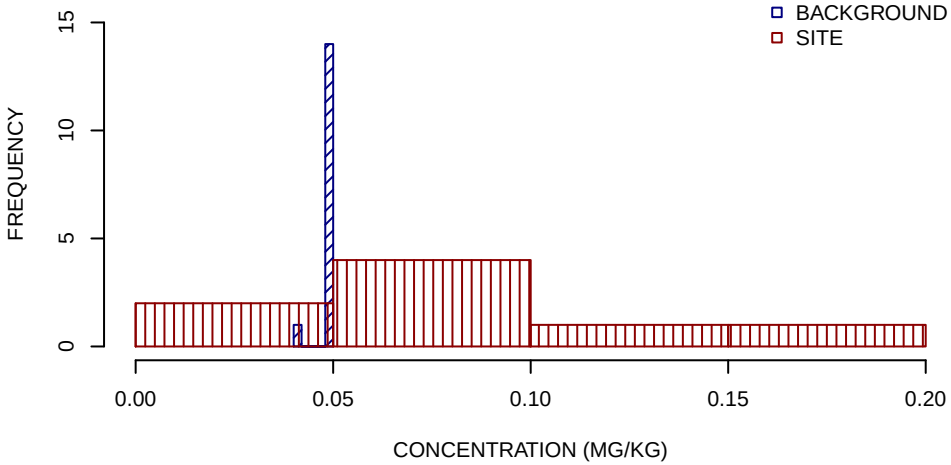


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.04	0.034
25TH PERCENTILE	0.05	0.049
MEDIAN	0.05	0.056
MEAN	0.049	0.07
75TH PERCENTILE	0.05	0.073
MAXIMUM	0.05	0.15

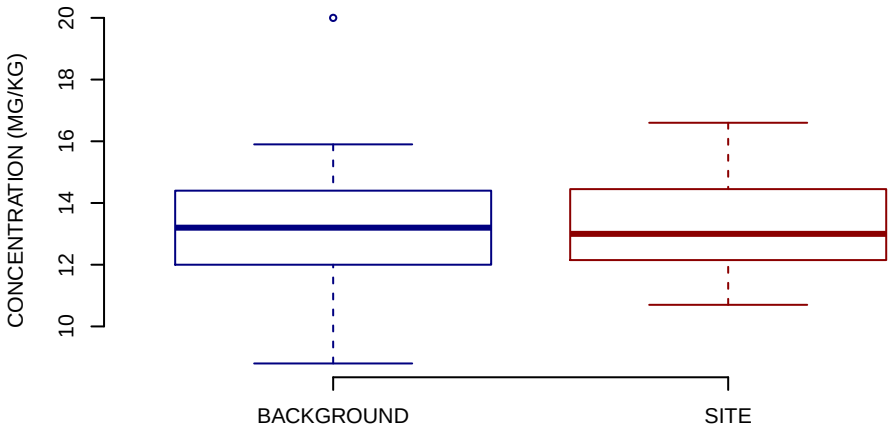
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

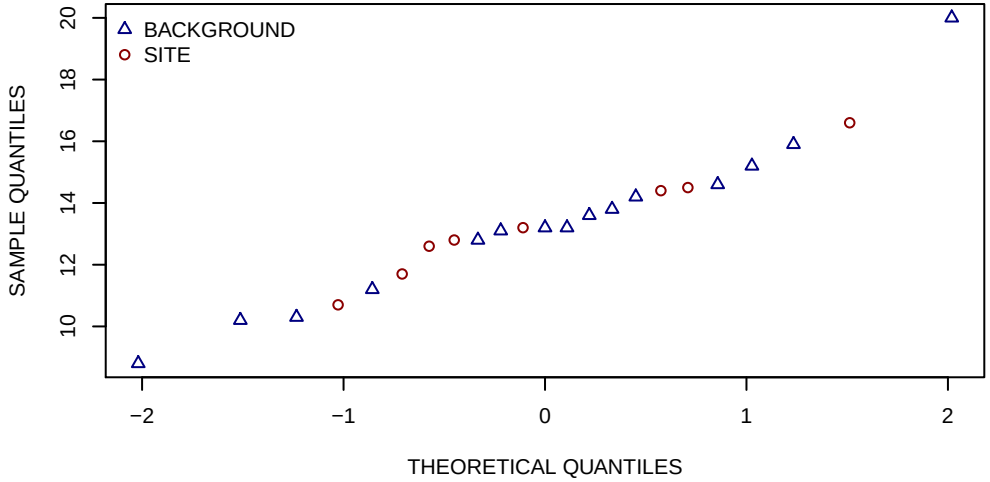
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

NICKEL SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 16 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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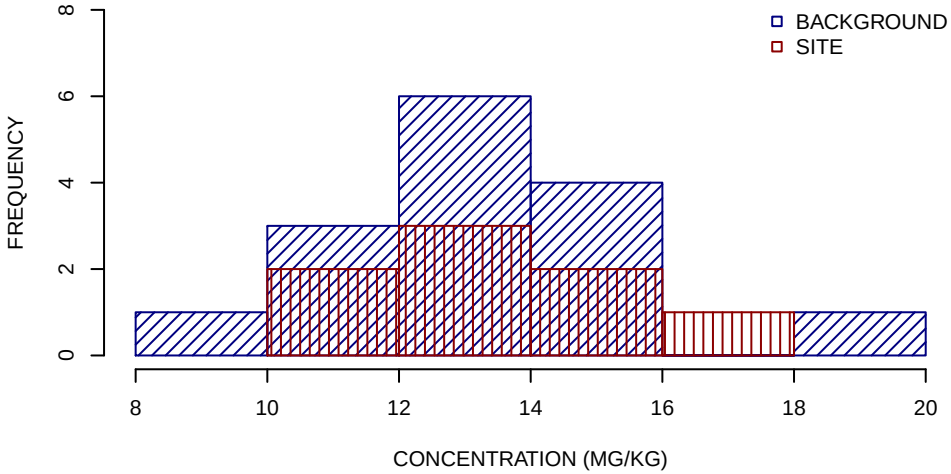


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	8.8	11
25TH PERCENTILE	12	12
MEDIAN	13	13
MEAN	13	13
75TH PERCENTILE	14	14
MAXIMUM	20	17

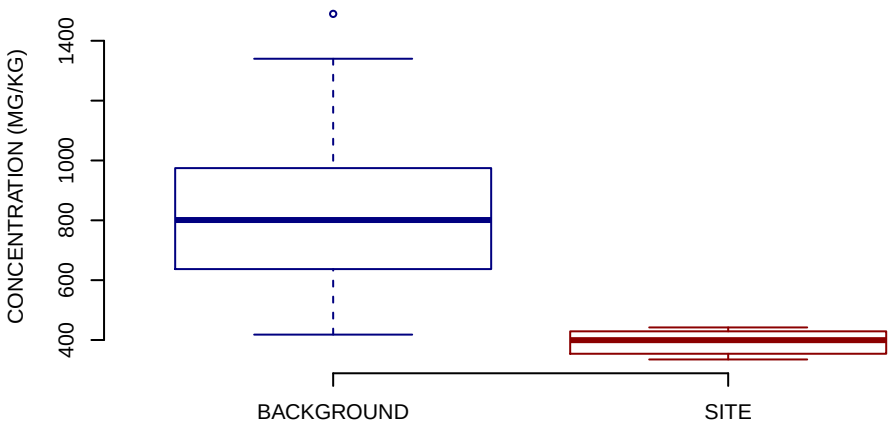
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

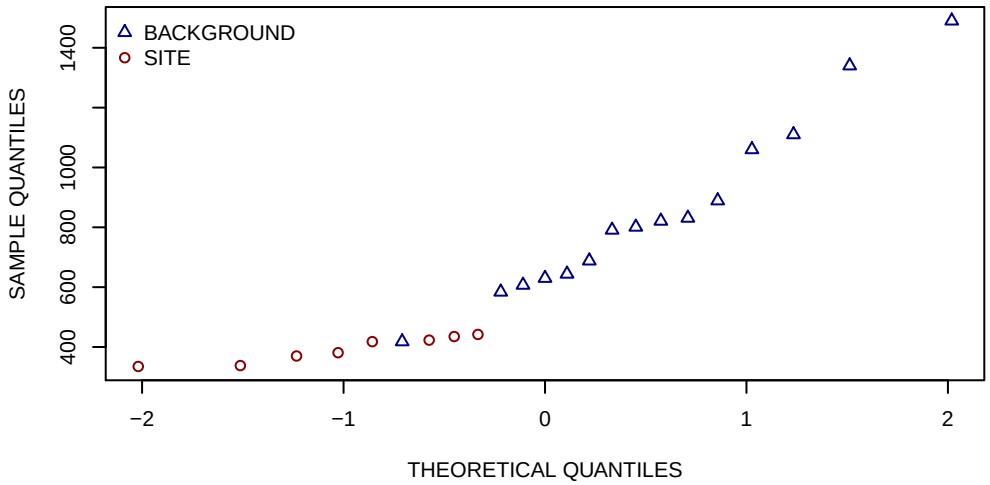
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

POTASSIUM SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 17 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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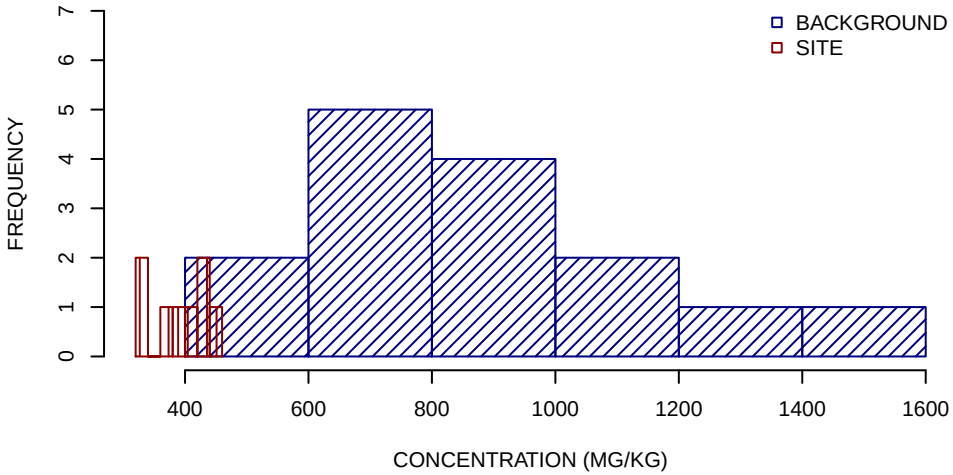


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	420	340
25TH PERCENTILE	640	360
MEDIAN	800	400
MEAN	850	390
75TH PERCENTILE	970	430
MAXIMUM	1500	440

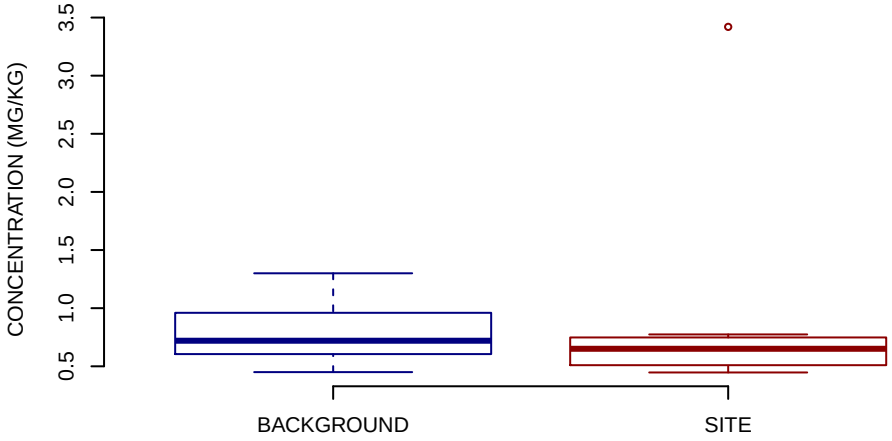
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

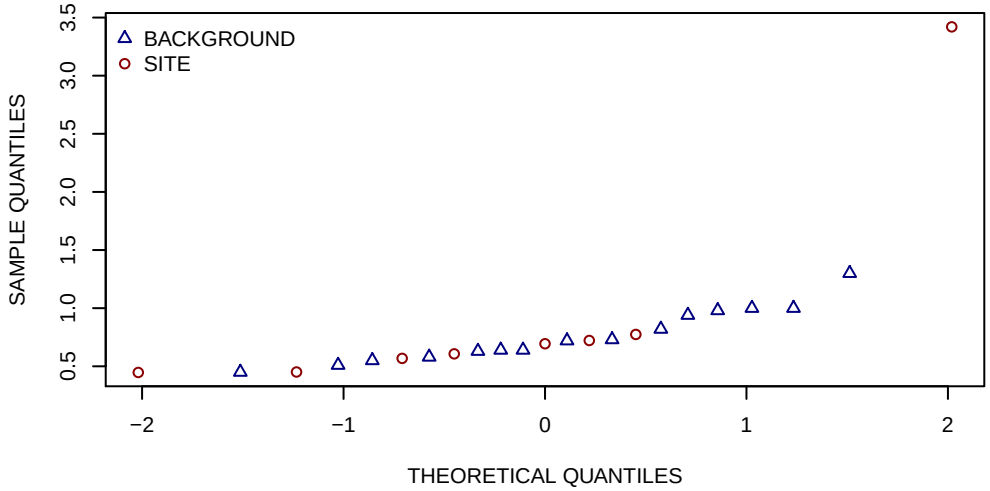
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

SELENIUM SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 18 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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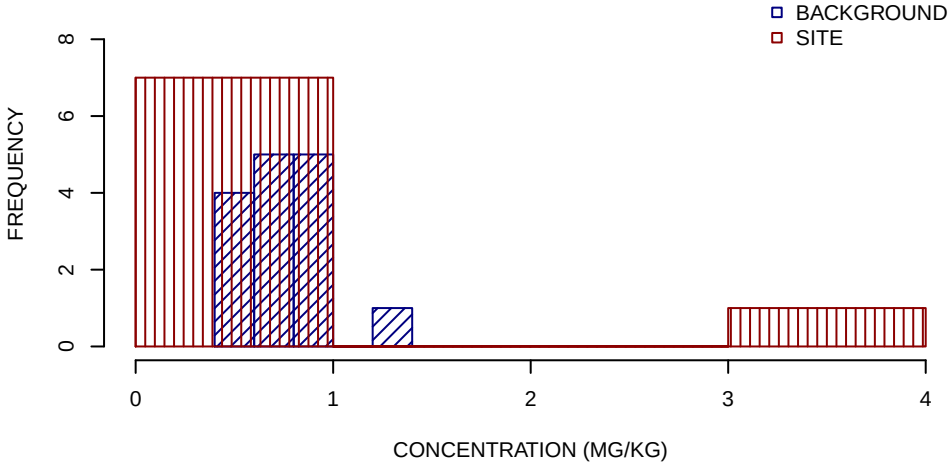


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.45	0.45
25TH PERCENTILE	0.6	0.54
MEDIAN	0.72	0.65
MEAN	0.77	0.96
75TH PERCENTILE	0.96	0.74
MAXIMUM	1.3	3.4

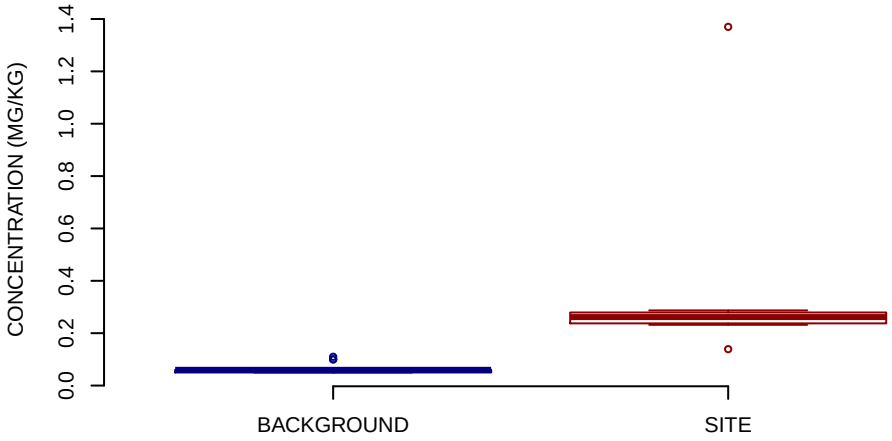
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

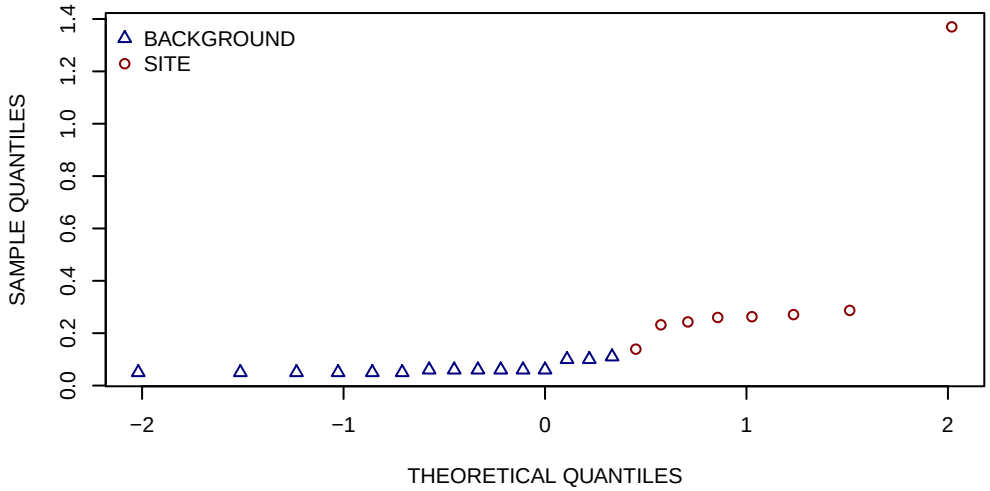
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

SILVER SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 19 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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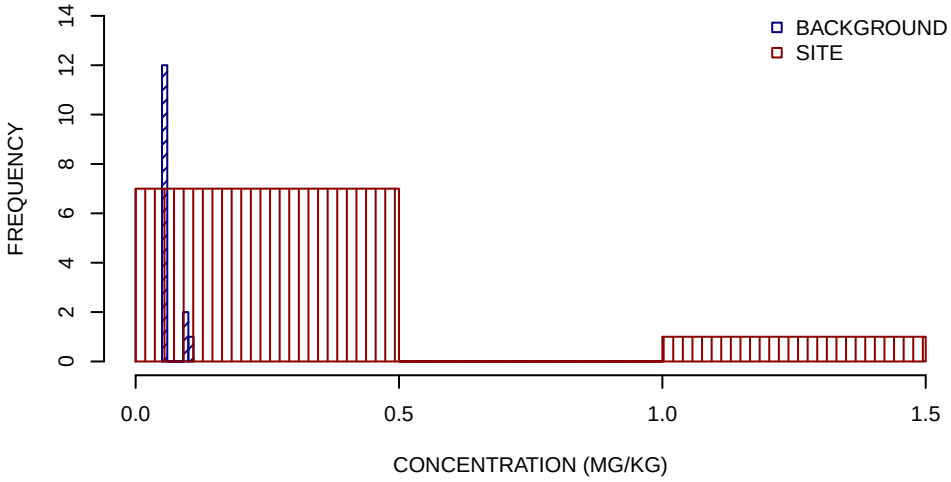


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.05	0.14
25TH PERCENTILE	0.05	0.24
MEDIAN	0.06	0.26
MEAN	0.065	0.38
75TH PERCENTILE	0.06	0.28
MAXIMUM	0.11	1.4

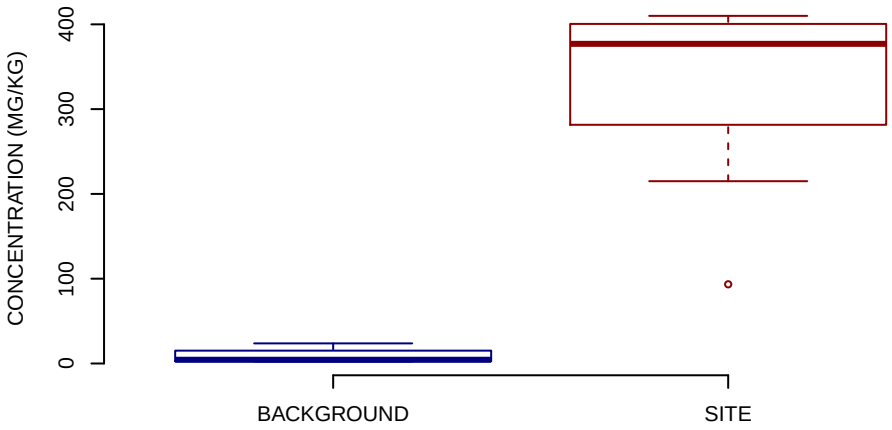
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

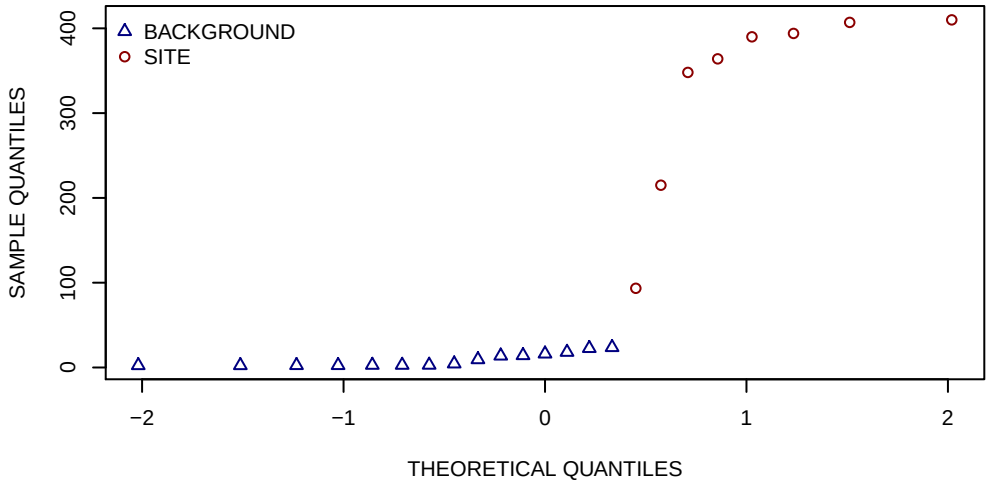
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

SODIUM SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 20 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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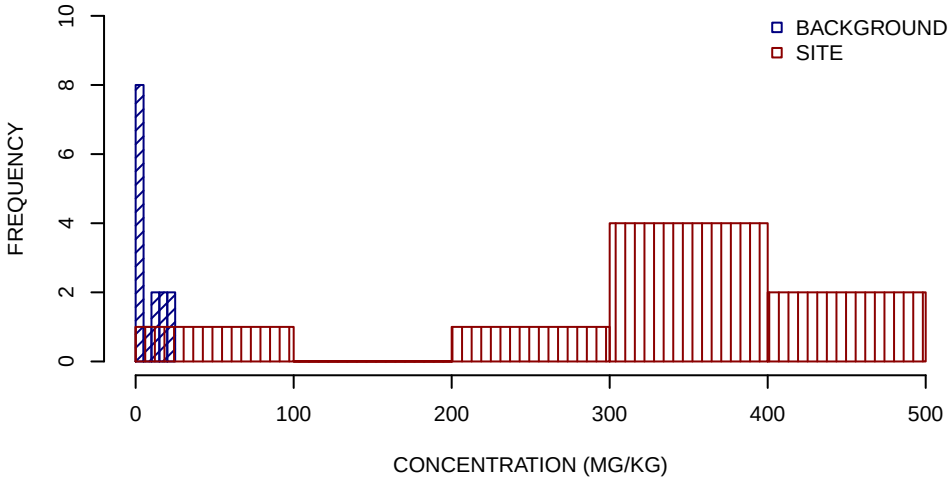


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	2.4	93
25TH PERCENTILE	2.6	310
MEDIAN	4.4	380
MEAN	9.4	330
75TH PERCENTILE	15	400
MAXIMUM	24	410

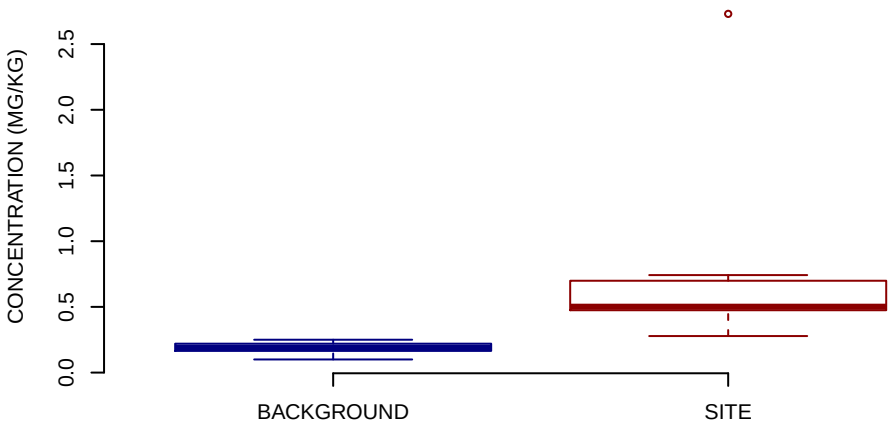
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

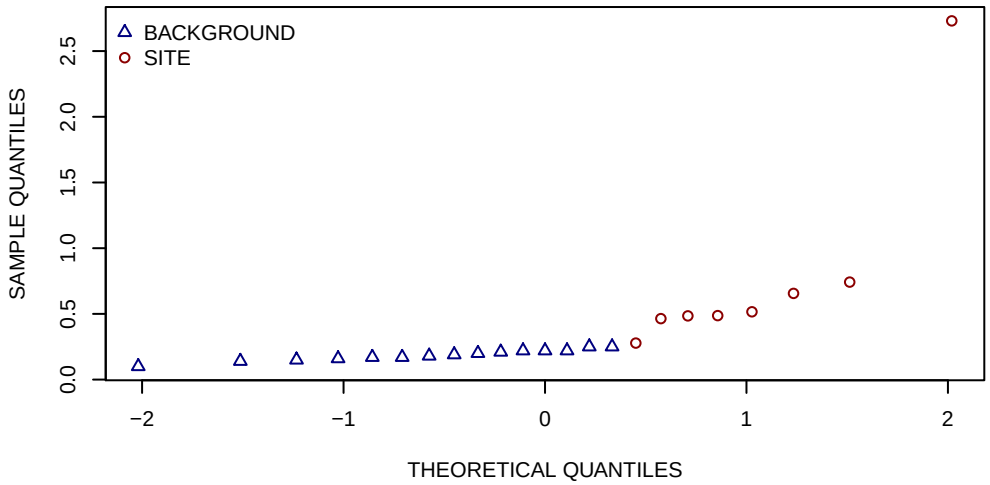
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

THALLIUM SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 21 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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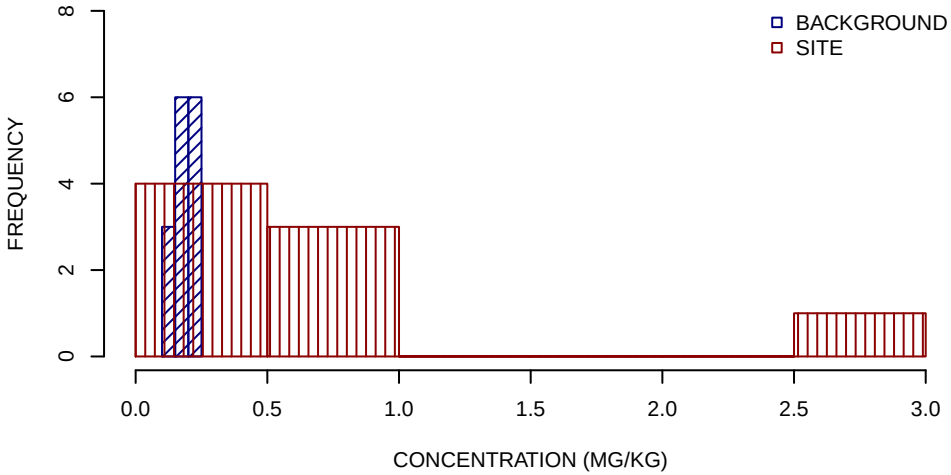


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	0.1	0.28
25TH PERCENTILE	0.16	0.48
MEDIAN	0.19	0.5
MEAN	0.19	0.79
75TH PERCENTILE	0.22	0.68
MAXIMUM	0.25	2.7

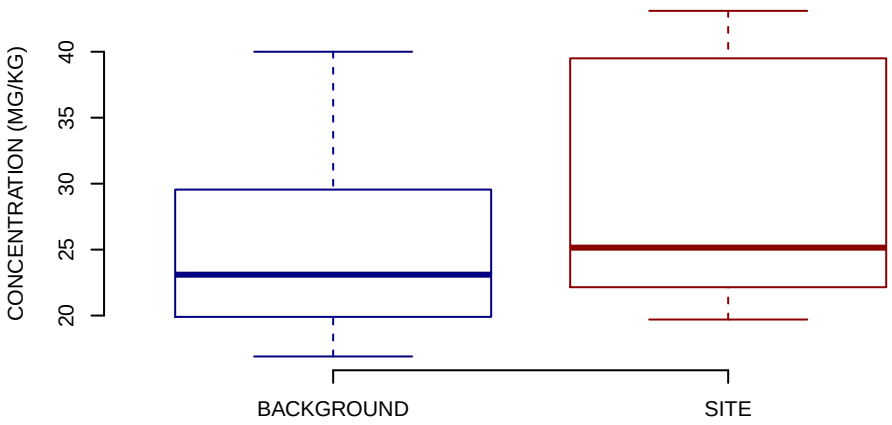
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

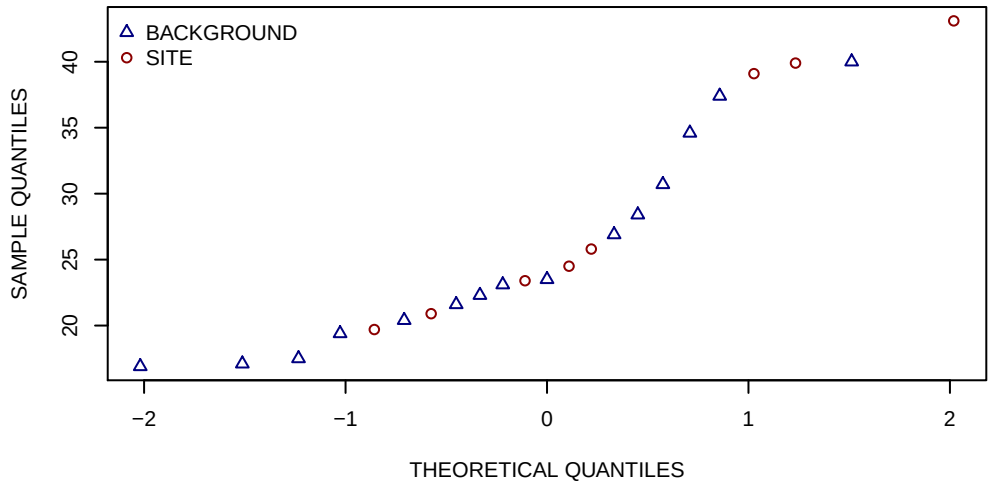
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

VANADIUM SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 22 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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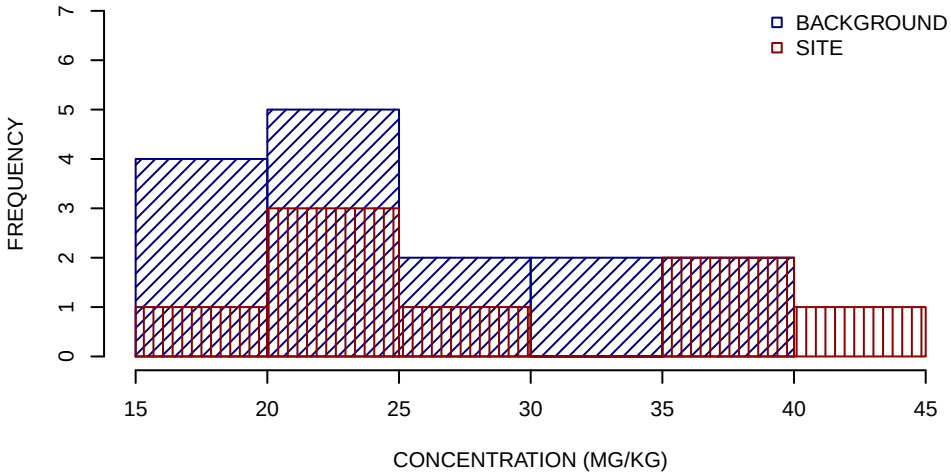


SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	17	20
25TH PERCENTILE	20	23
MEDIAN	23	25
MEAN	25	30
75TH PERCENTILE	30	39
MAXIMUM	40	43

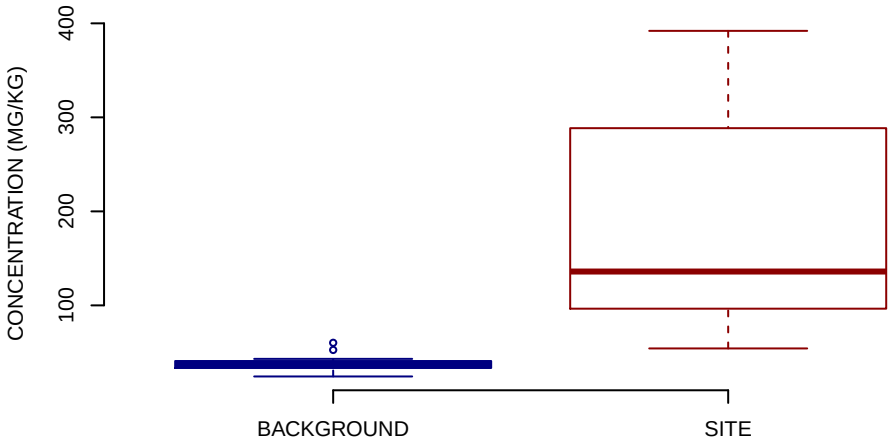
UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

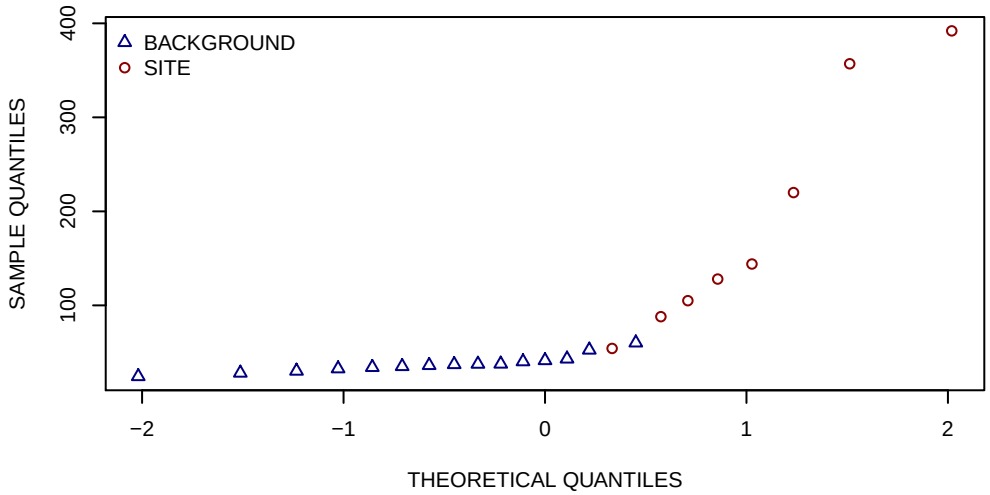
SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

ZINC SEDIMENT GRAPHICAL DISPLAYS
SWMU 11
NSA CRANE, CRANE, INDIANA
FIGURE 23 OF 23

BOXPLOTS



NORMAL Q−Q PLOT



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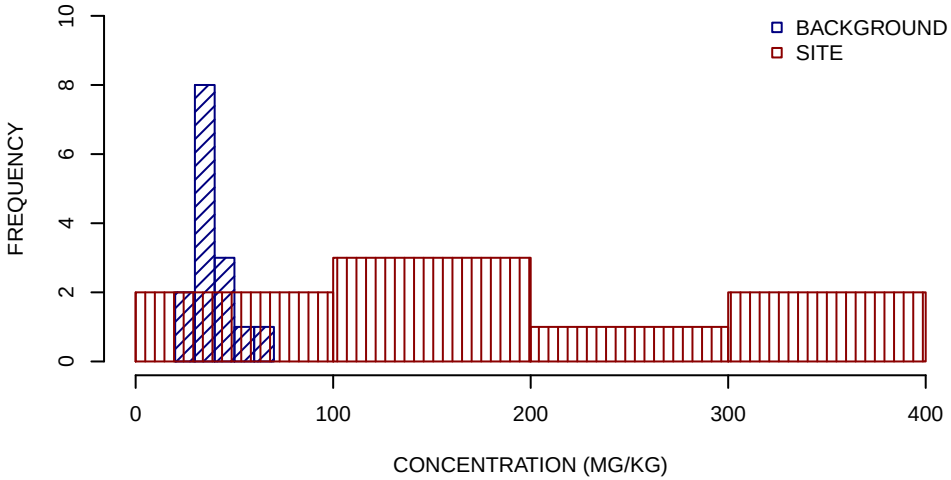

SUMMARY STATISTICS

	BACKGROUND	SITE
MINIMUM	24	54
25TH PERCENTILE	33	100
MEDIAN	37	140
MEAN	38	190
75TH PERCENTILE	41	250
MAXIMUM	60	390

UNITS ARE MG/KG

DETECTION LIMIT USED FOR NON−DETECTS

SUMMARY STATISTICS ROUNDED TO TWO SIGNIFICANT FIGURES

APPENDIX G.3

RAGS-PART D TABLES

RAGS Part D Table 1

Selection of Exposure Pathways

TABLE 1
SELECTION OF EXPOSURE PATHWAYS
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE, CRANE, INDIANA

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current/Future	Surface Soil	Surface Soil	SWMU 11	Maintenance Worker	Adult	Ingestion Dermal	Quant Quant	Maintenance workers may contact surface soil during normal work activities.
				Industrial Worker	Adult	Ingestion Dermal	Quant Quant	Industrial workers may contact surface soil during normal work activities.
				Construction Worker	Adult	Ingestion Dermal	Quant Quant	Construction workers may contact surface soil during normal work activities.
				Trespassers	Adolescents	Ingestion Dermal	Quant Quant	Adolescent trespassers may contact surface soil while at the site.
		Air	SWMU 11	Maintenance Worker	Adult	Inhalation	Quant	Maintenance workers may be exposed to fugitive dust and volatile emissions from surface soil.
				Industrial Worker	Adult	Inhalation	Quant	Industrial workers may be exposed to fugitive dust and volatile emissions from surface soil.
				Construction Worker	Adult	Inhalation	Quant	Construction workers may be exposed to fugitive dust and volatile emissions from surface soil.
				Trespassers	Adolescents	Inhalation	Quant	Trespassers may be exposed to fugitive dust and volatile emissions from surface soil.
	Subsurface Soil	Subsurface Soil	SWMU 11	Maintenance Worker	Adult	Ingestion Dermal	Quant Quant	Although exposures to subsurface soil by maintenance workers are considered unlikely, this scenario was included to aid in future risk management decisions.
				Industrial Worker	Adult	Ingestion Dermal	Quant Quant	Although exposures to subsurface soil by industrial workers are considered unlikely, this scenario was included to aid in future risk management decisions.
				Construction Worker	Adult	Ingestion Dermal	Quant Quant	Construction workers may contact subsurface soil during normal work activities.
				Trespassers	Adolescents	Ingestion Dermal	Quant Quant	Although exposures to subsurface soil by trespassers are considered unlikely, this scenario was included to aid in future risk management decisions.
		Air	SWMU 11	Maintenance Worker	Adult	Inhalation	Quant	Although exposures to subsurface soil by maintenance workers are considered unlikely, this scenario was included to aid in future risk management decisions.
				Industrial Worker	Adult	Inhalation	Quant	Although exposures to subsurface soil by industrial workers are considered unlikely, this scenario was included to aid in future risk management decisions.
				Construction Worker	Adult	Inhalation	Quant	Construction workers may be exposed to fugitive dust and volatile emissions from subsurface soil.
				Trespassers	Adolescents	Inhalation	Quant	Although exposures to subsurface soil by trespassers are considered unlikely, this scenario was included to aid in future risk management decisions.
	Groundwater	Groundwater	SWMU 11	Maintenance Worker	Adult	Ingestion Dermal	None None	Maintenance workers are not expected to be exposed to groundwater.
				Industrial Worker	Adult	Ingestion Dermal	None None	Industrial workers are not expected to be exposed to groundwater.
				Construction Worker	Adult	Ingestion Dermal	None Quant	Construction workers may contact groundwater during excavation activities.
				Trespassers	Adolescents	Ingestion Dermal	None None	Trespassers are not expected to be exposed to groundwater.

TABLE 1
SELECTION OF EXPOSURE PATHWAYS
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE, CRANE, INDIANA

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current/Future	Groundwater	Air	SWMU 11	Maintenance Worker	Adult	Inhalation	None	Maintenance workers are not expected to be exposed to groundwater.
				Industrial Worker	Adult	Inhalation	None	Industrial workers are not expected to be exposed to groundwater.
				Construction Worker	Adult	Inhalation	Quant	Construction workers may be exposed to chemicals that have volatilized from groundwater during excavation activities.
				Trespassers	Adolescents	Inhalation	None	Trespassers are not expected to be exposed to groundwater.
			Vapor Intrusion	Industrial Worker	Adult	Inhalation	Quant	Industrial workers may be exposed to chemicals that have volatilized from groundwater and migrated through building foundations into indoor air.
	Sediment	Sediment	SWMU 11	Maintenance Worker	Adult	Ingestion Dermal	None None	Maintenance workers are not expected to come into contact with sediment.
				Industrial Worker	Adult	Ingestion Dermal	None None	Industrial workers are not expected to come into contact with sediment.
				Construction Worker	Adult	Ingestion Dermal	None None	Construction workers are not expected to be exposed to sediment.
				Trespassers	Adolescents	Ingestion Dermal	Quant Quant	Trespassers may be exposed to sediment.
Future	Surface Soil	Surface Soil	SWMU 11	Residents	Child	Ingestion Dermal	Quant Quant	Child residents may be exposed to surface soil.
					Adult	Ingestion Dermal	Quant Quant	Adult residents may be exposed to surface soil.
				Recreational Users	Child	Ingestion Dermal	Quant Quant	Child recreational users may be exposed to surface soil.
					Adult	Ingestion Dermal	Quant Quant	Adult recreational user may be exposed to surface soil.
		Air	SWMU 11	Residents	Child	Inhalation	Quant	Child residents may be exposed to fugitive dust and volatile emissions from surface soil.
					Adult	Inhalation	Quant	Adult residents may be exposed to fugitive dust and volatile emissions from surface soil.
				Recreational Users	Child	Inhalation	Quant	Child recreational users may be exposed to fugitive dust and volatile emissions from surface soil.
					Adult	Inhalation	Quant	Adult recreational users may be exposed to fugitive dust and volatile emissions from surface soil.
	Subsurface Soil	Subsurface Soil	SWMU 11	Residents	Child	Ingestion Dermal	Quant Quant	Although exposures to subsurface soil by child residents are considered unlikely, this scenario was included to aid in future risk management decisions.
					Adult	Ingestion Dermal	Quant Quant	Although exposures to subsurface soil by adult residents are considered unlikely, this scenario was included to aid in future risk management decisions.
				Recreational Users	Child	Ingestion Dermal	Quant Quant	Although exposures to subsurface soil by child recreational users are considered unlikely, this scenario was included to aid in future risk management decisions.
					Adult	Ingestion Dermal	Quant Quant	Although exposures to subsurface soil by adult recreational users are considered unlikely, this scenario was included to aid in future risk management decisions.

TABLE 1
SELECTION OF EXPOSURE PATHWAYS
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE, CRANE, INDIANA

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Future	Subsurface Soil	Air	SWMU 11	Residents	Child	Inhalation	Quant	Although exposures to subsurface soil by child residents are considered unlikely, this scenario was included to aid in future risk management decisions.
					Adult	Inhalation	Quant	Although exposures to subsurface soil by adult residents are considered unlikely, this scenario was included to aid in future risk management decisions.
				Recreational Users	Child	Inhalation	Quant	Although exposures to subsurface soil by child recreational users are considered unlikely, this scenario was included to aid in future risk management decisions.
					Adult	Inhalation	Quant	Although exposures to subsurface soil by adult recreational users are considered unlikely, this scenario was included to aid in future risk management decisions.
	Groundwater	Groundwater	SWMU 11	Residents	Child	Ingestion Dermal	Quant Quant	Child residents may be exposed to groundwater.
					Adult	Ingestion Dermal	Quant Quant	Adult residents may be exposed to groundwater.
				Recreational Users	Child	Ingestion Dermal	None None	Child recreational users are not expected to be exposed to groundwater.
					Adult	Ingestion Dermal	None None	Adult recreational users are not expected to be exposed to groundwater.
		Air	SWMU 11	Residents	Child	Inhalation	Quant	Child residents may be exposed to chemicals that have volatilized from groundwater.
					Adult	Inhalation	Quant	Adult residents may be exposed to chemicals that have volatilized from groundwater.
				Recreational Users	Child	Inhalation	None	Child recreational users are not expected to be exposed to groundwater.
					Adult	Inhalation	None	Adult recreational users are not expected to be exposed to groundwater.
			Vapor Intrusion	Residents	Child	Inhalation	Quant	Child residents may be exposed to chemicals that have volatilized from groundwater and migrated through building foundations into indoor air.
					Adult	Inhalation	Quant	Adult residents may be exposed to chemicals that have volatilized from groundwater and migrated through building foundations into indoor air.
	Sediment	Sediment	SWMU 11	Residents	Child	Ingestion Dermal	None None	Child residents are not expected to be exposed to sediment.
					Adult	Ingestion Dermal	None None	Adult residents are not expected to be exposed to sediment.
				Recreational Users	Child	Ingestion Dermal	Quant Quant	A future child recreational user may be exposed to sediment.
					Adult	Ingestion Dermal	Quant Quant	A future adult recreational user may be exposed to sediment.

Notes:
Quant - Quantitative.

RAGS Part D Table 2

Occurrence, Distribution and Selection Of Chemicals of Potential Concern

LIST OF TABLES
RAGS PART D TABLE 2
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Table No.

2.1	Surface Soil - Direct Contact
2.2	Surface Soil - Migration From Soil to Groundwater
2.3	Subsurface Soil - Direct Contact
2.4	Subsurface Soil - Migration From Soil to Groundwater
2.5	Sediment - Direct Contact
2.6	Groundwater - Direct Contact
2.7	Groundwater - Vapor Intrusion

TABLE 2.1
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH SURFACE SOIL
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[1]	Concentration Used for Screening[2]	Similar to Background?[3]	Adjusted USEPA RSL Residential Soil[4]	IDEM Residential Soil[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
SWMU 11	**Volatile Organic Compounds**													
	95-50-1	1,2-Dichlorobenzene	1.42 J	1.42 J	ug/kg	11SB030002	1/4	2.51 - 2.98	1.42	NA	190,000 N	380,000 S	No	BSL
	78-93-3	2-Butanone	3.68 J	3.68 J	ug/kg	11SB040002	1/4	5.03 - 5.62	3.68	NA	2,800,000 N	28,000,000 S	No	BSL
	67-64-1	Acetone	14.6 J	25.8	ug/kg	11SB040002	2/3	10.1 - 10.1	25.8	NA	6,100,000 N	85,000,000 N	No	BSL
	156-59-2	cis-1,2-Dichloroethene	2.19 J	3.27 J	ug/kg	11SB020002	2/4	2.81 - 2.98	3.27	NA	16,000 N	220,000 N	No	BSL
	127-18-4	Tetrachloroethene	1.36 J	1.36 J	ug/kg	11SB010002	1/4	2.74 - 2.98	1.36	NA	8,600 N[7]	120,000 N	No	BSL
	Semivolatile Organic Compounds													
	84-66-2	Diethyl Phthalate	4440	4440	ug/kg	11SB020002	1/22	189 - 222	4440	NA	4,900,000 N	69,000,000 N	No	BSL
	Polycyclic Aromatic Hydrocarbons													
	91-57-6	2-Methylnaphthalene	2.52 J	10.8 J	ug/kg	11SS130002	3/22	3.77 - 4.43	10.8	NA	23,000 N	320,000 N	No	BSL
	83-32-9	Acenaphthene	2.57 J	17.2 J	ug/kg	11SS110002	2/22	3.85 - 19.2	17.2	NA	340,000 N	4,800,000 N	No	BSL
	208-96-8	Acenaphthylene	3.57 J	86.9	ug/kg	11SS130002	7/22	3.85 - 4.43	86.9	NA	340,000 N[8]	NA	No	BSL
	120-12-7	Anthracene	3.9 J	52.3	ug/kg	11SS130002	6/22	3.85 - 4.43	52.3	NA	1,700,000 N	24,000,000 N	No	BSL
	56-55-3	**Benzo(a)anthracene**	5.49 J	322	ug/kg	11SS130002	8/22	3.85 - 4.43	322	NA	**150 C**	2,100 C	**Yes**	ASL
	50-32-8	**Benzo(a)pyrene**	3.9 J	348	ug/kg	11SS130002	8/22	3.85 - 4.43	348	NA	**15 C**	**210 C**	**Yes**	ASL
	205-99-2	**Benzo(b)fluoranthene**	3.63 J	454	ug/kg	11SS130002	10/22	3.85 - 4.43	454	NA	**150 C**	2,100 C	**Yes**	ASL
	191-24-2	Benzo(g,h,i)perylene	2.71 J	234	ug/kg	11SS130002	9/22	3.85 - 4.43	234	NA	170,000 N[9]	NA	No	BSL
	207-08-9	Benzo(k)fluoranthene	2.59 J	202	ug/kg	11SS130002	9/22	3.85 - 4.43	202	NA	1,500 C	21,000 C	No	BSL
	218-01-9	Chrysene	3.09 J	427	ug/kg	11SS130002	9/22	3.85 - 4.43	427	NA	15,000 C	210,000 C	No	BSL
	53-70-3	**Dibenzo(a,h)anthracene**	9.15	82.1	ug/kg	11SS130002	6/22	3.85 - 4.43	82.1	NA	**15 C**	210 C	**Yes**	ASL
	206-44-0	Fluoranthene	2.67 J	454	ug/kg	11SS130002	10/22	3.85 - 4.43	454	NA	230,000 N	3,200,000 N	No	BSL
	86-73-7	Fluorene	3.25 J	16.1 J	ug/kg	11SS130002	4/22	3.85 - 4.43	16.1	NA	230,000 N	3,200,000 N	No	BSL
	193-39-5	**Indeno(1,2,3-cd)pyrene**	2.08 J	187	ug/kg	11SS130002	10/22	3.85 - 4.43	187	NA	**150 C**	2,100 C	**Yes**	ASL
	91-20-3	Naphthalene	2.26 J	14.4 J	ug/kg	11SS130002	5/22	3.85 - 4.43	14.4	NA	3,600 C	50,000 C	No	BSL
	85-01-8	Phenanthrene	2.24 J	301 J	ug/kg	11SS110002	10/22	3.85 - 4.43	301	NA	170,000 N[9]	NA	No	BSL
	129-00-0	Pyrene	2.46 J	417 J	ug/kg	11SS130002	11/22	3.85 - 4.43	417	NA	170,000 N	2,400,000 N	No	BSL
	Pesticides													
	72-55-9	4,4'-DDE	1.4 J	1.4 J	ug/kg	11SS140002	1/22	0.39 - 0.462	1.4	NA	1,400 C	20,000 C	No	BSL
	319-84-6	alpha-BHC	0.226 J	0.93	ug/kg	11SS080002	2/22	0.39 - 0.431	0.93	NA	77 C	1,100 C	No	BSL
	319-85-7	beta-BHC	0.221 J	0.265 J	ug/kg	11SB020002	2/22	0.39 - 0.462	0.265	NA	270 C	3,800 C	No	BSL
	58-89-9	gamma-BHC (Lindane)	2.27 J	2.27 J	ug/kg	11SS130002	1/22	0.39 - 0.462	2.27	NA	520 C	7,300 C	No	BSL
	5103-74-2	gamma-Chlordane	0.244 J	1.25 J	ug/kg	11SS070002	6/22	0.39 - 0.462	1.25	NA	1,600 C[10]	22,000 C[10]	No	BSL
	72-43-5	Methoxychlor	1.01 J	1.01 J	ug/kg	11SS120002	1/22	0.383 - 0.462	1.01	NA	31,000 N	430,000 N	No	BSL
	Dioxins/Furans													
	3268-87-9	1,2,3,4,6,7,8,9-OCDD	443	6,710 J	ng/kg	11SS140002	11/11	-	6,710	NA	15,000 C[11]	NA	No	BSL
	39001-02-0	1,2,3,4,6,7,8,9-OCDF	1.14 J	583 J	ng/kg	11SS110002	8/11	6.22 - 6.36	583	NA	15,000 C[11]	NA	No	BSL
	35822-46-9	**1,2,3,4,6,7,8-HPCDD**	4.84	772 J	ng/kg	11SS110002	11/11	-	772	NA	**450 C[11]**	NA	**Yes**	ASL
	67562-39-4	1,2,3,4,6,7,8-HPCDF	0.244 J	102 J	ng/kg	11SS110002	8/11	3.12 - 3.19	102	NA	450 C[11]	NA	No	BSL
	55673-89-7	1,2,3,4,7,8,9-HPCDF	0.329 J	7.82	ng/kg	11SS110002	3/11	3.12 - 3.28	7.82	NA	450 C[11]	NA	No	BSL
	39227-28-6	1,2,3,4,7,8-HXCDD	0.57 J	8.54	ng/kg	11SS110002	5/11	3.12 - 3.21	8.54	NA	45 C[11]	NA	No	BSL
	70648-26-9	1,2,3,4,7,8-HXCDF	0.318 J	3.91 J	ng/kg	11SS110002	5/11	3.12 - 3.28	3.91	NA	45 C[11]	NA	No	BSL
	57653-85-7	1,2,3,6,7,8-HXCDD	0.642 J	24.7 J	ng/kg	11SS110002	7/11	3.12 - 3.19	24.7	NA	45 C[11]	NA	No	BSL
	57117-44-9	1,2,3,6,7,8-HXCDF	0.313 J	4.61 J	ng/kg	11SS110002	4/11	3.12 - 3.28	4.61	NA	45 C[11]	NA	No	BSL
	19408-74-3	1,2,3,7,8,9-HXCDD	0.596 J	13.7 J	ng/kg	11SS110002	7/11	3.12 - 3.19	13.7	NA	45 C[11]	NA	No	BSL
	72918-21-9	1,2,3,7,8,9-HXCDF	1.56 J	1.56 J	ng/kg	11SS110002	1/11	3.09 - 3.28	1.56	NA	45 C[11]	NA	No	BSL
	40321-76-4	1,2,3,7,8-PECDD	0.51 J	2.45 J	ng/kg	11SS110002	2/11	3.09 - 3.28	2.45	NA	4.5 C[11]	NA	No	BSL
	57117-41-6	1,2,3,7,8-PECDF	0.849 J	2.5 J	ng/kg	11SS220002	3/11	3.09 - 3.28	2.5	NA	150 C[11]	NA	No	BSL
	60851-34-5	2,3,4,6,7,8-HXCDF	0.383 J	4.51 J	ng/kg	11SS110002	4/11	3.12 - 3.28	4.51	NA	45 C[11]	NA	No	BSL
	57117-31-4	2,3,4,7,8-PECDF	1.04 J	3.12 J	ng/kg	11SS140002	3/11	3.09 - 3.28	3.12	NA	15 C[11]	NA	No	BSL
	1746-01-6	2,3,7,8-TCDD	0.24 J	0.69 J	ng/kg	11SS220002	2/11	0.616 - 0.653	0.69	NA	4.5 C	63 C	No	BSL

TABLE 2.1
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH SURFACE SOIL
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[1]	Concentration Used for Screening[2]	Similar to Background?[3]	Adjusted USEPA RSL Residential Soil[4]	IDEM Residential Soil[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
SWMU 11	**Dioxins/Furans (Continued)**													
	--	**2,3,7,8-TCDD Equivalents - Halfnd**	3.72	20.2	ng/kg	11SS110002	11/11	-	20.2	NA	**4.5 C**	63 C	**Yes**	ASL
	37871-00-4	Total HPCDD	9.63	1,440 J	ng/kg	11SS110002	11/11	-	1,440	NA	NA	NA	No	NTX
	38998-75-3	Total HPCDF	0.691 J	430 J	ng/kg	11SS110002	7/11	3.12 - 3.28	430	NA	NA	NA	No	NTX
	34465-46-8	Total HXCDD	1.38 J	168 J	ng/kg	11SS110002	10/11	3.12 - 3.12	168	NA	NA	NA	No	NTX
	55684-94-1	Total HXCDF	0.255 J	108 J	ng/kg	11SS110002	7/11	3.12 - 3.19	108	NA	NA	NA	No	NTX
	36088-22-9	Total PECDD	0.332 J	18.5 J	ng/kg	11SS110002	7/11	3.12 - 3.21	18.5	NA	NA	NA	No	NTX
	30402-15-4	Total PECDF	0.853 J	36.6	ng/kg	11SS140002	4/11	3.12 - 3.28	36.6	NA	NA	NA	No	NTX
	41903-57-5	Total TCDD	0.69 J	1.17	ng/kg	11SS110002	2/11	0.616 - 0.653	1.17	NA	NA	NA	No	NTX
	55722-27-5	Total TCDF	10	10	ng/kg	11SS220002	1/11	0.369 - 8.4	10	NA	NA	NA	No	NTX
	Metals													
	7429-90-5	**Aluminum**	7,490	19,900	mg/kg	11SB010002	22/22	-	19,900	No	**7,700 N**	100,000 L	**Yes**	ASL
	7440-38-2	Arsenic	3.16	12	mg/kg	11SB010002	22/22	-	12	Yes	**0.61 C**	**5.5 C**	No	BKG
	7440-39-3	Barium	21.4	142	mg/kg	11SS310002	22/22	-	142	Yes	1,500 N	21,000 N	No	BSL, BKG
	7440-41-7	Beryllium	0.373 J	1.14	mg/kg	11SS320002	22/22	-	1.14	NA	16 N	220 N	No	BSL
	7440-43-9	Cadmium	0.139 J	0.174 J	mg/kg	11SS300002	2/22	0.232 - 0.261	0.174	Yes	7 N	98 N	No	BSL, BKG
	7440-70-2	Calcium	242 J	96,200	mg/kg	11SS300002	22/22	-	96,200	No	NA	NA	No	NUT
	7440-47-3	Chromium	10.9	27.6	mg/kg	11SS320002	22/22	-	27.6	Yes	**0.29 C[12]**	**4.1 C[12]**	No	BKG
	7440-48-4	Cobalt	2.85	26	mg/kg	11SS080002	22/22	-	26	Yes	**2.3 N**	32 N	No	BKG
	7440-50-8	Copper	6.37	18.4	mg/kg	11SS180002	22/22	-	18.4	No	310 N	4,300 N	No	BSL
	7439-89-6	**Iron**	13,400	30,100	mg/kg	11SS320002	22/22	-	30,100	No	**5,500 N**	77,000 N	**Yes**	ASL
	7439-92-1	Lead	5.45 J	27.7	mg/kg	11SS080002	22/22	-	27.7	Yes	400	400	No	BSL, BKG
	7439-95-4	Magnesium	738	4,260	mg/kg	11SS300002	22/22	-	4,260	No	NA	NA	No	NUT
	7439-96-5	Manganese	101 J	1,070 J	mg/kg	11SS310002	22/22	-	1,070	Yes	**180 N**	2,500 N	No	BKG
	7439-97-6	Mercury	0.0235 J	0.0645 J	mg/kg	11SS090002	17/22	0.0296 - 0.0402	0.0645	No	2.3 N[13]	32 N[13]	No	BSL
	7440-02-0	Nickel	5.23	17.1	mg/kg	11SS300002	22/22	-	17.1	Yes	150 N	2,100 N	No	BSL, BKG
	7440-09-7	Potassium	278 J	1,110	mg/kg	11SS050002	22/22	-	1,110	Yes	NA	NA	No	NUT, BKG
	7782-49-2	Selenium	0.406 J	0.67 J	mg/kg	11SS050002	8/22	0.577 - 0.649	0.67	Yes	39 N	550 N	No	BSL, BKG
	7440-23-5	Sodium	139 J	397 J	mg/kg	11SS300002	6/22	348 - 389	397	No	NA	NA	No	NUT
	7440-62-2	Vanadium	17.6 J	41	mg/kg	11SB010002	22/22	-	41	Yes	**39 N**	550 N	No	BKG
	7440-66-6	Zinc	10.9	52.5	mg/kg	11SB010002	22/22	-	52.5	Yes	2,300 N	32,000 N	No	BSL, BKG

Footnotes:
1 - Values presented are sample-specific quantitation limits.
2 - The maximum detected concentration is used for screening purposes.
3 - Soil Group 3 - Alluvial, Mississippian, and Pennsylvanian Surface Soil Upper Tolerance Limit. Base-Wide Background Soil Investigation Report, Tetra Tech, 2001.
4 - USEPA Regional Screening Levels for Chemical Contaminants at Superfund Sites, November 2013. The noncarcinogenic values (denoted with a "N" flag) are the screening level divided by 10 to correspond to a target hazard quotient of 0.1. Carcinogenic values represent an incremental cancer risk of 1.0E-06 (carcinogens denoted with a "C" flag).
5 - IDEM Closure Guide, March 1, 2013.
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
7 - Ten percent of the noncarcinogenic value is less than the carcinogenic value, therefore the noncarcinogenic value is presented.
8 - Value is for acenaphthene.
9 - Value is for pyrene.
10 - Value is for chlordane.
11 - Value is derived by multiplying the criteria for 2,3,7,8-TCDD by World Health Organization Toxicity Equivalency Factor.
12 - Value is for hexavalent chromium.
13 - Value is for mercuric chloride (and other mercury salts).
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Definitions:
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
L = Capped at 100,000 mg/kg
N = Noncarcinogen
NA = Not Applicable/Not Available
S = Soil saturation limit

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BKG = Less than Background Concentration
BSL = Below COPC Screening Level
NTX = No toxicity criteria available
NUT = Essential nutrient

TABLE 2.2
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - MIGRATION FROM SURFACE SOIL TO GROUNDWATER
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[1]	Concentration Used for Screening[2]	Similar to Background?[3]	USEPA RSL Protection of Groundwater[4]	IDEM Migration to Groundwater[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
SWMU 11	**Volatile Organic Compounds**													
	95-50-1	1,2-Dichlorobenzene	1.42 J	1.42 J	ug/kg	11SB030002	1/4	2.51 - 2.98	1.42	NA	5,400	12,000 M	No	BSL
	78-93-3	2-Butanone	3.68 J	3.68 J	ug/kg	11SB040002	1/4	5.03 - 5.62	3.68	NA	20,000	21,000 N	No	BSL
	67-64-1	Acetone	14.6 J	25.8	ug/kg	11SB040002	2/3	10.1 - 10.1	25.8	NA	48,000	49,000 N	No	BSL
	156-59-2	cis-1,2-Dichloroethene	2.19 J	3.27 J	ug/kg	11SB020002	2/4	2.81 - 2.98	3.27	NA	164	410 M	No	BSL
	127-18-4	Tetrachloroethene	1.36 J	1.36 J	ug/kg	11SB010002	1/4	2.74 - 2.98	1.36	NA	88	45 M	No	BSL
	Semivolatile Organic Compounds													
	84-66-2	Diethyl Phthalate	4,440	4,440	ug/kg	11SB020002	1/22	189 - 222	4,440	NA	94,000	90,000 N	No	BSL
	Polycyclic Aromatic Hydrocarbons													
	91-57-6	2-Methylnaphthalene	2.52 J	10.8 J	ug/kg	11SS130002	3/22	3.77 - 4.43	10.8	NA	2,800	2,800 N	No	BSL
	83-32-9	Acenaphthene	2.57 J	17.2 J	ug/kg	11SS110002	2/22	3.85 - 19.2	17.2	NA	82,000	82,000 N	No	BSL
	208-96-8	Acenaphthylene	3.57 J	86.9	ug/kg	11SS130002	7/22	3.85 - 4.43	86.9	NA	82,000 [7]	NA	No	BSL
	120-12-7	Anthracene	3.9 J	52.3	ug/kg	11SS130002	6/22	3.85 - 4.43	52.3	NA	840,000	860,000 N	No	BSL
	56-55-3	**Benzo(a)anthracene**	5.49 J	322	ug/kg	11SS130002	8/22	3.85 - 4.43	322	NA	**200**	2,100 C	**Yes**	ASL
	50-32-8	**Benzo(a)pyrene**	3.9 J	348	ug/kg	11SS130002	8/22	3.85 - 4.43	348	NA	**70**	4,700 M	**Yes**	ASL
	205-99-2	Benzo(b)fluoranthene	3.63 J	454	ug/kg	11SS130002	10/22	3.85 - 4.43	454	NA	700	7,000 C	No	BSL
	191-24-2	Benzo(g,h,i)perylene	2.71 J	234	ug/kg	11SS130002	9/22	3.85 - 4.43	234	NA	190,000 [8]	NA	No	BSL
	207-08-9	Benzo(k)fluoranthene	2.59 J	202	ug/kg	11SS130002	9/22	3.85 - 4.43	202	NA	7,000	68,000 C	No	BSL
	218-01-9	Chrysene	3.09 J	427	ug/kg	11SS130002	9/22	3.85 - 4.43	427	NA	22,000	210,000 C	No	BSL
	53-70-3	Dibenzo(a,h)anthracene	9.15	82.1	ug/kg	11SS130002	6/22	3.85 - 4.43	82.1	NA	220	2,200 C	No	BSL
	206-44-0	Fluoranthene	2.67 J	454	ug/kg	11SS130002	10/22	3.85 - 4.43	454	NA	1,400,000	1,400,000 N	No	BSL
	86-73-7	Fluorene	3.25 J	16.1 J	ug/kg	11SS130002	4/22	3.85 - 4.43	16.1	NA	80,000	81,000 N	No	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	2.08 J	187	ug/kg	11SS130002	10/22	3.85 - 4.43	187	NA	4,000	40,000 C	No	BSL
	91-20-3	**Naphthalene**	2.26 J	14.4 J	ug/kg	11SS130002	5/22	3.85 - 4.43	14.4	NA	**9.4**	92 C	**Yes**	ASL
	85-01-8	Phenanthrene	2.24 J	301 J	ug/kg	11SS110002	10/22	3.85 - 4.43	301	NA	190,000 [8]	NA	No	BSL
	129-00-0	Pyrene	2.46 J	417 J	ug/kg	11SS130002	11/22	3.85 - 4.43	417	NA	190,000	190,000 N	No	BSL
	Pesticides													
	72-55-9	4,4'-DDE	1.4 J	1.4 J	ug/kg	11SS140002	1/22	0.39 - 0.462	1.4	NA	920	9,400 C	No	BSL
	319-84-6	**alpha-BHC**	0.226 J	0.93	ug/kg	11SS080002	2/22	0.39 - 0.431	0.93	NA	**0.72**	7.2 C	**Yes**	ASL
	319-85-7	beta-BHC	0.221 J	0.265 J	ug/kg	11SB020002	2/22	0.39 - 0.462	0.265	NA	2.6	26 C	No	BSL
	58-89-9	gamma-BHC (Lindane)	2.27 J	2.27 J	ug/kg	11SS130002	1/22	0.39 - 0.462	2.27	NA	4.2	23 M	No	BSL
	5103-74-2	gamma-Chlordane	0.244 J	1.25 J	ug/kg	11SS070002	6/22	0.39 - 0.462	1.25	NA	260 [9]	2,700 M[9]	No	BSL
	72-43-5	Methoxychlor	1.01 J	1.01 J	ug/kg	11SS120002	1/22	0.383 - 0.462	1.01	NA	30,000	43,000 M	No	BSL
	Dioxins/Furans													
	3268-87-9	1,2,3,4,6,7,8,9-OCDD	443	6,710 J	ng/kg	11SS140002	11/11	-	6710	NA	17,400 [10]	NA	No	BSL
	39001-02-0	1,2,3,4,6,7,8,9-OCDF	1.14 J	583 J	ng/kg	11SS110002	8/11	6.22 - 6.36	583	NA	17,400 [10]	NA	No	BSL
	35822-46-9	**1,2,3,4,6,7,8-HPCDD**	4.84	772 J	ng/kg	11SS110002	11/11	-	772	NA	**520 [10]**	NA	**Yes**	ASL
	67562-39-4	1,2,3,4,6,7,8-HPCDF	0.244 J	102 J	ng/kg	11SS110002	8/11	3.12 - 3.19	102	NA	520 [10]	NA	No	BSL
	55673-89-7	1,2,3,4,7,8,9-HPCDF	0.329 J	7.82	ng/kg	11SS110002	3/11	3.12 - 3.28	7.82	NA	520 [10]	NA	No	BSL
	39227-28-6	1,2,3,4,7,8-HXCDD	0.57 J	8.54	ng/kg	11SS110002	5/11	3.12 - 3.21	8.54	NA	52 [10]	NA	No	BSL
	70648-26-9	1,2,3,4,7,8-HXCDF	0.318 J	3.91 J	ng/kg	11SS110002	5/11	3.12 - 3.28	3.91	NA	52 [10]	NA	No	BSL
	57653-85-7	1,2,3,6,7,8-HXCDD	0.642 J	24.7 J	ng/kg	11SS110002	7/11	3.12 - 3.19	24.7	NA	52 [10]	NA	No	BSL
	57117-44-9	1,2,3,6,7,8-HXCDF	0.313 J	4.61 J	ng/kg	11SS110002	4/11	3.12 - 3.28	4.61	NA	52 [10]	NA	No	BSL
	19408-74-3	1,2,3,7,8,9-HXCDD	0.596 J	13.7 J	ng/kg	11SS110002	7/11	3.12 - 3.19	13.7	NA	52 [10]	NA	No	BSL
	72918-21-9	1,2,3,7,8,9-HXCDF	1.56 J	1.56 J	ng/kg	11SS110002	1/11	3.09 - 3.28	1.56	NA	52 [10]	NA	No	BSL
	40321-76-4	1,2,3,7,8-PECDD	0.51 J	2.45 J	ng/kg	11SS110002	2/11	3.09 - 3.28	2.45	NA	5.2 [10]	NA	No	BSL
	57117-41-6	1,2,3,7,8-PECDF	0.849 J	2.5 J	ng/kg	11SS220002	3/11	3.09 - 3.28	2.5	NA	174 [10]	NA	No	BSL
	60851-34-5	2,3,4,6,7,8-HXCDF	0.383 J	4.51 J	ng/kg	11SS110002	4/11	3.12 - 3.28	4.51	NA	52 [10]	NA	No	BSL
	57117-31-4	2,3,4,7,8-PECDF	1.04 J	3.12 J	ng/kg	11SS140002	3/11	3.09 - 3.28	3.12	NA	17.4 [10]	NA	No	BSL
	1746-01-6	2,3,7,8-TCDD	0.24 J	0.69 J	ng/kg	11SS220002	2/11	0.616 - 0.653	0.69	NA	5.2	300 M	No	ASL

TABLE 2.2
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - MIGRATION FROM SURFACE SOIL TO GROUNDWATER
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[1]	Concentration Used for Screening[2]	Similar to Background?[3]	USEPA RSL Protection of Groundwater[4]	IDEM Migration to Groundwater[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
SWMU 11	**Dioxins/Furans (Continued)**													
	- -	**2,3,7,8-TCDD Equivalents - Halfnd**	3.72	20.2	ng/kg	11SS110002	11/11	-	20.2	NA	**5.2**	300 M	**Yes**	ASL
	37871-00-4	Total HPCDD	9.63	1,440 J	ng/kg	11SS110002	11/11	-	1,440	NA	NA	NA	No	NTX
	38998-75-3	Total HPCDF	0.691 J	430 J	ng/kg	11SS110002	7/11	3.12 - 3.28	430	NA	NA	NA	No	NTX
	34465-46-8	Total HXCDD	1.38 J	168 J	ng/kg	11SS110002	10/11	3.12 - 3.12	168	NA	NA	NA	No	NTX
	55684-94-1	Total HXCDF	0.255 J	108 J	ng/kg	11SS110002	7/11	3.12 - 3.19	108	NA	NA	NA	No	NTX
	36088-22-9	Total PECDD	0.332 J	18.5 J	ng/kg	11SS110002	7/11	3.12 - 3.21	18.5	NA	NA	NA	No	NTX
	30402-15-4	Total PECDF	0.853 J	36.6	ng/kg	11SS140002	4/11	3.12 - 3.28	36.6	NA	NA	NA	No	NTX
	41903-57-5	Total TCDD	0.69 J	1.17	ng/kg	11SS110002	2/11	0.616 - 0.653	1.17	NA	NA	NA	No	NTX
	55722-27-5	Total TCDF	10	10	ng/kg	11SS220002	1/11	0.369 - 8.4	10	NA	NA	NA	No	NTX
	Metals													
	7429-90-5	Aluminum	7,490	19,900	mg/kg	11SB010002	22/22	-	19,900	No	460,000	480,000 N	No	BSL
	7440-38-2	Arsenic	3.16	12	mg/kg	11SB010002	22/22	-	12	Yes	**0.026**	**5.9 M**	No	BKG
	7440-39-3	Barium	21.4	142	mg/kg	11SS310002	22/22	-	142	Yes	2,400	1,700 M	No	BSL, BKG
	7440-41-7	Beryllium	0.373 J	1.14	mg/kg	11SS320002	22/22	-	1.14	NA	260	63 M	No	BSL
	7440-43-9	Cadmium	0.139 J	0.174 J	mg/kg	11SS300002	2/22	0.232 - 0.261	0.174	Yes	10.4	7.5 M	No	BSL, BKG
	7440-70-2	Calcium	242 J	96,200	mg/kg	11SS300002	22/22	-	96,200	No	NA	NA	No	NUT
	7440-47-3	Chromium	10.9	27.6	mg/kg	11SS320002	22/22	-	27.6	Yes	**0.0118** [11]	**0.12 C**[11]	No	BKG
	7440-48-4	Cobalt	2.85	26	mg/kg	11SS080002	22/22	-	26	Yes	**4.2**	**4.3 N**	No	BKG
	7440-50-8	Copper	6.37	18.4	mg/kg	11SS180002	22/22	-	18.4	No	440	920 M	No	BSL
	7439-89-6	**Iron**	13,400	30,100	mg/kg	11SS320002	22/22	-	30,100	No	**5,400**	**5,600 N**	**Yes**	ASL
	7439-92-1	Lead	5.45 J	27.7	mg/kg	11SS080002	22/22	-	27.7	Yes	280	270 M	No	BSL, BKG
	7439-95-4	Magnesium	738	4,260	mg/kg	11SS300002	22/22	-	4,260	No	NA	NA	No	NUT
	7439-96-5	Manganese	101 J	1,070 J	mg/kg	11SS310002	22/22	-	1,070	Yes	**420**	**420 N**	No	BKG
	7439-97-6	Mercury	0.0235 J	0.0645 J	mg/kg	11SS090002	17/22	0.0296 - 0.0402	0.0645	No	0.66 [12]	2.1 M	No	BSL
	7440-02-0	Nickel	5.23	17.1	mg/kg	11SS300002	22/22	-	17.1	Yes	400	390 N	No	BSL, BKG
	7440-09-7	Potassium	278 J	1,110	mg/kg	11SS050002	22/22	-	1,110	Yes	NA	NA	No	NUT, BKG
	7782-49-2	Selenium	0.406 J	0.67 J	mg/kg	11SS050002	8/22	0.577 - 0.649	0.67	Yes	8	5.3 M	No	BSL, BKG
	7440-23-5	Sodium	139 J	397 J	mg/kg	11SS300002	6/22	348 - 389	397	No	NA	NA	No	NUT
	7440-62-2	Vanadium	17.6 J	41	mg/kg	11SB010002	22/22	-	41	Yes	1,260	1,600 N	No	BSL, BKG
	7440-66-6	Zinc	10.9	52.5	mg/kg	11SB010002	22/22	-	52.5	Yes	5,800	5,900 N	No	BSL, BKG

Footnotes:
1 - Values presented are sample-specific quantitation limits.
2 - The maximum detected concentration is used for screening purposes.
3 - Soil Group 3 - Alluvial, Mississippian, and Pennsylvanian Surface Soil Upper Tolerance Limit. Base-Wide Background Soil Investigation Report, Tetra Tech, 2001.
4 - USEPA Regional Screening Levels for Chemical Contaminants at Superfund Sites, November 2013. Values are based on a dilution attenuation factor of 20.
5 - IDEM Closure Guide, March 1, 2013.
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
7 - Value is for acenaphthene.
8 - Value is for pyrene.
9 - Value is for chlordane.
10 - Value is derived by multiplying the criteria for 2,3,7,8-TCDD by World Health Organization Toxicity Equivalency Factor.
11 - Value is for hexavalent chromium.
12 - Value is for mercuric chloride (and other mercury salts).
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Definitions:
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
M = Maximum Contaminant Level
N = Noncarcinogen
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BKG = Less than Background Concentration
BSL = Below COPC Screening Level
NTX = No toxicity criteria available
NUT = Essential nutrient

TABLE 2.3
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH SUBSURFACE SOIL
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[1]	Concentration Used for Screening[2]	Similar to Background?[3]	Adjusted USEPA RSL Residential Soil[4]	IDEM Residential Soil[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
SWMU 11	**Volatile Organic Compounds**													
	75-35-4	1,1-Dichloroethene	1.67 J	1.9 J	ug/kg	11SB020406	2/83	1.98 - 465	1.9	NA	24,000 N	340,000 N	No	BSL
	95-50-1	1,2-Dichlorobenzene	1.4 J	5870	ug/kg	11SB410204	36/83	1.98 - 465	5,870	NA	190,000 N	380,000 S	No	BSL
	106-46-7	1,4-Dichlorobenzene	3.27 J	150 J	ug/kg	11SB410405	9/83	1.98 - 465	150	NA	2,400 C	34,000 C	No	BSL
	78-93-3	2-Butanone	2.76 J	9.34 J	ug/kg	11SB57-0406	6/83	2.87 - 929	9.34	NA	2,800,000 N	28,000,000 S	No	BSL
	67-64-1	Acetone	4.87 J	270 J	ug/kg	11SB340406	26/82	8.67 - 1860	270	NA	6,100,000 N	85,000,000 N	No	BSL
	71-43-2	Benzene	1.3 J	146 J	ug/kg	11SB360405	4/83	1.98 - 465	146	NA	1,100 C	15,000 C	No	BSL
	108-90-7	Chlorobenzene	1.02 J	1670 J	ug/kg	11SB360405	17/83	2.17 - 465	1,670	NA	29,000 N	410,000 N	No	BSL
	156-59-2	cis-1,2-Dichloroethene	4.99	1700 J	ug/kg	11SB400506	43/83	1.98 - 136	1,700	NA	16,000 N	220,000 N	No	BSL
	100-41-4	Ethylbenzene	1.94 J	6.21	ug/kg	11SB450506	3/83	1.98 - 465	6.21	NA	5,400 C	76,000 C	No	BSL
	98-82-8	Isopropylbenzene	1.38 J	3.24 J	ug/kg	11SB51-0204	2/83	1.98 - 465	3.24	NA	210,000 N	270,000 S	No	BSL
	108-87-2	Methyl Cyclohexane	1.59 J	6.93	ug/kg	11SB65-0911	5/83	1.98 - 465	6.93	NA	NA	NA	No	NTX
	75-09-2	Methylene Chloride	2.63 J	883 J	ug/kg	11SB400506	6/83	3.96 - 272	883	NA	36,000 N[7]	500,000 N	No	BSL
	127-18-4	**Tetrachloroethene**	1.57 J	31200	ug/kg	11SB400506	36/83	1.98 - 136	31,200	NA	**8,600 N[7]**	120,000 N	**Yes**	ASL
	108-88-3	Toluene	1.28 J	10.6	ug/kg	11SB020406	6/83	1.98 - 465	10.6	NA	500,000 N	820,000 S	No	BSL
	1330-20-7	Total Xylenes	4.45 J	20.5	ug/kg	11SB52-0506	3/83	5.94 - 1390	20.5	NA	63,000 N	260,000 S	No	BSL
	156-60-5	trans-1,2-Dichloroethene	1.45 J	75.6	ug/kg	11SB64-0911	8/83	1.98 - 465	75.6	NA	15,000 N	210,000 N	No	BSL
	79-01-6	**Trichloroethene**	1.5 J	1290	ug/kg	11SB68-1315	42/83	1.98 - 136	1,290	NA	**440 N[7]**	6,200 N	**Yes**	ASL
	75-01-4	**Vinyl Chloride**	1.58 J	154	ug/kg	11SB020406	23/83	1.98 - 465	154	NA	**60 C**	840 C	**Yes**	ASL
	Semivolatile Organic Compounds													
	84-66-2	Diethyl Phthalate	300 J	300 J	ug/kg	11SB010406	1/7	186 - 226	300	NA	4,900,000 N	69,000,000 N	No	BSL
	Pesticides													
	319-85-7	beta-BHC	0.488 J	0.488 J	ug/kg	11SB030406	1/4	0.377 - 0.437	0.488	NA	270 C	3,800 C	No	BSL
	5103-74-2	gamma-Chlordane	0.355 J	0.355 J	ug/kg	11SB030406	1/4	0.377 - 0.437	0.355	NA	1,600 C[8]	22,000 C[8]	No	BSL
	Metals													
	7429-90-5	Aluminum	8,150	15,400	mg/kg	11SB020406	4/4	-	15,400	Yes	**7,700 N**	100,000 L	No	BKG
	7440-38-2	**Arsenic**	2.49	20.4	mg/kg	11SB020406	4/4	-	20.4	No	**0.61 C**	**5.5 C**	**Yes**	ASL
	7440-39-3	Barium	49.1	60.9	mg/kg	11SB030406	4/4	-	60.9	Yes	1,500 N	21,000 N	No	BSL, BKG
	7440-41-7	Beryllium	0.392 J	0.827 J	mg/kg	11SB020406	4/4	-	0.827	NA	16 N	220 N	No	BSL
	7440-70-2	Calcium	168 J	688	mg/kg	11SB030406	4/4	-	688	Yes	NA	NA	No	NUT, BKG
	7440-47-3	**Chromium**	13.8	74.9	mg/kg	11SB020406	4/4	-	74.9	No	**0.29 C[9]**	**4.1 C[9]**	**Yes**	ASL
	7440-48-4	Cobalt	1.88	5.73	mg/kg	11SB040406	4/4	-	5.73	Yes	**2.3 N**	32 N	No	BKG
	7440-50-8	Copper	6.05	12.7	mg/kg	11SB010406	4/4	-	12.7	Yes	310 N	4,300 N	No	BSL, BKG
	7439-89-6	**Iron**	11,400	75,600	mg/kg	11SB020406	4/4	-	75,600	No	**5,500 N**	77,000 N	**Yes**	ASL
	7439-92-1	Lead	6.76	28.5 J	mg/kg	11SB020406	4/4	-	28.5	No	400	400	No	BSL
	7439-95-4	Magnesium	792	1,460	mg/kg	11SB010406	4/4	-	1,460	Yes	NA	NA	No	NUT, BKG
	7439-96-5	Manganese	12.5	593	mg/kg	11SB040406	4/4	-	593	Yes	**180 N**	2,500 N	No	BKG
	7439-97-6	Mercury	0.0203 J	0.025 J	mg/kg	11SB040406	2/4	0.0337 - 0.0353	0.025	Yes	2.3 N[10]	32 N[10]	No	BSL, BKG
	7440-02-0	Nickel	5.71	9.71	mg/kg	11SB020406	4/4	-	9.71	Yes	150 N	2,100 N	No	BSL, BKG
	7440-09-7	Potassium	294 J	643	mg/kg	11SB010406	4/4	-	643	Yes	NA	NA	No	NUT, BKG
	7782-49-2	Selenium	1.26 J	1.26 J	mg/kg	11SB020406	1/4	0.559 - 0.59	1.26	No	39 N	550 N	No	BSL
	7440-62-2	**Vanadium**	17.6	86.2	mg/kg	11SB020406	4/4	-	86.2	No	**39 N**	550 N	**Yes**	ASL
	7440-66-6	Zinc	11.1	27.1	mg/kg	11SB010406	4/4	-	27.1	Yes	2,300 N	32,000 N	No	BSL, BKG

TABLE 2.3
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH SUBSURFACE SOIL
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE, CRANE, INDIANA

Footnotes:

1 - Values presented are sample-specific quantitation limits.
2 - The maximum detected concentration is used for screening purposes.
3 - Soil Group 3 - Alluvial, Mississippian, and Pennsylvanian Surface Soil Upper Tolerance Limit. Base-Wide Background Soil Investigation Report, Tetra Tech, 2001.
4 - USEPA Regional Screening Levels for Chemical Contaminants at Superfund Sites, November 2013. The noncarcinogenic values (denoted with a "N" flag) are the screening level divided by 10 to correspond to a target hazard quotient of 0.1. Carcinogenic values represent an incremental cancer risk of 1.0E-06 (carcinogens denoted with a "C" flag).
5 - IDEM Closure Guide, March 1, 2013.
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
7 - Ten percent of the noncarcinogenic value is less than the carcinogenic value, therefore the noncarcinogenic value is presented.
8 - Value is for chlordane.
9 - Value is for hexavalent chromium.
10 - Value is for mercuric chloride (and other mercury salts).
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Definitions:

C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
L = Capped at 100,000 mg/kg
N = Noncarcinogen
NA = Not Applicable/Not Available
S = Soil saturation limit

Rationale Codes:

For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BKG = Less than Background Concentration
BSL = Below COPC Screening Level
NTX = No toxicity criteria available
NUT = Essential nutrient

TABLE 2.4
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - MIGRATION FROM SUBSURFACE SOIL TO GROUNDWATER
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[1]	Concentration Used for Screening[2]	Similar to Background?[3]	USEPA RSL Protection of Groundwater[4]	IDEM Migration to Groundwater[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
SWMU 11	**Volatile Organic Compounds**													
	75-35-4	1,1-Dichloroethene	1.67 J	1.9 J	ug/kg	11SB020406	2/83	1.98 - 465	1.9	NA	1,860	50 M	No	BSL
	95-50-1	**1,2-Dichlorobenzene**	1.4 J	5,870	ug/kg	11SB410204	36/83	1.98 - 465	5870	NA	**5,400**	12,000 M	**Yes**	ASL
	106-46-7	**1,4-Dichlorobenzene**	3.27 J	150 J	ug/kg	11SB410405	9/83	1.98 - 465	150	NA	**8**	1,400 M	**Yes**	ASL
	78-93-3	2-Butanone	2.76 J	9.34 J	ug/kg	11SB57-0406	6/83	2.87 - 929	9.34	NA	20,000	21,000 N	No	BSL
	67-64-1	Acetone	4.87 J	270 J	ug/kg	11SB340406	26/82	8.67 - 1860	270	NA	48,000	49,000 N	No	BSL
	71-43-2	**Benzene**	1.3 J	146 J	ug/kg	11SB360405	4/83	1.98 - 465	146	NA	**4**	**51 M**	**Yes**	ASL
	108-90-7	**Chlorobenzene**	1.02 J	1,670 J	ug/kg	11SB360405	17/83	2.17 - 465	1670	NA	**980**	**1,400 M**	**Yes**	ASL
	156-59-2	**cis-1,2-Dichloroethene**	4.99	1,700 J	ug/kg	11SB400506	43/83	1.98 - 136	1700	NA	**164**	**410 M**	**Yes**	ASL
	100-41-4	Ethylbenzene	1.94 J	6.21	ug/kg	11SB450506	3/83	1.98 - 465	6.21	NA	30	16,000 M	No	BSL
	98-82-8	Isopropylbenzene	1.38 J	3.24 J	ug/kg	11SB51-0204	2/83	1.98 - 465	3.24	NA	12,800	13,000 N	No	BSL
	108-87-2	Methyl Cyclohexane	1.59 J	6.93	ug/kg	11SB65-0911	5/83	1.98 - 465	6.93	NA	NA	NA	No	NTX
	75-09-2	**Methylene Chloride**	2.63 J	883 J	ug/kg	11SB400506	6/83	3.96 - 272	883	NA	**50**	**25 M**	**Yes**	ASL
	127-18-4	**Tetrachloroethene**	1.57 J	31,200	ug/kg	11SB400506	36/83	1.98 - 136	31200	NA	**88**	**45 M**	**Yes**	ASL
	108-88-3	Toluene	1.28 J	10.6	ug/kg	11SB020406	6/83	1.98 - 465	10.6	NA	11,800	14,000 M	No	BSL
	1330-20-7	Total Xylenes	4.45 J	20.5	ug/kg	11SB52-0506	3/83	5.94 - 1390	20.5	NA	3,800	200,000 M	No	BSL
	156-60-5	trans-1,2-Dichloroethene	1.45 J	75.6	ug/kg	11SB64-0911	8/83	1.98 - 465	75.6	NA	500	590 M	No	BSL
	79-01-6	**Trichloroethene**	1.5 J	1,290	ug/kg	11SB68-1315	42/83	1.98 - 136	1290	NA	**3.2**	**36 M**	**Yes**	ASL
	75-01-4	**Vinyl Chloride**	1.58 J	154	ug/kg	11SB020406	23/83	1.98 - 465	154	NA	**0.106**	**14 M**	**Yes**	ASL
	Semivolatile Organic Compounds													
	84-66-2	Diethyl Phthalate	300 J	300 J	ug/kg	11SB010406	1/7	186 - 226	300	NA	94,000	90,000 N	No	BSL
	Pesticides													
	319-85-7	beta-BHC	0.488 J	0.488 J	ug/kg	11SB030406	1/4	0.377 - 0.437	0.488	NA	2.6	26 C	No	BSL
	5103-74-2	gamma-Chlordane	0.355 J	0.355 J	ug/kg	11SB030406	1/4	0.377 - 0.437	0.355	NA	260 [7]	2700 M[7]	No	BSL
	Metals													
	7429-90-5	Aluminum	8,150	15,400	mg/kg	11SB020406	4/4	-	15,400	Yes	460,000	480,000 N	No	BSL, BKG
	7440-38-2	**Arsenic**	2.49	20.4	mg/kg	11SB020406	4/4	-	20.4	No	**0.026**	**5.9 M**	**Yes**	ASL
	7440-39-3	Barium	49.1	60.9	mg/kg	11SB030406	4/4	-	60.9	Yes	2,400	1,700 M	No	BSL, BKG
	7440-41-7	Beryllium	0.392 J	0.827 J	mg/kg	11SB020406	4/4	-	0.827	NA	260	63 M	No	BSL
	7440-70-2	Calcium	168 J	688	mg/kg	11SB030406	4/4	-	688	Yes	NA	NA	No	NUT, BKG
	7440-47-3	**Chromium**	13.8	74.9	mg/kg	11SB020406	4/4	-	74.9	No	**0.0118 [8]**	**0.12 C[8]**	**Yes**	ASL
	7440-48-4	Cobalt	1.88	5.73	mg/kg	11SB040406	4/4	-	5.73	Yes	**4.2**	**4.3 N**	No	BKG
	7440-50-8	Copper	6.05	12.7	mg/kg	11SB010406	4/4	-	12.7	Yes	440	920 M	No	BSL, BKG
	7439-89-6	**Iron**	11,400	75,600	mg/kg	11SB020406	4/4	-	75,600	No	**5,400**	**5,600 N**	**Yes**	ASL
	7439-92-1	Lead	6.76	28.5 J	mg/kg	11SB020406	4/4	-	28.5	No	280 [9]	270 M	No	BSL
	7439-95-4	Magnesium	792	1,460	mg/kg	11SB010406	4/4	-	1,460	Yes	NA	NA	No	NUT, BKG
	7439-96-5	Manganese	12.5	593	mg/kg	11SB040406	4/4	-	593	Yes	**420**	**420 N**	No	BKG
	7439-97-6	Mercury	0.0203 J	0.025 J	mg/kg	11SB040406	2/4	0.0337 - 0.0353	0.025	Yes	0.66	2.1 M	No	BSL, BKG
	7440-02-0	Nickel	5.71	9.71	mg/kg	11SB020406	4/4	-	9.71	Yes	400	390 N	No	BSL, BKG
	7440-09-7	Potassium	294 J	643	mg/kg	11SB010406	4/4	-	643	Yes	NA	NA	No	NUT, BKG
	7782-49-2	Selenium	1.26 J	1.26 J	mg/kg	11SB020406	1/4	0.559 - 0.59	1.26	No	8	5.3 M	No	BSL
	7440-62-2	Vanadium	17.6	86.2	mg/kg	11SB020406	4/4	-	86.2	No	1,260	1,600 N	No	BSL
	7440-66-6	Zinc	11.1	27.1	mg/kg	11SB010406	4/4	-	27.1	Yes	5,800	5,900 N	No	BSL, BKG

TABLE 2.4
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - MIGRATION FROM SUBSURFACE SOIL TO GROUNDWATER
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE, CRANE, INDIANA

Footnotes:
1 - Values presented are sample-specific quantitation limits.
2 - The maximum detected concentration is used for screening purposes.
3 - Soil Group 3 - Alluvial, Mississippian, and Pennsylvanian Surface Soil Upper Tolerance Limit. Base-Wide Background Soil Investigation Report, Tetra Tech, 2001.
4 - USEPA Regional Screening Levels for Chemical Contaminants at Superfund Sites, November 2013. Values are based on a dilution attenuation factor of 20.
5 - IDEM Closure Guide, March 1, 2013.
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
7 - Value is for chlordane.
8 - Value is for hexavalent chromium.
9 - Value is MCL based soil screening level.
10 - Value is for mercuric chloride (and other mercury salts).
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Associated Samples

11SB010406	11SB66-1315	11SB52-0204
11SB020406	11SB66-1516	11SB52-0506
11SB030406	11SB67-1416	11SB53-0204
11SB040406	11SB67-1617	11SB53-0506
11SB250507	11SB68-1315	11SB54-0204
11SB260507	11SB68-1516	11SB54-0405
11SB270507	11SB69-1416	11SB55-0406
11SB280507	11SB69-1617	11SB55-0607
11SB330406	11SB70-1315	11SB56-0406
11SB330607	11SB70-1516	11SB56-0708
11SB340406	11SB430406	11SB57-0406
11SB340708	11SB430809	11SB57-0607
11SB350305	11SB440406	11SB58-0305
11SB350506	11SB440607	11SB58-0506
11SB360204	11SB450204	11SB59-0204
11SB360405	11SB450506	11SB60-0204
11SB370103	11SB460305	11SB60-0405
11SB370304	11SB460506	11SB61-0810
11SB380406	11SB470103	11SB61-1011
11SB380607	11SB470304	11SB62-0911
11SB390406	11SB480305	11SB62-1112
11SB390708	11SB480506	11SB63-0911
11SB400305	11SB490204	11SB63-1112
11SB400506	11SB490405	11SB64-0911
11SB410204	11SB500305	11SB64-1112
11SB410405	11SB500506	11SB65-0911
11SB420102	11SB51-0204	11SB65-1112
11SB420203	11SB51-0506	

Definitions:
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
M = Maximum Contaminant Level
N = Noncarcinogen
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BKG = Less than Background Concentration
BSL = Below COPC Screening Level
NTX = No toxicity criteria available
NUT = Essential nutrient

TABLE 2.5
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH SEDIMENT
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[1]	Concentration Used for Screening[2]	Similar to Background?[3]	Adjusted USEPA RSL Residential Soil[4]	IDEM Residential Soil[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
SWMU 11	**Dioxins/Furans**													
	3268-87-9	1,2,3,4,6,7,8,9-OCDD	480	2710	ng/kg	11SD020612	4/4	-	2710	NA	15,000 C[7]	NA	No	BSL
	39001-02-0	1,2,3,4,6,7,8,9-OCDF	39.4	219	ng/kg	11SD020612	4/4	-	219	NA	15,000 C[7]	NA	No	BSL
	35822-46-9	1,2,3,4,6,7,8-HPCDD	56.5	290	ng/kg	11SD060006	4/4	-	290	NA	450 C[7]	NA	No	BSL
	67562-39-4	1,2,3,4,6,7,8-HPCDF	8.87	37.2	ng/kg	11SD020612	4/4	-	37.2	NA	450 C[7]	NA	No	BSL
	55673-89-7	1,2,3,4,7,8,9-HPCDF	1.98 J	2.75 J	ng/kg	11SD020612	3/4	3.26 - 3.26	2.75	NA	450 C[7]	NA	No	BSL
	39227-28-6	1,2,3,4,7,8-HXCDD	3.53 J	4.87	ng/kg	11SD020006	3/4	3.26 - 3.26	4.87	NA	45 C[7]	NA	No	BSL
	70648-26-9	1,2,3,4,7,8-HXCDF	1.09 J	1.2 J	ng/kg	11SD020612	2/4	3.12 - 3.26	1.2	NA	45 C[7]	NA	No	BSL
	57653-85-7	1,2,3,6,7,8-HXCDD	2.08 J	8.55	ng/kg	11SD060006	4/4	-	8.55	NA	45 C[7]	NA	No	BSL
	57117-44-9	1,2,3,6,7,8-HXCDF	1.01 J	1.07 J	ng/kg	11SD020612	2/4	3.12 - 3.26	1.07	NA	45 C[7]	NA	No	BSL
	19408-74-3	1,2,3,7,8,9-HXCDD	4.42 J	4.62 J	ng/kg	11SD020612	3/4	3.26 - 3.26	4.62	NA	45 C[7]	NA	No	BSL
	40321-76-4	1,2,3,7,8-PECDD	1.08 J	1.38 J	ng/kg	11SD020006	2/4	3.12 - 3.26	1.38	NA	4.5 C[7]	NA	No	BSL
	57117-41-6	1,2,3,7,8-PECDF	0.562 J	1.02 J	ng/kg	11SD020006	2/4	3.12 - 3.26	1.02	NA	150 C[7]	NA	No	BSL
	60851-34-5	2,3,4,6,7,8-HXCDF	1.15 J	1.36 J	ng/kg	11SD020006	2/4	3.12 - 3.26	1.36	NA	45 C[7]	NA	No	BSL
	57117-31-4	2,3,4,7,8-PECDF	0.48 J	0.559 J	ng/kg	11SD020006	2/4	3.12 - 3.26	0.559	NA	15 C[7]	NA	No	BSL
	1746-01-6	2,3,7,8-TCDD	0.494 J	0.657 J	ng/kg	11SD060006	2/4	0.65 - 0.65	0.657	NA	4.5 C	63 C	No	BSL
	- -	**2,3,7,8-TCDD Equivalents - Halfnd**	4.54	9.05	ng/kg	11SD060006	4/4	-	9.05	NA	**4.5 C**	63 C	**Yes**	ASL
	37871-00-4	Total HPCDD	111	622	ng/kg	11SD060006	4/4	-	622	NA	NA	NA	No	NTX
	38998-75-3	Total HPCDF	33	152	ng/kg	11SD060006	4/4	-	152	NA	NA	NA	No	NTX
	34465-46-8	Total HXCDD	13.8	73.1	ng/kg	11SD060006	4/4	-	73.1	NA	NA	NA	No	NTX
	55684-94-1	Total HXCDF	7.09	33.7	ng/kg	11SD020612	4/4	-	33.7	NA	NA	NA	No	NTX
	36088-22-9	Total PECDD	2.12 J	9.64 J	ng/kg	11SD020006	3/4	3.26 - 3.26	9.64	NA	NA	NA	No	NTX
	30402-15-4	Total PECDF	6.42	9.89 J	ng/kg	11SD020006	3/4	3.26 - 3.26	9.89	NA	NA	NA	No	NTX
	41903-57-5	Total TCDD	1.11	1.11	ng/kg	11SD060006	1/4	0.607 - 0.65	1.11	NA	NA	NA	No	NTX
	55722-27-5	Total TCDF	0.346 J	3.76	ng/kg	11SD060006	2/4	1.94 - 2.1	3.76	NA	NA	NA	No	NTX
	Polycyclic Aromatic Hydrocarbons													
	91-57-6	2-Methylnaphthalene	2.85 J	2.85 J	ug/kg	11SD040612	1/8	3.69 - 23.6	2.85	NA	23,000 N	320,000 N	No	BSL
	208-96-8	Acenaphthylene	4.49 J	27 J	ug/kg	11SD010006	5/8	3.69 - 22.7	27	NA	340,000 N[8]	NA	No	BSL
	120-12-7	Anthracene	4.26 J	28.6 J	ug/kg	11SD010006	6/8	3.69 - 4.45	28.6	NA	1,700,000 N	24,000,000 N	No	BSL
	56-55-3	Benzo(a)anthracene	3.34 J	107	ug/kg	11SD010006	7/8	3.69 - 3.69	107	NA	150 C	2,100 C	No	BSL
	50-32-8	**Benzo(a)pyrene**	5.01 J	136	ug/kg	11SD010006	8/8	-	136	NA	**15 C**	210 C	**Yes**	ASL
	205-99-2	**Benzo(b)fluoranthene**	7.48 J	298	ug/kg	11SD010006	8/8	-	298	NA	**150 C**	2,100 C	**Yes**	ASL
	191-24-2	Benzo(g,h,i)perylene	6.61 J	121	ug/kg	11SD010006	8/8	-	121	NA	170,000 N[9]	NA	No	BSL
	207-08-9	Benzo(k)fluoranthene	3.9 J	95.1	ug/kg	11SD010006	8/8	-	95.1	NA	1,500 C	21,000 C	No	BSL
	218-01-9	Chrysene	5.68 J	279	ug/kg	11SD010006	7/8	3.69 - 3.69	279	NA	15,000 C	210,000 C	No	BSL
	53-70-3	**Dibenzo(a,h)anthracene**	9.83	29.7 J	ug/kg	11SD010006	5/8	3.69 - 22.7	29.7	NA	**15 C**	210 C	**Yes**	ASL
	206-44-0	Fluoranthene	6.68 J	594	ug/kg	11SD010006	8/8	-	594	NA	230,000 N	3,200,000 N	No	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	4.76 J	102	ug/kg	11SD010006	8/8	-	102	NA	150 C	2,100 C	No	BSL
	91-20-3	Naphthalene	2.38 J	15.7 J	ug/kg	11SD010612	3/8	3.69 - 23.6	15.7	NA	3,600 C	50,000 C	No	BSL
	85-01-8	Phenanthrene	3.25 J	153 J	ug/kg	11SD010006	8/8	-	153	NA	170,000 N[9]	NA	No	BSL
	129-00-0	Pyrene	7.39 J	468	ug/kg	11SD010006	8/8	-	468	NA	170,000 N	2,400,000 N	No	BSL
	PCBs													
	11096-82-5	Aroclor-1260	7.95 J	48.5	ug/kg	11SD010006	4/8	9.47 - 11.2	48.5	NA	220 C	3,100 C[10]	No	BSL
	Pesticides													
	72-54-8	4,4'-DDD	0.328 J	1.13 J	ug/kg	11SD010612	2/8	0.386 - 0.457	1.13	NA	2,000 C	28,000 C	No	BSL
	72-55-9	4,4'-DDE	3.09 J	3.09 J	ug/kg	11SD010612	1/8	0.386 - 0.47	3.09	NA	1,400 C	20,000 C	No	BSL
	50-29-3	4,4'-DDT	1.45 J	1.45 J	ug/kg	11SD010612	1/8	0.386 - 0.47	1.45	NA	1,700 C	24,000 C	No	BSL
	319-84-6	alpha-BHC	1.46	2.39	ug/kg	11SD010006	6/8	0.418 - 0.422	2.39	NA	77 C	1,100 C	No	BSL
	72-20-8	Endrin	0.637 J	0.747 J	ug/kg	11SD010612	2/8	0.379 - 0.459	0.747	NA	1,800 N	25,000 N	No	BSL
	5103-74-2	gamma-Chlordane	0.182 J	2.3	ug/kg	11SD010612	4/8	0.386 - 0.457	2.3	NA	1,600 C[11]	22,000 C[11]	No	BSL

TABLE 2.5
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH SEDIMENT
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[1]	Concentration Used for Screening[2]	Similar to Background?[3]	Adjusted USEPA RSL Residential Soil[4]	IDEM Residential Soil[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
SWMU 11	**Metals**													
	7429-90-5	Aluminum	6,500	11,300	mg/kg	11SD020612	8/8	-	11,300	Yes	**7,700 N**	100,000 L	No	BKG
	7440-36-0	Antimony	0.637 J	0.637 J	mg/kg	11SD010612	1/8	0.929 - 1.15	0.637	Yes	3.1 N	43 N	No	BSL, BKG
	7440-38-2	**Arsenic**	14.3	27	mg/kg	11SD040612	8/8	-	27	No	**0.61 C**	**5.5 C**	**Yes**	ASL
	7440-39-3	Barium	66.3	255	mg/kg	11SD040612	8/8	-	255	Yes	1,500 N	21,000 N	No	BSL, BKG
	7440-41-7	Beryllium	0.551 J	1.21	mg/kg	11SD040612	8/8	-	1.21	No	16 N	220 N	No	BSL
	7440-43-9	Cadmium	0.195 J	2.6 J	mg/kg	11SD010006	8/8	-	2.6	No	7 N	98 N	No	BSL
	7440-70-2	Calcium	1,880	55,500	mg/kg	11SD010006	8/8	-	55,500	No	NA	NA	No	NUT
	7440-47-3	**Chromium**	42.3	132	mg/kg	11SD010612	8/8	-	132	No	**0.29 C[12]**	**4.1 C[12]**	**Yes**	ASL
	7440-48-4	Cobalt	13.5	28.3	mg/kg	11SD040612	8/8	-	28.3	Yes	**2.3 N**	32 N	No	BKG
	7440-50-8	Copper	10.1	26.7	mg/kg	11SD010612	8/8	-	26.7	No	310 N	4,300 N	No	BSL
	7439-89-6	**Iron**	16,300	37,800	mg/kg	11SD040612	8/8	-	37,800	No	**5,500 N**	77,000 N	**Yes**	ASL
	7439-92-1	Lead	21.3	148	mg/kg	11SD010612	8/8	-	148	No	400	400	No	BSL
	7439-95-4	Magnesium	820	3,760	mg/kg	11SD010612	8/8	-	3,760	Yes	NA	NA	No	NUT, BKG
	7439-96-5	Manganese	597	4,530	mg/kg	11SD040612	8/8	-	4,530	Yes	**180 N**	**2,500 N**	No	BKG
	7439-97-6	Mercury	0.0337 J	0.153	mg/kg	11SD010612	8/8	-	0.153	No	2.3 N[13]	32 N[13]	No	BSL
	7440-02-0	Nickel	10.7	16.6	mg/kg	11SD040612	8/8	-	16.6	Yes	150 N	2,100 N	No	BSL, BKG
	7440-09-7	Potassium	335 J	442 J	mg/kg	11SD010612	8/8	-	442	Yes	NA	NA	No	NUT, BKG
	7782-49-2	Selenium	0.447 J	0.774	mg/kg	11SD010612	6/8	0.607 - 3.42	0.774	Yes	39 N	550 N	No	BSL, BKG
	7440-23-5	Sodium	93.4 J	215 J	mg/kg	11SD010006	2/8	348 - 410	215	No	NA	NA	No	NUT
	7440-28-0	**Thallium**	0.487 J	0.742 J	mg/kg	11SD020006	4/8	0.278 - 2.73	0.742	No	**0.078 N**	1.1 N	**Yes**	ASL
	7440-62-2	Vanadium	19.7 J	43.1	mg/kg	11SD030612	8/8	-	43.1	Yes	**39 N**	550 N	No	BKG
	7440-66-6	Zinc	54.2	392	mg/kg	11SD010612	8/8	-	392	No	2,300 N	32,000 N	No	BSL
	Miscellaneous Parameters													
	57-12-5	Cyanide	0.201 J	0.462 J	mg/kg	11SD040612	4/8	0.298 - 0.383	0.462	No	2.2 N	31 N	No	BSL

Footnotes:
1 - Values presented are sample-specific quantitation limits.
2 - The maximum detected concentration is used for screening purposes.
3 - Soil Group 3 - Alluvial, Mississippian, and Pennsylvanian Surface Soil Upper Tolerance Limit. Base-Wide Background Soil Investigation Report, Tetra Tech, 2001.
4 - USEPA Regional Screening Levels for Chemical Contaminants at Superfund Sites, November 2013. The noncarcinogenic values (denoted with a "N" flag) are the screening level divided by 10 to correspond to a target hazard quotient of 0.1. Carcinogenic values represent an incremental cancer risk of 1.0E-06 (carcinogens denoted with a "C" flag).
5 - IDEM Closure Guide, March 1, 2013.
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level. and is statistically determined to be greater than site background.
7 - Value is derived by multiplying the criteria for 2,3,7,8-TCDD by World Health Organization Toxicity Equivalency Factor.
8 - Value is for acenaphthene.
9 - Value is for pyrene.
10 - Value is for PCBs.
11 - Value is for chlordane.
12 - Value is for hexavalent chromium.
13 - Value is for mercuric chloride (and other mercury salts).
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the

Definitions:
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
L = Capped at 100,000 mg/kg
N = Noncarcinogen
NA = Not Applicable/Not Available
S = Soil saturation limit.

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BKG = Background
BSL = Below COPC Screening Level
NUT = Essential nutrient

TABLE 2.6
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH GROUNDWATER
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[1]	Concentration Used for Screening[2]	Background Concentration[3]	Adjusted USEPA RSL Tapwater[4]	USEPA MCL[5]	IDEM Groundwater Residential[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
SWMU 11	**Volatile Organic Compounds**														
	95-50-1	1,2-Dichlorobenzene	0.99 J	0.99 J	ug/L	11MWT0501	1/11	0.5 - 0.5	0.99	NA	28 N	600	600 M	No	BSL
	67-64-1	Acetone	2.74 J	3.9 J	ug/L	11MWT0601	3/11	5 - 5	3.9	NA	1200 N	NA	12000 N	No	BSL
	71-43-2	**Benzene**	1.4	3.23	ug/L	11MWT0201	2/11	0.5 - 0.5	3.23	NA	**0.39 C**	5	5 M	**Yes**	ASL
	75-15-0	Carbon Disulfide	0.394 J	1.32	ug/L	11MWT0501	2/11	0.5 - 0.5	1.32	NA	72 N	NA	720 N	No	BSL
	67-66-3	**Chloroform**	0.32 J	1.29	ug/L	11MWT0301	4/11	0.5 - 0.5	1.29	NA	**0.19 C**	80	80 M	**Yes**	ASL
	156-59-2	**cis-1,2-Dichloroethene**	3.05	27.6	ug/L	11MWT0201	3/11	0.5 - 0.5	27.6	NA	**2.8 N**	70	70 M	**Yes**	ASL
	100-41-4	Ethylbenzene	0.276 J	0.43 J	ug/L	11MWT0201	2/11	0.5 - 0.5	0.43	NA	1.3 C	700	700 M	No	BSL
	127-18-4	**Tetrachloroethene**	5.54	25.5	ug/L	11MWT0201	3/11	0.5 - 0.5	25.5	NA	**3.5 N[8]**	**5**	**5 M**	**Yes**	ASL
	108-88-3	Toluene	0.286 J	3.87 J	ug/L	11MWT0201	4/11	0.5 - 100	3.87	NA	86 N	1000	1000 M	No	BSL
	1330-20-7	Total Xylenes	0.563 J	0.884 J	ug/L	11MWT0201	2/11	0.5 - 1.5	0.884	NA	19 N	10000	10000 M	No	BSL
	156-60-5	trans-1,2-Dichloroethene	0.361 J	0.361 J	ug/L	11MWT0201	1/11	0.5 - 0.5	0.361	NA	8.6 N	100	100 M	No	BSL
	79-01-6	**Trichloroethene**	0.255 J	115	ug/L	11MWT0201	4/11	0.5 - 0.5	115	NA	**0.26 N[8]**	**5**	**5 M**	**Yes**	ASL
	75-01-4	**Vinyl Chloride**	0.503 J	0.503 J	ug/L	11MWT0201	1/11	0.5 - 0.5	0.503	NA	**0.015 C**	2	2 M	**Yes**	ASL
	Metals														
	7440-38-2	Arsenic	1.79 J	1.79 J	ug/L	18CGWT001	1/1	-	1.79	9.1	**0.045 C**	10	10 M	No	BKG
	7440-39-3	Barium	14 J	14 J	ug/L	18CGWT001	1/1	-	14	96.9	290 N	2000	2000 M	No	BSL, BKG
	Dissolved Metals														
	7440-38-2	**Arsenic**	1.62 J	1.62 J	ug/L	18CGWT001	1/1	-	1.62	NA	**0.045 C**	10	10 M	**Yes**	ASL
	7440-39-3	Barium	14.3	14.3	ug/L	18CGWT001	1/1	-	14.3	NA	290 N	2000	2000 M	No	BSL
	7440-47-3	**Chromium**	2.94	2.94	ug/L	18CGWT001	1/1	-	2.94	NA	**0.031 C[9]**	100 [10]	**0.31 C[9]**	**Yes**	ASL

Footnotes:
1 - Values presented are sample-specific quantitation limits.
2 - The maximum detected concentration is used for screening purposes.
3 - Upper Tolerance Limit from draft Basewide Pennsylvanian Bedrock Background Groundwater Study, Tetra Tech, 2013.
4 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, November 2013. RSLs for carcinogens correspond to an integrated lifetime cancer risk (ILCR) of 1E-06; adjusted RSLs for noncarcinogens correspond to a hazard quotient (HQ) of 0.1.
5 - 2012 Edition of the Drinking Water Standards and Health Advisories (USEPA, April 2012).
6 - IDEM Closure Guide, March 1, 2013.
7 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is determined to be greater than site background.
8 - Ten percent of the noncarcinogenic value is less than the carcinogenic value, therefore the noncarcinogenic value is presented.
9 - Values are for hexavalent chromium.
10 - Value is for total chromium.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Definitions:
C = Carcinogen
CAS = Chemical Abstracts Service
COPC = Chemical Of Potential Concern
M = Maximum Contaminant Level
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BKG = Less than Background Concentration
BSL = Below COPC Screening Level

TABLE 2.7
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - VAPOR INTRUSION
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum Concentration	Maximum Concentration	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[1]	Concentration Used for Screening[2]	Background Concentration[3]	USEPA Groundwater Volatilization Criterion[4]	IDEM Vapor Exposure[5]	COPC Flag	Rationale for Contaminant Deletion or Selection[6]
SWMU 11	**Volatile Organic Compounds**													
	95-50-1	1,2-Dichlorobenzene	0.99 J	0.99 J	ug/L	11MWT0501	1/11	0.5 - 0.5	0.99	NA	270 N	NA	No	BSL
	67-64-1	Acetone	2.74 J	3.9 J	ug/L	11MWT0601	3/11	5 - 5	3.9	NA	2,300,000 N	NA	No	BSL
	71-43-2	**Benzene**	1.4	3.23	ug/L	11MWT0201	2/11	0.5 - 0.5	3.23	NA	**1.4 C**	24 C	**Yes**	ASL
	75-15-0	Carbon Disulfide	0.394 J	1.32	ug/L	11MWT0501	2/11	0.5 - 0.5	1.32	NA	120 N	NA	No	BSL
	67-66-3	**Chloroform**	0.32 J	1.29	ug/L	11MWT0301	4/11	0.5 - 0.5	1.29	NA	**0.71 C**	NA	**Yes**	ASL
	156-59-2	cis-1,2-Dichloroethene	3.05	27.6	ug/L	11MWT0201	3/11	0.5 - 0.5	27.6	NA	NA	NA	No	NTX
	100-41-4	Ethylbenzene	0.276 J	0.43 J	ug/L	11MWT0201	2/11	0.5 - 0.5	0.43	NA	3 C	NA	No	BSL
	127-18-4	**Tetrachloroethene**	5.54	25.5	ug/L	11MWT0201	3/11	0.5 - 0.5	25.5	NA	**5.8 N[7]**	110 N	**Yes**	ASL
	108-88-3	Toluene	0.286 J	3.87 J	ug/L	11MWT0201	4/11	0.5 - 100	3.87	NA	1900 N	NA	No	BSL
	1330-20-7	Total Xylenes	0.563 J	0.884 J	ug/L	11MWT0201	2/11	0.5 - 1.5	0.884	NA	49 N	NA	No	BSL
	156-60-5	trans-1,2-Dichloroethene	0.361 J	0.361 J	ug/L	11MWT0201	1/11	0.5 - 0.5	0.361	NA	38 N	NA	No	BSL
	79-01-6	**Trichloroethene**	0.255 J	115	ug/L	11MWT0201	4/11	0.5 - 0.5	115	NA	**0.52 N[7]**	**9.1 N**	**Yes**	ASL
	75-01-4	**Vinyl Chloride**	0.503 J	0.503 J	ug/L	11MWT0201	1/11	0.5 - 0.5	0.503	NA	**0.14 C**	2 C	**Yes**	ASL
	Metals													
	7440-38-2	Arsenic	1.79 J	1.79 J	ug/L	18CGWT001	1/1	-	1.79	9.1	NA	NA	No	NTX
	7440-39-3	Barium	14 J	14 J	ug/L	18CGWT001	1/1	-	14	96.9	NA	NA	No	NTX
	Dissolved Metals													
	7440-38-2	Arsenic	1.62 J	1.62 J	ug/L	18CGWT001	1/1	-	1.62	NA	NA	NA	No	NTX
	7440-39-3	Barium	14.3	14.3	ug/L	18CGWT001	1/1	-	14.3	NA	NA	NA	No	NTX
	7440-47-3	Chromium	2.94	2.94	ug/L	18CGWT001	1/1	-	2.94	NA	NA	NA	No	NTX

Footnotes:
Footnotes:
1 - Values presented are sample-specific quantitation limits.
2 - The maximum detected concentration is used for screening purposes.
3 - Upper Tolerance Limit from draft Basewide Pennsylvanian Bedrock Background Groundwater Study, Tetra Tech, 2013.
4 - USEPA's Vapor Intrusion Screening Level (VISL) calculator (USEPA, June 2013). Values correspond to a target cancer risk level of 1E-06 or HQ = 0.1 and an attenuation factor of 0.001.
5 - IDEM Closure Guide, March 1, 2013.
6 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is determined to be greater than site background.
7 - Ten percent of the noncarcinogenic value is less than the carcinogenic value, therefore the noncarcinogenic value is presented.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Definitions:
CAS = Chemical Abstracts Service
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BKG = Less than Background Concentration
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

RAGS Part D Table 3

Medium-Specific Exposure Point Concentration Summary

LIST OF TABLES
RAGS PART D TABLE 3
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Table No.

3.1.RME	Surface Soil (excluding IA 6)
3.2.RME	Surface Soil IA 6)
3.3.RME	Subsurface Soil
3.4.RME	Sediment
3.5.RME	Groundwater

TABLE 3.1.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
SWMU 11, NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Surface Soil (excluding IA 6)
Exposure Medium: Surface Soil (excluding IA 6)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
SWMU 11	2,3,7,8-TCDD Equivalents	mg/kg	0.0000061	0.0000087 (NP)	0.00002	0.0000087	mg/kg	95% Student's-t UCL	ProUCL 5.0.00
	Benzo(a)anthracene	mg/kg	0.035	0.066 (N)	0.322	0.066	mg/kg	95% KM(t)	ProUCL 5.0.00
	Benzo(a)pyrene	mg/kg	0.040	0.071 (N)	0.348	0.071	mg/kg	95% KM(t)	ProUCL 5.0.00
	Benzo(b)fluoranthene	mg/kg	0.053	0.090 (N)	0.454	0.09	mg/kg	95% KM(t)	ProUCL 5.0.00
	Dibenzo(a,h)anthracene	mg/kg	0.010	0.019 (N)	0.0821	0.0821	mg/kg	Maximum Detected Concentration	(1)
	Indeno(1,2,3-cd)pyrene	mg/kg	0.025	0.040 (N)	0.187	0.04	mg/kg	95% KM(t)	ProUCL 5.0.00
	Aluminum	mg/kg	13,461	15,200 (N)	19,900	15,200	mg/kg	95% Student's-t UCL	ProUCL 5.0.00
	Iron	mg/kg	20,936	22,600 (N)	30,100	22,600	mg/kg	95% Student's-t UCL	ProUCL 5.0.00

N = Normal
NP = Nonparametric.

1 - Less than four detected concentrations; therefore, meaningful statistics cannot be computed.

Exposure point concentrations for the RME scenarios are also the exposure point concentrations for the CTE scenarios.

TABLE 3.2.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
SWMU 11, NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Surface Soil (IA 6)
Exposure Medium: Surface Soil (IA 6)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
IA6	Benzo(a)anthracene	mg/kg	0.063	NA	0.107	0.107	mg/kg	Maximum Detected Concentration	(1)
	Benzo(a)pyrene	mg/kg	0.082	NA	0.13	0.13	mg/kg	Maximum Detected Concentration	(1)
	Benzo(b)fluoranthene	mg/kg	0.106	NA	0.17	0.17	mg/kg	Maximum Detected Concentration	(1)
	Dibenzo(a,h)anthracene	mg/kg	0.018	NA	0.0308	0.0308	mg/kg	Maximum Detected Concentration	(1)
	Indeno(1,2,3-cd)pyrene	mg/kg	0.052	NA	0.0794	0.0794	mg/kg	Maximum Detected Concentration	(1)
	Aluminum	mg/kg	11,700	NA	14,400	14,400	mg/kg	Maximum Detected Concentration	(1)
	Iron	mg/kg	21,100	NA	30,100	30,100	mg/kg	Maximum Detected Concentration	(1)

NA - Not applicable

1 - Data set consists of only four samples; therefore, meaningful statistics cannot be computed.

Exposure point concentrations for the RME scenarios are also the exposure point concentrations for the CTE scenarios.

TABLE 3.3.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
SWMU 11, NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
SWMU 11	Tetrachloroethene	mg/kg	0.512	2.87 (L)	31.2	2.87	mg/kg	97.5% KM (Chebyshev) UCL	ProUCL 5.0.00
	Trichloroethene (Mutagenic)	mg/kg	0.089	0.238 (L)	1.29	0.238	mg/kg	97.5% KM (Chebyshev) UCL	ProUCL 5.0.00
	Trichloroethene (Nonmutagenic)	mg/kg	0.089	0.238 (L)	1.29	0.238	mg/kg	97.5% KM (Chebyshev) UCL	ProUCL 5.0.00
	Vinyl Chloride	mg/kg	0.021	0.025 (NP)	0.154	0.154	mg/kg	95% KM (Chebyshev) UCL	ProUCL 5.0.00
	Arsenic	mg/kg	8.88	NA	20.4	20.4	mg/kg	Maximum Detected Concentration	(1)
	Chromium	mg/kg	33.9	NA	74.9	74.9	mg/kg	Maximum Detected Concentration	(1)
	Iron	mg/kg	32,300	NA	75,600	75,600	mg/kg	Maximum Detected Concentration	(1)
	Vanadium	mg/kg	42.3	NA	86.2	86.2	mg/kg	Maximum Detected Concentration	(1)

L = Lognormal.
NP = Nonparametric.

1 - Data set consists of only four samples; therefore, meaningful statistics cannot be computed.
2 - Less than three detected concentrations; therefore, meaningful statistics cannot be computed.

Exposure point concentrations for the RME scenarios are also the exposure point concentrations for the CTE scenarios.

TABLE 3.4.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
SWMU 11, NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
SWMU 11	2,3,7,8-TCDD Equivalents	mg/kg	0.0000073	NA	0.00000905	0.00000905	mg/kg	Maximum Detected Concentration	(1)
	Benzo(a)pyrene	mg/kg	0.044	0.122 (G)	0.136	0.122	mg/kg	95% Adjusted Gamma UCL	ProUCL 5.0.00
	Benzo(b)fluoranthene	mg/kg	0.084	0.147 (N)	0.298	0.147	mg/kg	95% Student's-t	ProUCL 5.0.00
	Dibenzo(a,h)anthracene	mg/kg	0.012	0.018 (N)	0.0297	0.018	mg/kg	95% KM(t)	ProUCL 5.0.00
	Arsenic	mg/kg	18	20.8 (N)	27	20.8	mg/kg	95% Student's-t	ProUCL 5.0.00
	Chromium	mg/kg	72.3	92.6 (N)	132	92.6	mg/kg	95% Student's-t	ProUCL 5.0.00
	Iron	mg/kg	24,100	29,600 (N)	37,800	29,600	mg/kg	95% Student's-t	ProUCL 5.0.00
	Thallium	mg/kg	0.55	0.61 (N)	0.742 J	0.61	mg/kg	95% KM(t)	ProUCL 5.0.00
	Vanadium	mg/kg	29.6	35.9 (N)	43.1	35.9	mg/kg	95% Student's-t	ProUCL 5.0.00

G = Gamma
N = Normal
NA = Not applicable.

1 - Data set consists of only four samples; therefore, meaningful statistics cannot be computed.

Exposure point concentrations for the RME scenarios are also the exposure point concentrations for the CTE scenarios.

TABLE 3.5.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
SWMU 11, NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
SWMU 11	Benzene	ug/L	2.32	NA	3.23	3.23	ug/L	Maximum Detected Concentration	(1)
	Chloroform	ug/L	1.11	NA	1.29	1.29	ug/L	Maximum Detected Concentration	(1)
	cis-1,2-Dichloroethene	ug/L	27.6	NA	27.6	27.6	ug/L	Maximum Detected Concentration	(1)
	Tetrachloroethene	ug/L	25.5	NA	25.5	25.5	ug/L	Maximum Detected Concentration	(1)
	Trichloroethene (Mutagenic)	ug/L	57.6	NA	115	115	ug/L	Maximum Detected Concentration	(1)
	Trichloroethene (Nonmutagenic	ug/L	57.6	NA	115	115	ug/L	Maximum Detected Concentration	(1)
	Vinyl Chloride	ug/L	0.503	NA	0.503	0.503	ug/L	Maximum Detected Concentration	(1)

NA - Not applicable

1 - Data set consists of only four samples; therefore, meaningful statistics cannot be computed.

Exposure point concentrations for the RME scenarios are also the exposure point concentrations for the CTE scenarios.

RAGS Part D Table 4

Values Used For Daily Intake Calculations

TABLE 4.1.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - INDUSTRIAL WORKERS - SOIL

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Maintenance Workers	Adult	SWMU 11	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	100	mg/day	USEPA, 2002b	
				RBA	Relative Bioavailability	Chemical Specific	unitless	USEPA, 1989	
				CF3	Conversion Factor 3	0.000001	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	USEPA, 2002b	BW x AT
				EF	Exposure Frequency	24	days/year	(1)	
				ED	Exposure Duration	25	years	USEPA, 2002b	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	9125	days	USEPA, 1989	
Dermal	Maintenance Workers	Adult	SWMU 11	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	0.000001	kg/mg	--	
				SA	Skin Surface Available for Contact	3300	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	24	days/year	(1)	
				ED	Exposure Duration	25	years	USEPA, 1989	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	9125	days	USEPA, 1989	

Notes:

1 - Professional judgment. Assumes two days a month.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.

USEPA, 2002a:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Cancer Ingestion Intake = 3.35E-08 Cancer Dermal Intake = 2.21E-07

Noncancer Ingestion Intake = 9.39E-08 Noncancer Dermal Intake = 6.20E-07

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.2.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - INDUSTRIAL WORKERS - SOIL TO AIR

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Maintenance Workers	Adult	SWMU 11	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	8	hours/day	(1)	CA x ET x EF x ED
				EF	Exposure Frequency	24	days/year	(2)	AT x 24 hours/day
				ED	Exposure Duration	25	years	USEPA, 2002a	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	CA = (1/PEF + 1/VF) x Cs
				AT-N	Averaging Time (Non-Cancer)	9125	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.316E+09	m3/kg	IDEM, 2009	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	68.81	g/m2-s per kg/m3	IDEM, 2009	
				F_D	dispersion correction factor	1	unitless	USEPA, 2002a	
				Ut	Equivalent threshold of wind velocity at 7m.	11.32	m/sec	IDEM, 2009	
				Um	Mean annual wind speed	4.69	m/sec	IDEM, 2009	
				V	Fraction of vegetative cover	0.5	unitless	IDEM, 2009	
				F(x)	Function dependent of Um/Ut	0.194	unitless	IDEM, 2009	

Notes:

1 - Length of typical work day.

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Sources:

IDEM, 2009: RISC Technical Guide, Appendix 1. May update.

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Cancer Inhalation Intake = 7.83E-03 Noncancer Inhalation Intake = 2.19E-02

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

TABLE 4.3.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - INDUSTRIAL WORKERS - SOIL

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Industrial Workers	Adult	SWMU 11	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	100	mg/day	USEPA, 2002b	
				RBA	Relative Bioavailability	Chemical Specific	unitless	USEPA, 1989	
				CF3	Conversion Factor 3	0.000001	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	USEPA, 2002b	BW x AT
				EF	Exposure Frequency	250	days/year	USEPA, 2002b	
				ED	Exposure Duration	25	years	USEPA, 2002b	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	9125	days	USEPA, 1989	
Dermal	Industrial Workers	Adult	SWMU 11	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	0.000001	kg/mg	--	
				SA	Skin Surface Available for Contact	3300	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	250	days/year	USEPA, 2002b	
				ED	Exposure Duration	25	years	USEPA, 1989	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	9125	days	USEPA, 1989	

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.

USEPA, 2002a:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Cancer Ingestion Intake = 3.49E-07 Cancer Dermal Intake = 2.31E-06

Noncancer Ingestion Intake = 9.78E-07 Noncancer Dermal Intake = 6.46E-06

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.4.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - INDUSTRIAL WORKERS - SOIL TO AIR

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Industrial Workers	Adult	SWMU 11	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	8	hours/day	(1)	CA x ET x EF x ED
				EF	Exposure Frequency	250	days/year	USEPA, 2002a	AT x 24 hours/day
				ED	Exposure Duration	25	years	USEPA, 2002a	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	CA = (1/PEF + 1/VF) x Cs
				AT-N	Averaging Time (Non-Cancer)	9125	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.316E+09	m3/kg	IDEM, 2009	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	68.81	g/m2-s per kg/m3	IDEM, 2009	
				F_D	dispersion correction factor	1	unitless	USEPA, 2002a	
				Ut	Equivalent threshold of wind velocity at 7m.	11.32	m/sec	IDEM, 2009	
				Um	Mean annual wind speed	4.69	m/sec	IDEM, 2009	
				V	Fraction of vegetative cover	0.5	unitless	IDEM, 2009	
				F(x)	Function dependent of Um/Ut	0.194	unitless	IDEM, 2009	

Notes:

1 - Length of typical work day.

Sources:

IDEM, 2009: RISC Technical Guide, Appendix 1. May update.

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Cancer Inhalation Intake = 8.15E-02 Noncancer Inhalation Intake = 2.28E-01

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

TABLE 4.5.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - CONSTRUCTION WORKERS- SOILS

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Construction Workers	Adult	SWMU 11	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	330	mg/day	USEPA, 2002b	
				RBA	Relative Bioavailability	Chemical Specific	unitless	USEPA, 1989	
				CF3	Conversion Factor 3	0.000001	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	USEPA, 2002b	BW x AT
				EF	Exposure Frequency	150	days/year	(1)	
				ED	Exposure Duration	1	years	(1)	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	
Dermal	Construction Workers	Adult	SWMU 11	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	0.000001	kg/mg	--	
				SA	Skin Surface Available for Contact	3300	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.3	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	150	days/year	(1)	
				ED	Exposure Duration	1	years	(1)	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	

Notes:

1 - Professional judgment. Assume a 30 week construction project.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.

USEPA, 2002a:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Cancer Ingestion Intake = 2.77E-08 Cancer Dermal Intake = 8.30E-08

Noncancer Ingestion Intake = 1.94E-06 Noncancer Dermal Intake = 5.81E-06

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.6.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - CONSTRUCTION WORKERS - SOILS TO AIR

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Construction Workers	Adult	SWMU 11	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	8	hours/day	(1)	CA x ET x EF x ED
				EF	Exposure Frequency	150	days/year	(1)	AT x 24 hours/day
				ED	Exposure Duration	1	years	(1)	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	CA = (1/PEF + 1/VF) x Cs
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.34E+06	m3/kg	USEPA, 2002a	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	

Notes:

1 - Professional judgment. Assume a 30 week construction project.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Cancer Inhalation Intake = 1.96E-03 Noncancer Inhalation Intake = 1.37E-01

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

TABLE 4.7.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - CONSTRUCTION WORKERS - GROUNDWATER

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal	Construction Workers	Adult	SWMU 11	Daevent	Dermally Absorbed Dose per Event	Calculated	mg/cm2-event	USEPA, 2004	Dermally Absorbed Dose (mg/kg/day) =
				Cw	Chemical Concentration in Groundwater	Max or 95% UCL	ug/L	USEPA, 2002a	
				FA	Fraction Absorbed	Chemical Specific	unitless	USEPA, 2004	DAevent x EV x EF x ED x SA
				CF	Conversion factor	0.001	L/cm^3	- -	BW x AT
				Kp	Permeability coefficient	Chemical Specific	cm/hr	USEPA, 2004	
				τ	Lag time	Chemical Specific	hr/event	USEPA, 2004	For inorganics
				t*	Time it takes to reach steady state	Chemical Specific	hr/event	USEPA, 2004	DAevent = Kp x CW x CF x tevent
				tevent	Duration of event	2	hr/event	(1)	
				B	Bunge model constant	Chemical Specific	unitless	USEPA, 2004	For organics if tevent <= t*
				SA	Skin Surface Available for Contact	3300	cm2	USEPA, 2004	DAevent= 2 x FA x Kp x Cw x CF x sqrt[(6 x τ x tevent)/pi]
				EV	Event Frequency	1	events/day	(1)	
				EF	Exposure Frequency	150	days/year	(1)	For organics if tevent > t*
				ED	Exposure Duration	1	years	USEPA, 2002b	DAevent =FA x Kp x Cw x CF x [tevent/(1+B) +
				BW	Body Weight	70	kg	USEPA, 2002b	2 x τ +(1 + 3B + $3B^2$)/(1+B^2)
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	

Notes:

1 - Professional judgment. Assume a 30 week construction project.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA Region I, 1999. Risk Updates, Number 5.

USEPA, 2002a:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Dermal Intake = (SA x EV x EF x ED)/(BW x AT)

Cancer Dermal Intake = 2.77E-01 Noncancer Dermal Intake = 1.94E+01

Cancer risk from dermal contact = Groundwater concentration x Cancer Dermal Intake x DAevent x Dermal Cancer Slope Factor

Hazard Index from dermal contact = Groundwater concentration x Noncancer Dermal Intake x DAevent / Dermal Reference Dose

TABLE 4.8.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - CONSTRUCTION WORKERS - GROUNDWATER TO AIR

CHARLESTON AFB, SOUTH CAROLINA

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Construction Workers	Adult	SWMU 11	CA	Chemical concentration in air	Calculated	mg/m3	VDEQ, 2008	Exposure Concentration (mg/m^3) =
				CW	Chemical concentration in water.	Maximum	ug/L	--	
				CF	Conversion Factor	0.001	mg/ug	--	CA x ET x EF x ED
				ET	Exposure Time	2	hours/day	(1)	AT x 24 hours/day
				EF	Exposure Frequency	150	days/year	(1)	
				ED	Exposure Duration	1	years	(1)	CA = CW x CF x VF
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	
				VF	Volatilization Factor	Calculated	(mg/m3)/(mg/L)	VDEQ, 2008	

Notes:

1 - Professional judgment.

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA. 2000. Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment Bulletins.

VDEQ, 2008: Virginia Department of Environmental Quality (VDEQ, online - http://www.deq.state.va.us/vrprisk/raguide.html).

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Cancer Inhalation Intake = 4.89E-07 Noncancer Inhalation Intake = 3.42E-05

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

TABLE 4.9.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - ADOLESCENT TRESPASSERS - SOILS

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Trespassers	Adolescent	SWMU 11	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	100	mg/day	USEPA, 1991	
				RBA	Relative Bioavailability	Chemical Specific	unitless	USEPA, 1989	
				CF3	Conversion Factor 3	0.000001	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	USEPA, 1991	BW x AT
				EF	Exposure Frequency	26	days/year	(1)	
				ED	Exposure Duration	11	years	(2)	
				BW	Body Weight	43	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	4015	days	USEPA, 1989	
Dermal	Trespassers	Adolescent	SWMU 11	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	0.000001	kg/mg	--	
				SA	Skin Surface Available for Contact	3280	cm2	(3)	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	26	days/year	(1)	
				ED	Exposure Duration	11	years	(2)	
				BW	Body Weight	43	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	4015	days	USEPA, 1989	

Notes:

For chemicals that act via the mutagenic mode of action the intake will be multiplied by the appropriate age-dependent adjustment factor in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

1 - Assume one day a week in warm weather months for RME and one day every other week for CTE.

2 - Older child from age 6 to 17.

3 - Assumes head, hands, forearms, lower legs, and feet are exposed (USEPA, 2004).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1991: Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors. OSWER Directive 9285.6-03.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Cancer Ingestion Intake = 2.60E-08 Cancer Dermal Intake = 1.71E-07

Noncancer Ingestion Intake = 1.66E-07 Noncancer Dermal Intake = 1.09E-06

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.10.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - ADOLESCENT TRESPASSERS - SOILS TO AIR

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Trespassers	Adolescent	SWMU 11	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	4	hours/day	(1)	CA x ET x EF x ED
				EF	Exposure Frequency	26	days/year	(2)	AT x 24 hours/day
				ED	Exposure Duration	11	years	(3)	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	CA = (1/PEF + 1/VF) x Cs
				AT-N	Averaging Time (Non-Cancer)	4,015	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.316E+09	m3/kg	IDEM, 2009	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	68.81	g/m2-s per kg/m3	IDEM, 2009	
				F_D	dispersion correction factor	1	unitless	USEPA, 2002a	
				Ut	Equivalent threshold of wind velocity at 7m.	11.32	m/sec	IDEM, 2009	
				Um	Mean annual wind speed	4.69	m/sec	IDEM, 2009	
				V	Fraction of vegetative cover	0.5	unitless	IDEM, 2009	
				F(x)	Function dependent of Um/Ut	0.194	unitless	IDEM, 2009	

Notes:

For chemicals that act via the mutagenic mode of action the intake will be multiplied by the appropriate age-dependent adjustment factor in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

1 - Professional judgment.

2 - Assume one day a week in warm weather months for RME and one day every other week for CTE.

3 - Older child from age 6 to 17.

Sources:

IDEM, 2009: RISC Technical Guide, Appendix 1. May update.

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Cancer Inhalation Intake = 1.87E-03 Noncancer Inhalation Intake = 1.19E-02

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

TABLE 4.11.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - ADOLESCENT TRESPASSERS - SEDIMENT

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Trespassers	Adolescent	SWMU 11	CS	Chemical concentration in sediment	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	100	mg/day	USEPA, 1991	
				RBA	Relative Bioavailability	Chemical Specific	unitless	USEPA, 1989	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CSx IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	(1)	BW x AT
				EF	Exposure Frequency	26	days/year	(1)	
				ED	Exposure Duration	11	years	USEPA, 1989	
				BW	Body Weight	43	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	4,015	days	USEPA, 1989	
Dermal	Trespassers	Adolescent	SWMU 11	CS	Chemical concentration in sediment	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	3,280	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	26	days/year	(1)	
				ED	Exposure Duration	11	years	USEPA, 1989	
				BW	Body Weight	43	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	4,015	days	USEPA, 1989	

Notes:

1 - Professional judgment. Assume one day a week in warm weather months for RME and one day every other week for CTE.

2 - Adults will be evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, ADOLESCENT TRESPASSERS will be evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

Shoaf et. Al. 2005: Child Dermal Sediment Loads Following Olay in Tide Flat, Journal of Exposure Analysis and Environmental Epidemiology 15, 407-412.

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1991: Risk Assessment Guidance for Superfund - Supplemental Guidance- Standard Default Exposure Factors Interim Final.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Cancer Ingestion Intake = 2.60E-08 Cancer Dermal Intake = 1.71E-07

Noncancer Ingestion Intake = 1.66E-07 Noncancer Dermal Intake = 1.09E-06

Cancer risk from ingestion = Sediment concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Sediment concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Sediment concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Sediment concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.12.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - CHILD RECREATIONAL USERS - SOILS

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational User	Child	SWMU 11	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	200	mg/day	USEPA, 1991	
				RBA	Relative Bioavailability	Chemical Specific	unitless	USEPA, 1989	
				CF3	Conversion Factor 3	0.000001	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	0.5	unitless	(1)	BW x AT
				EF	Exposure Frequency	52	days/year	(2)	
				ED1	Exposure Duration (Age 0 - 2)	2	years	(3), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	4	years	(3), USEPA, 1989, 2005	
				BW	Body Weight	15	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2190	days	USEPA, 1989	
Dermal	Recreational User	Child	SWMU 11	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	0.000001	kg/mg	--	
				SA	Skin Surface Available for Contact	3,300	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	52	days/year	(2)	
				ED1	Exposure Duration (Age 0 - 2)	2	years	(3), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	4	years	(3), USEPA, 1989, 2005	
				BW	Body Weight	15	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2190	days	USEPA, 1989	

Notes:

1 - The child recreational user is assumed to be at the site only a portion of the day.

2 - Assume two days a week in warm weather months for RME and one day a week for CTE.

3 - Children will be evaluated as one age group (0 - 6 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, children recreational users will be evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1991: Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors. OSWER Directive 9285.6-03.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake (Age 0 - 6) = 8.14E-08 Cancer Dermal Intake (Age 0 - 6) = 5.37E-07

Mutagenic Chemicals

Cancer Ingestion Intake (Age 0 - 2) = 2.71E-08 Cancer Dermal Intake (Age 0 - 2) = 1.79E-07

Cancer Ingestion Intake (Age 2 - 6) = 5.43E-08 Cancer Dermal Intake (Age 2 - 6) = 3.58E-07

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 9.50E-07 Noncancer Dermal Intake = 6.27E-06

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.13.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - CHILD RECREATIONAL USERS - SOILS TO AIR

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Recreational User	Child	SWMU 11	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	4	hours/day	(1)	CA x ET x EF x ED
				EF	Exposure Frequency	52	days/year	(2)	AT x 24 hours/day
				ED1	Exposure Duration (Age 0 - 2)	2	years	(3), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	4	years	(3), USEPA, 1989, 2005	CA = (1/PEF + 1/VF) x Cs
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.316E+09	m3/kg	IDEM, 2009	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	68.81	g/m2-s per kg/m3	IDEM, 2009	
				F_D	dispersion correction factor	1	unitless	USEPA, 2002a	
				Ut	Equivalent threshold of wind velocity at 7m.	11.32	m/sec	IDEM, 2009	
				Um	Mean annual wind speed	4.69	m/sec	IDEM, 2009	
				V	Fraction of vegetative cover	0.5	unitless	IDEM, 2009	
				F(x)	Function dependent of Um/Ut	0.194	unitless	IDEM, 2009	

Notes:

1 - Professional judgment.

2 - Assume two days a week in warm weather months for RME and one day a week for CTE.

3 - Children will be evaluated as one age group (0 - 6 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, children recreational users will be evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

IDEM, 2009: RISC Technical Guide, Appendix 1. May update.

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Non-Mutagenic Chemicals

Cancer Inhalation Intake (Age 0 - 6) = 2.04E-03 Noncancer Inhalation Intake = 2.37E-02

Mutagenic Chemicals

Cancer Inhalation Intake (Age 0 - 2) = 6.78E-04

Cancer Inhalation Intake (Age 2 - 6) = 1.36E-03

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

TABLE 4.14.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - CHILD RECREATIONAL USERS - SEDIMENT

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational User	Child	SWMU 11	CS	Chemical concentration in sediment	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	200	mg/day	USEPA, 1991	
				RBA	Relative Bioavailability	Chemical Specific	unitless	USEPA, 1989	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	0.5	unitless	(1)	BW x AT
				EF	Exposure Frequency	52	days/year	(1)	
				ED1	Exposure Duration (Age 0 - 2)	2	years	(2), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	4	years	(2), USEPA, 1989, 2005	
				BW	Body Weight	15	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	
Dermal	Recreational User	Child	SWMU 11	CS	Chemical concentration in sediment	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	3,300	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm2/event	(3), USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	52	days/year	(1)	
				ED1	Exposure Duration (Age 0 - 2)	2	years	(2), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	4	years	(2), USEPA, 1989, 2005	
				BW	Body Weight	15	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	

Notes:

1 - Professional judgment. Assume two days a week in warm weather months for RME and one day a week for CTE.

2 - Children will be evaluated as one age group (0 - 6 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, children recreational users will be evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

3 - 95th Percentile value for a child playing in wet soil, Exhibit 3-3, USEPA 2004.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1991: Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors. OSWER Directive 9285.6-03.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake (Age 0 - 6) = 8.14E-08 Cancer Dermal Intake (Age 0 - 6) = 5.37E-07

Mutagenic Chemicals

Cancer Ingestion Intake (Age 0 - 2) = 2.71E-08 Cancer Dermal Intake (Age 0 - 2) = 1.79E-07

Cancer Ingestion Intake (Age 2 - 6) = 5.43E-08 Cancer Dermal Intake (Age 2 - 6) = 3.58E-07

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 9.50E-07 Noncancer Dermal Intake = 6.27E-06

Cancer risk from ingestion = Sediment concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Sediment concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Sediment concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Sediment concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.15.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE - ADULT RECREATIONAL USERS - SOILS
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational User	Adult	SWMU 11	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	100	mg/day	USEPA, 1991	
				RBA	Relative Bioavailability	Chemical Specific	unitless	USEPA, 1989	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	0.5	unitless	(1)	BW x AT
				EF	Exposure Frequency	52	days/year	(2)	
				ED1	Exposure Duration (Age 6 - 16)	10	years	(3), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	14	years	(3), USEPA, 1989, 2005	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	
Dermal	Recreational User	Adult	SWMU 11	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	9,070	cm2	(4)	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.07	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	52	days/year	(2)	
				ED1	Exposure Duration (Age 6 - 16)	10	years	(3), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	14	years	(3), USEPA, 1989, 2005	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	

Notes:

1 - The adult recreational user is assumed to be at the site only a portion of the day.

2 - Assume four days a week in warm weather months for RME and two days a week for CTE.

3 - Adults will be evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, adult recreational users will be evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

4 - Assume that head, arms, hands, lower legs, and feet are exposed (USEPA, 1997).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1991: Risk Assessment Guidance for Superfund - Supplemental Guidance- Standard Default Exposure Factors Interim Final.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake (Age 6 - 30) = 3.49E-08 Cancer Dermal Intake (Age 6 - 30) = 4.43E-07

Mutagenic Chemicals

Cancer Ingestion Intake (Age 6 - 16) = 1.45E-08 Cancer Dermal Intake (Age 6 - 16) = 1.85E-07

Cancer Ingestion Intake Age 16 - 30) = 2.04E-08 Cancer Dermal Intake (Age 16 - 30) = 2.58E-07

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 1.02E-07 Noncancer Dermal Intake = 1.29E-06

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.16.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - ADULT RECREATIONAL USERS - SOILS TO AIR

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Recreational User	Adult	SWMU 11	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	4	hours/day	(1)	CA x ET x EF x ED
				EF	Exposure Frequency	52	days/year	(1)	AT x 24 hours/day
				ED1	Exposure Duration (Age 6 - 16)	10	years	(2), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	14	years	(2), USEPA, 1989, 2005	CA = (1/PEF + 1/VF) x Cs
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8760	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.316E+09	m3/kg	IDEM, 2009	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	68.81	g/m2-s per kg/m3	IDEM, 2009	
				F_D	dispersion correction factor	1	unitless	USEPA, 2002a	
				Ut	Equivalent threshold of wind velocity at 7m.	11.32	m/sec	IDEM, 2009	
				Um	Mean annual wind speed	4.69	m/sec	IDEM, 2009	
				V	Fraction of vegetative cover	0.5	unitless	IDEM, 2009	
				F(x)	Function dependent of Um/Ut	0.194	unitless	IDEM, 2009	

Notes:

1 - Professional judgment. Assume two days a week in warm weather months for RME and one day a week for CTE.

2 - Adults will be evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, adult recreational users will be evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

IDEM, 2009: RISC Technical Guide, Appendix 1. May update.

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Non-Mutagenic Chemicals

Cancer Inhalation Intake (Age 6 - 30) = 8.14E-03

Noncarcinogenic Chemicals

Noncancer Inhalation Intake = 2.37E-02

Mutagenic Chemicals

Cancer Inhalation Intake (Age 6 - 16) = 3.39E-03

Cancer Inhalation Intake (Age 16 - 30) = 4.75E-03

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

TABLE 4.17.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - ADULT RECREATIONAL USERS - SEDIMENT

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational User	Adult	SWMU 11	CS	Chemical concentration in sediment	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	100	mg/day	USEPA, 1991	
				RBA	Relative Bioavailability	Chemical Specific	unitless	USEPA, 1989	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CSx IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	0.5	unitless	(1)	BW x AT
				EF	Exposure Frequency	52	days/year	(1)	
				ED1	Exposure Duration (Age 6 - 16)	10	years	(2), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	14	years	(2), USEPA, 1989, 2005	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	
Dermal	Recreational User	Adult	SWMU 11	CS	Chemical concentration in sediment	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	9,070	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.07	mg/cm2/event	Shoaf et al. 2005	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	52	days/year	(1)	
				ED1	Exposure Duration (Age 6 - 16)	10	years	(2), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	14	years	(2), USEPA, 1989, 2005	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	

Notes:

1 - Professional judgment. Assume two days a week in warm weather months for RME and one day a week for CTE.

2 - Adults will be evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, adult recreational users will be evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

Shoaf et. Al. 2005: Child Dermal Sediment Loads Following Olay in Tide Flat, Journal of Exposure Analysis and Environmental Epidemiology 15, 407-412.

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1991: Risk Assessment Guidance for Superfund - Supplemental Guidance- Standard Default Exposure Factors Interim Final.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake (Age 6 - 30) = 3.49E-08 Cancer Dermal Intake (Age 6 - 30) = 4.43E-07

Mutagenic Chemicals

Cancer Ingestion Intake (Age 6 - 16) = 1.45E-08 Cancer Dermal Intake (Age 6 - 16) = 1.85E-07

Cancer Ingestion Intake (Age 16 - 30) = 2.04E-08 Cancer Dermal Intake (Age 16 - 30) = 2.58E-07

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 1.02E-07 Noncancer Dermal Intake = 1.29E-06

Cancer risk from ingestion = Sediment concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Sediment concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Sediment concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Sediment concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.18.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - CHILD RESIDENTS - SOILS

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Child	SWMU 11	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	200	mg/day	USEPA, 1991	
				RBA	Relative Bioavailability	Chemical Specific	unitless	USEPA, 1989	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	USEPA, 1991	BW x AT
				EF	Exposure Frequency	350	days/year	USEPA, 2002b	
				ED1	Exposure Duration (Age 0 - 2)	2	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	4	years	(1), USEPA, 1989, 2005	
				BW	Body Weight	15	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	
Dermal	Resident	Child	SWMU 11	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	2,800	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	350	days/year	USEPA, 2002b	
				ED1	Exposure Duration (Age 0 - 2)	2	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	4	years	(1), USEPA, 1989, 2005	
				BW	Body Weight	15	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	

Notes:

1 - Children will be evaluated as one age group (0 - 6 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential children will be evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1991: Risk Assessment Guidance for Superfund - Supplemental Guidance- Standard Default Exposure Factors Interim Final.

USEPA, 2002a:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake (Age 0 - 6) = 1.10E-06 Cancer Dermal Intake (Age 0 - 6) = 3.07E-06

Mutagenic Chemicals

Cancer Ingestion Intake (Age 0 - 2) = 3.65E-07 Cancer Dermal Intake (Age 0 - 2) = 1.02E-06

Cancer Ingestion Intake (Age 2 - 6) = 7.31E-07 Cancer Dermal Intake (Age 2 - 6) = 2.05E-06

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 1.28E-05 Noncancer Dermal Intake = 3.58E-05

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.19.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - CHILD RESIDENTS SOILS TO AIR

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Child	SWMU 28	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	24	hours/day	USEPA, 1991	CA x ET x EF x ED
				EF	Exposure Frequency	350	days/year	USEPA, 2002a	AT x 24 hours/day
				ED1	Exposure Duration (Age 0 - 2)	2	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	4	years	(1), USEPA, 1989, 2005	CA = (1/PEF + 1/VF) x Cs
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2190	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.316E+09	m3/kg	IDEM, 2009	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	68.81	g/m2-s per kg/m3	IDEM, 2009	
				F_D	dispersion correction factor	1	unitless	USEPA, 2002a	
				Ut	Equivalent threshold of wind velocity at 7m.	11.32	m/sec	IDEM, 2009	
				Um	Mean annual wind speed	4.69	m/sec	IDEM, 2009	
				V	Fraction of vegetative cover	0.5	unitless	IDEM, 2009	
				F(x)	Function dependent of Um/Ut	0.194	unitless	IDEM, 2009	

Notes:

1 - Children will be evaluated as one age group (0 - 6 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential children will be evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

IDEM, 2009: RISC Technical Guide, Appendix 1. May update.

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 1991: Risk Assessment Guidance for Superfund - Supplemental Guidance- Standard Default Exposure Factors Interim Final.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Non-Mutagenic Chemicals

Cancer Inhalation Intake (Age 0 - 6) = 8.22E-02

Noncarcinogenic Chemicals

Noncancer Inhalation Intake = 1.92E+00

Mutagenic Chemicals

Cancer Inhalation Intake (Age 0 - 2) = 2.74E-02

Cancer Inhalation Intake (Age 2 - 6) = 5.48E-02

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

TABLE 4.20.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - CHILD RESIDENTS - GROUNDWATER

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Residents	Child	SWMU 11	CGW	Chemical Concentration in Groundwater	Max or 95% UCL	ug/L	USEPA, 2002a	Chronic Daily Intake (CDI) (mg/kg/day) =
				CF	Conversion Factor	0.001	mg/ug	--	
				IR-GW	Ingestion Rate of Groundwater	1	L/day	USEPA, 1991	CGW x CF x IR-GW x EF x ED
				EF	Exposure Frequency	350	days/year	USEPA, 1991	BW x AT
				ED1	Exposure Duration (Age 0 - 2)	2	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	4	years	(1), USEPA, 1989, 2005	
				BW	Body Weight	15	kg	USEPA, 2002b	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	
Dermal	Residents	Child	SWMU 11	Daevent	Dermally Absorbed Dose per Event	Calculated	mg/cm2-event	USEPA, 2004	Dermally Absorbed Dose (mg/kg/day) =
				Cw	Chemical Concentration in Groundwater	Max or 95% UCL	ug/L	USEPA, 2002a	
				FA	Fraction Absorbed	Chemical Specific	unitless	USEPA, 2004	DAevent x EV x EF x ED x SA
				CF	Conversion factor	0.001	L/cm3	- -	BW x AT
				Kp	Permeability coefficient	Chemical Specific	cm/hr	USEPA, 2004	
				τ	Lag time	Chemical Specific	hr/event	USEPA, 2004	For inorganics
				t*	Time it takes to reach steady state	Chemical Specific	hr/event	USEPA, 2004	DAevent = Kp x CW x CF x tevent
				tevent	Duration of event	1	hr/event	USEPA, 2004	
				B	Bunge model constant	Chemical Specific	unitless	USEPA, 2004	For organics if tevent <= t*
				SA	Skin Surface Available for Contact	6,600	cm2	USEPA, 2004	DAevent= 2 x FA x Kp x Cw x CF x sqrt[(6 x τ x tevent)/pi]
				EV	Event Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	350	days/year	USEPA, 2004	
				ED1	Exposure Duration (Age 0 - 2)	2	years	(1), USEPA, 1989, 2005	DAevent =FA x Kp x Cw x CF x [tevent/(1+B) +
				ED2	Exposure Duration (Age 2 - 6)	4	years	(1), USEPA, 1989, 2005	2 x τ +(1 + 3B + $3B^2$)/(1+B^2)
				BW	Body Weight	15	kg	USEPA, 2002b	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	

Notes:

1 - Children were evaluated as one age group (0 - 6 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential children were evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1991: Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors. OSWER Directive 9285.6-03.

USEPA, 2002a: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Ingestion Intake = (IR-GW x EF x ED)/(BW x AT)

Dermal Intake = (SA x EV x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake (Age 0 - 6) = 5.48E-06 Cancer Dermal Intake Time (Age 0 - 6) = 3.62E+01

Mutagenic Chemicals

Cancer Ingestion Intake (Age 0 - 2) = 1.83E-06 Cancer Dermal Intake (Age 0 - 2) = 1.21E+01

Cancer Ingestion Intake (Age 2 - 6) = 3.65E-06 Cancer Dermal Intake (Age 2 - 6) = 2.41E+01

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 6.39E-05 Noncancer Dermal Intake = 4.22E+02

Cancer risk from ingestion = Groundwater concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Groundwater concentration x Cancer Dermal Intake x DAevent x Dermal Cancer Slope Factor

Hazard Index from ingestion = Groundwater concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Groundwater concentration x Noncancer Dermal Intake x DAevent / Dermal Reference Dose

TABLE 4.21.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURE - CHILD RESIDENTS - INHALATION OF VOLATILES FROM GROUNDWATER

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Residents	Child	SWMU 11	S	Volatile Chemical Generation Rate	Derived	mg/m3-min-shower	Foster&Chrostowski 1987	Exposure Concentration (mg/m^3)=
				K	Masss Transfer Coefficient	Derived	min	Foster&Chrostowski 1987	
				EF	Exposure Frequency	350	showers/year	U.S. EPA, 1991	S x K x EF x ED / AT x Ra x CF
				ED1	Exposure Duration (Age 0 - 2)	2	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	4	years	(1), USEPA, 1989, 2005	
				Ra	Air Exchange Rate	0.017	min^{-1}	Foster&Chrostowski 1987	
				CF	Conversion Factor	1440	min/day	--	
				Ds	Shower Duration	30	min	U.S. EPA, 2004	
				Dt	Total Time in Bathroom	60	min	Professional judgement	
				Fr	Shower Water Flow Rate	10	L/min	Foster&Chrostowski 1987	
				Sv	Shower Room Air Volume	12	m^3	Foster&Chrostowski 1987	
				ts	Shower Dropler Drop Time	0.5	sec	Foster&Chrostowski 1987	
				d	Shower Droplet Diameter	1	mm	Foster&Chrostowski 1987	
				T1	Calibration Water Temperature	293	K	Foster&Chrostowski 1987	
				Ts	Shower Water Temperature	318	K	Foster&Chrostowski 1987	
				m1	Water Viscosity at T1	1.002	cp	Foster&Chrostowski 1987	
				ms	Water Viscosity at Ts	0.596	cp	Foster&Chrostowski 1987	
				AT-C	Averaging Time (Cancer)	25550	days	U.S. EPA, 1989	
				AT-N	Averaging Time (Noncancer)	2190	days	U.S. EPA ,1989	

Notes:

1 - Children were evaluated as one age group (0 - 6 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential children were evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources

U.S. EPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

U.S. EPA, 1991: Risk Assessment Guidance for Superfund - Supplemental Guidance- Standard Default Exposure Factors Interim Final.

U.S. EPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Foster, S.A. and P.C. Chrostowski, 1987. Inhalation Exposure to Volatile Organic Contaminants in the Shower.

Unit Intake Calculations

Inhalation Intake = (EF x ED)/(AT x Ra x CF)

Non-Mutagenic Chemicals

Cancer Inhalation Intake (Age 0 - 2) = 3.42E-03

Noncarcinogenic Chemicals

Noncancer Inhalation Intake = 4.00E-02

Mutagenic Chemicals

Cancer Inhalation Intake (Age 0 - 2) = 1.14E-03

Cancer Inhalation Intake n (Age 2 - 6) = 2.28E-03

TABLE 4.22.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURES - INHALATION OF INDOOR AIR

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current
Medium: Air
Exposure Medium: Indoor Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Residents	Child	SWMU 11	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2004	Exposure Concentration (mg/m3) =
				CF	Conversion Factor	0.001	mg/ug	--	CA x ET x EF x ED
				ET	Exposure Time	24	hours/day	USEPA, 1991	AT x 24 hours/day
				EF	Exposure Frequency	350	days/year	U.S. EPA, 1991	
				ED1	Exposure Duration (Age 0 - 2)	2	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	4	years	(1), USEPA, 1989, 2005	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2190	days	USEPA, 1989	

Notes:

1 - Adults will be evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential adults will be evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1991: Human Health Evaluation Manual, Part B: Development of Risk-based Preliminary Remediation Goals. OSWER Directive 9285.7-01B.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2004: User's Guide For Evaluating Subsurface Vapor Intrusion Into Buildings

Unit Intake Calculations

Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Carcinogenic Chemicals	Noncarcinogenic Chemicals
Cancer Inhalation Intake = 2.74E-02	Noncancer Inhalation Intake = 9.59E-01
Cancer Inhalation Intake = 5.48E-02	

TABLE 4.23.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - ADULT RESIDENTS - SOILS

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Adult	SWMU 11	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	100	mg/day	USEPA, 1991	
				RBA	Relative Bioavailability	Chemical Specific	unitless	USEPA, 1989	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	USEPA, 1991	BW x AT
				EF	Exposure Frequency	350	days/year	USEPA, 2002b	
				ED1	Exposure Duration (Age 6 - 16)	10	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	14	years	(1), USEPA, 1989, 2005	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	
Dermal	Resident	Adult	SWMU 11	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	5,700	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.07	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	350	days/year	USEPA, 2002b	
				ED1	Exposure Duration (Age 6 - 16)	10	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	14	years	(1), USEPA, 1989, 2005	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	

Notes:

1 - Adults will be evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential adults will be evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.

USEPA, 1991: Risk Assessment Guidance for Superfund - Supplemental Guidance- Standard Default Exposure Factors Interim Final.

USEPA, 2002:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake (Age 6 - 30) = 4.70E-07 Cancer Dermal Intake (Age 6 - 30) = 1.87E-06

Mutagenic Chemicals

Cancer Ingestion Intake (Age 6 - 16) = 1.96E-07 Cancer Dermal Intake (Age 6 - 16) = 7.81E-07

Cancer Ingestion Intake (Age 16 - 30) = 2.74E-07 Cancer Dermal Intake (Age 16 - 30) = 1.09E-06

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 1.37E-06 Noncancer Dermal Intake = 5.47E-06

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.24.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - ADULT RESIDENTS - SOILS TO AIR

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Adult	SWMU 11	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	24	hours/day	USEPA, 1991	CA x ET x EF x ED
				EF	Exposure Frequency	350	days/year	USEPA, 2002a	AT x 24 hours/day
				ED1	Exposure Duration (Age 6 - 16)	10	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	14	years	(1), USEPA, 1989, 2005	CA = (1/PEF + 1/VF) x Cs
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8760	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.316E+09	m3/kg	IDEM, 2009	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	68.81	g/m2-s per kg/m3	IDEM, 2009	
				F_D	dispersion correction factor	1	unitless	USEPA, 2002a	
				Ut	Equivalent threshold of wind velocity at 7m.	11.32	m/sec	IDEM, 2009	
				Um	Mean annual wind speed	4.69	m/sec	IDEM, 2009	
				V	Fraction of vegetative cover	0.5	unitless	IDEM, 2009	
				F(x)	Function dependent of Um/Ut	0.194	unitless	IDEM, 2009	

Notes:

1 - Adults will be evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential adults will be evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

IDEM, 2009: RISC Technical Guide, Appendix 1. May update.

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 1991: Risk Assessment Guidance for Superfund - Supplemental Guidance- Standard Default Exposure Factors Interim Final.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Non-Mutagenic Chemicals

Cancer Inhalation Intake (Age 6 - 30) = 3.29E-01

Mutagenic Chemicals

Cancer Inhalation Intake (Age 6 - 16) = 1.37E-01

Cancer Inhalation Intake (Age 16 - 30) = 1.92E-01

Noncarcinogenic Chemicals

Noncancer Inhalation Intake = 9.59E-01

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

TABLE 4.25.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - ADULT RESIDENTS - GROUNDWATER

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Residents	Adult	SWMU 11	CGW	Chemical Concentration in Groundwater	95% UCL or Max	ug/L	USEPA, 2002	Chronic Daily Intake (CDI) (mg/kg/day) =
				CF	Conversion Factor	0.001	mg/ug	--	
				IR-GW	Ingestion Rate of Groundwater	2	L/day	USEPA, 1991	CGW x CF x IR-GW x EF x ED
				EF	Exposure Frequency	350	days/year	USEPA, 2004	BW x AT
				ED1	Exposure Duration (Age 6 - 16)	10	years	(1), USEPA, 1991, 2005	
				ED2	Exposure Duration (Age 16 - 30)	14	years	(1), USEPA, 1991, 2005	
				BW	Body Weight	70	kg	USEPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	
Dermal	Residents	Adult	SWMU 11	Daevent	Dermally Absorbed Dose per Event	Calculated	mg/cm2-event	USEPA, 2004	Dermally Absorbed Dose (mg/kg/day) =
				Cw	Chemical Concentration in Groundwater	Max or 95% UCL	mg/kg	USEPA, 2002	DAevent x EV x EF x ED x SA
				FA	Fraction Absorbed	Chemical Specific	unitless	USEPA, 2004	BW x AT
				CF	Conversion factor	0.001	L/cm3	- -	
				Kp	Permeability coefficient	Chemical Specific	cm/hr	USEPA, 2004	For inorganics
				τ	Lag time	Chemical Specific	hr/event	USEPA, 2004	DAevent = Kp x CW x CF x tevent
				t*	Time it takes to reach steady state	Chemical Specific	hr/event	USEPA, 2004	
				tevent	Duration of event	0.58	hr/event	(1)	For organics if tevent <= t*
				B	Bunge model constant	Chemical Specific	unitless	USEPA, 2004	DAevent= 2 x FA x Kp x Cw x CF x sqrt[(6 x τ x tevent)/pi]
				SA	Skin Surface Available for Contact	18,000	cm2	USEPA, 2004	
				EV	Event Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	350	days/year	USEPA, 2004	For organics if tevent > t*
				ED1	Exposure Duration (Age 6 - 16)	10	years	(1), USEPA, 1991, 2005	DAevent =FA x Kp x Cw x CF x [tevent/(1+B) +
				ED2	Exposure Duration (Age 16 - 30)	14	years	(1), USEPA, 1991, 2005	2 x τ +(1 + 3B + $3B^2$)/(1+B^2)
				BW	Body Weight	70	kg	USEPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	

Notes:

1 - Adults were evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential adults were evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1991: Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors. OSWER Directive 9285.6-03.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Ingestion Intake = (IR-GW x EF x ED)/(BW x AT)

Dermal Intake = (SA x EV x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake (Age 6 - 30) = 9.39E-06 Cancer Dermal Intake (Age 6 - 30) = 8.45E+01

Mutagenic Chemicals

Cancer Ingestion Intake (Age 6 - 16) = 3.91E-06 Cancer Dermal Intake (Age 6 - 16) = 3.52E+01

Cancer Ingestion Intake (Age 16 - 30) = 5.48E-06 Cancer Dermal Intake (Age 16 - 30) = 4.93E+01

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 2.74E-05 Noncancer Dermal Intake = 2.47E+02

Cancer risk from ingestion = Groundwater concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Groundwater concentration x Cancer Dermal Intake x DAevent x Dermal Cancer Slope Factor

Hazard Index from ingestion = Groundwater concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Groundwater concentration x Noncancer Dermal Intake x DAevent / Dermal Reference Dose

TABLE 4.26.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - ADULT RESIDENTS - INHALATION OF VOLATILES FROM GROUNDWATER

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Residents	Adult	SWMU 11	S	Volatile Chemical Generation Rate	Derived	mg/m3-min-shower	Foster&Chrostowski 1987	Exposure Concentration (mg/m^3)=
				K	Masss Transfer Coefficient	Derived	min	Foster&Chrostowski 1987	
				EF	Exposure Frequency	350	showers/year	U.S. EPA, 1991	S x K x EF x ED / AT x Ra x CF
				ED1	Exposure Duration (Age 6 - 16)	10	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	14	years	(1), USEPA, 1989, 2005	
				Ra	Air Exchange Rate	0.017	min^{-1}	Foster&Chrostowski 1987	
				CF	Conversion Factor	1440	min/day	--	
				Ds	Shower Duration	30	min	U.S. EPA, 2004	
				Dt	Total Time in Bathroom	60	min	Professional judgement	
				Fr	Shower Water Flow Rate	10	L/min	Foster&Chrostowski 1987	
				Sv	Shower Room Air Volume	12	m^3	Foster&Chrostowski 1987	
				ts	Shower Dropler Drop Time	0.5	sec	Foster&Chrostowski 1987	
				d	Shower Droplet Diameter	1	mm	Foster&Chrostowski 1987	
				T1	Calibration Water Temperature	293	K	Foster&Chrostowski 1987	
				Ts	Shower Water Temperature	318	K	Foster&Chrostowski 1987	
				m1	Water Viscosity at T1	1.002	cp	Foster&Chrostowski 1987	
				ms	Water Viscosity at Ts	0.596	cp	Foster&Chrostowski 1987	
				AT-C	Averaging Time (Cancer)	25550	days	U.S. EPA, 1989	
				AT-N	Averaging Time (Noncancer)	8760	days	U.S. EPA ,1989	

Notes:

1 - Adults were evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential adults were evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources

U.S. EPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

U.S. EPA, 1991: Risk Assessment Guidance for Superfund - Supplemental Guidance- Standard Default Exposure Factors Interim Final.

U.S. EPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Foster, S.A. and P.C. Chrostowski, 1987. Inhalation Exposure to Volatile Organic Contaminants in the Shower.

Unit Intake Calculations

Inhalation Intake = (EF x ED x ET)/(AT x Ra x CF)

Non-Mutagenic Chemicals

Cancer Inhalation Intake (Age 6 - 30) = 1.37E-02

Noncarcinogenic Chemicals

Noncancer Inhalation Intake = 4.00E-02

Mutagenic Chemicals

Cancer Inhalation Intake (Age 6 - 16) = 5.71E-03

Cancer Inhalation Intake (Age 16 - 30) = 7.99E-03

TABLE 4.27.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURES - INHALATION OF INDOOR AIR

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current
Medium: Air
Exposure Medium: Indoor Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Residents	Adult	SWMU 11	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2004	Exposure Concentration (mg/m3) =
				CF	Conversion Factor	0.001	mg/ug	--	CA x ET x EF x ED
				ET	Exposure Time	24	hours/day	USEPA, 1991	AT x 24 hours/day
				EF	Exposure Frequency	350	days/year	U.S. EPA, 1991	
				ED	Exposure Duration (Age 6 - 16)	10	years	(1), USEPA, 1989, 2005	
				ED	Exposure Duration (Age 6 - 16)	14	years	(1), USEPA, 1989, 2005	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8760	days	USEPA, 1989	

Notes:

1 - Adults will be evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential adults will be evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1991: Human Health Evaluation Manual, Part B: Development of Risk-based Preliminary Remediation Goals. OSWER Directive 9285.7-01B.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2004: User's Guide For Evaluating Subsurface Vapor Intrusion Into Buildings

Unit Intake Calculations

Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Carcinogenic Chemicals	Noncarcinogenic Chemicals
Cancer Inhalation Intake = 1.37E-01	Noncancer Inhalation Intake = 9.59E-01
Cancer Inhalation Intake = 1.92E-01	

TABLE 4.1.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - INDUSTRIAL WORKERS - SOIL

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Maintenance Workers	Adult	SWMU 11	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	50	mg/day	USEPA, 1993	
				RBA	Relative Bioavailability	Chemical Specific	unitless	USEPA, 1989	
				CF3	Conversion Factor 3	0.000001	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	USEPA, 1993	BW x AT
				EF	Exposure Frequency	12	days/year	(1)	
				ED	Exposure Duration	9	years	USEPA, 1993	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	3285	days	USEPA, 1989	
Dermal	Maintenance Workers	Adult	SWMU 11	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	0.000001	kg/mg	--	
				SA	Skin Surface Available for Contact	3300	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.02	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	12	days/year	(1)	
				ED	Exposure Duration	9	years	USEPA, 1993	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	3285	days	USEPA, 1989	

Notes:

1 - Professional judgment. Assumes one day a month.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.

USEPA, 1993: Superfund's Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Cancer Ingestion Intake = 3.02E-09 Cancer Dermal Intake = 3.99E-09

Noncancer Ingestion Intake = 2.35E-08 Noncancer Dermal Intake = 3.10E-08

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.2.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - INDUSTRIAL WORKERS - SOIL TO AIR

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Maintenance Workers	Adult	SWMU 11	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	8	hours/day	(1)	CA x ET x EF x ED
				EF	Exposure Frequency	12	days/year	(2)	AT x 24 hours/day
				ED	Exposure Duration	9	years	USEPA, 1993	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	CA = (1/PEF + 1/VF) x Cs
				AT-N	Averaging Time (Non-Cancer)	3285	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.316E+09	m3/kg	IDEM, 2009	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	68.81	g/m2-s per kg/m3	IDEM, 2009	
				F_D	dispersion correction factor	1	unitless	USEPA, 2002a	
				Ut	Equivalent threshold of wind velocity at 7m.	11.32	m/sec	IDEM, 2009	
				Um	Mean annual wind speed	4.69	m/sec	IDEM, 2009	
				V	Fraction of vegetative cover	0.5	unitless	IDEM, 2009	
				F(x)	Function dependent of Um/Ut	0.194	unitless	IDEM, 2009	

Notes:

1 - Length of typical work day.

2 - Professional judgment. Assumes one day a month.

Sources:

IDEM, 2009: RISC Technical Guide, Appendix 1. May update.

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 1993: Superfund Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Cancer Inhalation Intake = 1.41E-03 Noncancer Inhalation Intake = 1.10E-02

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

TABLE 4.3.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - INDUSTRIAL WORKERS - SOIL

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Industrial Workers	Adult	SWMU 11	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	50	mg/day	USEPA, 1993	
				RBA	Relative Bioavailability	Chemical Specific	unitless	USEPA, 1989	
				CF3	Conversion Factor 3	0.000001	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	USEPA, 1993	BW x AT
				EF	Exposure Frequency	219	days/year	USEPA, 1993	
				ED	Exposure Duration	9	years	USEPA, 1993	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	3285	days	USEPA, 1989	
Dermal	Industrial Workers	Adult	SWMU 11	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	0.000001	kg/mg	--	
				SA	Skin Surface Available for Contact	3300	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.02	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	219	days/year	USEPA, 1993	
				ED	Exposure Duration	9	years	USEPA, 1993	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	3285	days	USEPA, 1989	

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.

USEPA, 1993: Superfund's Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Cancer Ingestion Intake = 5.51E-08 Cancer Dermal Intake = 7.27E-08

Noncancer Ingestion Intake = 4.29E-07 Noncancer Dermal Intake = 5.66E-07

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.4.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - INDUSTRIAL WORKERS - SOIL TO AIR

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Industrial Workers	Adult	SWMU 11	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	8	hours/day	(1)	CA x ET x EF x ED
				EF	Exposure Frequency	219	days/year	USEPA, 2002a	AT x 24 hours/day
				ED	Exposure Duration	9	years	USEPA, 1993	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	CA = (1/PEF + 1/VF) x Cs
				AT-N	Averaging Time (Non-Cancer)	3285	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.316E+09	m3/kg	IDEM, 2009	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	68.81	g/m2-s per kg/m3	IDEM, 2009	
				F_D	dispersion correction factor	1	unitless	USEPA, 2002a	
				Ut	Equivalent threshold of wind velocity at 7m.	11.32	m/sec	IDEM, 2009	
				Um	Mean annual wind speed	4.69	m/sec	IDEM, 2009	
				V	Fraction of vegetative cover	0.5	unitless	IDEM, 2009	
				F(x)	Function dependent of Um/Ut	0.194	unitless	IDEM, 2009	

Notes:

1 - Length of typical work day.

Sources:

IDEM, 2009: RISC Technical Guide, Appendix 1. May update.

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 1993: Superfund Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Cancer Inhalation Intake = 2.57E-02 Noncancer Inhalation Intake = 2.00E-01

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

TABLE 4.5.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - CONSTRUCTION WORKERS - SOILS

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Construction Workers	Adult	SWMU 11	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	165	mg/day	(1)	
				RBA	Relative Bioavailability	Chemical Specific	unitless	USEPA, 1989	
				CF3	Conversion Factor 3	0.000001	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	USEPA, 2002b	BW x AT
				EF	Exposure Frequency	75	days/year	(1)	
				ED	Exposure Duration	1	years	(1)	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	
Dermal	Construction Workers	Adult	SWMU 11	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	0.000001	kg/mg	--	
				SA	Skin Surface Available for Contact	3300	cm2	USEPA, 2002b	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.1	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	75	days/year	(1)	
				ED	Exposure Duration	1	years	(1)	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	

Notes:

1 - Professional judgment. For some factors, CTE is assumed to be 50 percent of RME.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.

USEPA, 2002a:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Cancer Ingestion Intake = 6.92E-09 Cancer Dermal Intake = 1.38E-08

Noncancer Ingestion Intake = 4.84E-07 Noncancer Dermal Intake = 9.69E-07

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.6.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - CONSTRUCTION WORKERS - SOILS TO AIR

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Construction Workers	Adult	SWMU 28	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	8	hours/day	(1)	CA x ET x EF x ED
				EF	Exposure Frequency	75	days/year	(1)	AT x 24 hours/day
				ED	Exposure Duration	1	years	(1)	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	CA = (1/PEF + 1/VF) x Cs
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.34E+06	m3/kg	USEPA, 2002a	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	

Notes:

1 - Professional judgment. For some factors, CTE is assumed to be 50 percent of RME.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. USEPA/600/8-95/002FA.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

IDEM, 2009: RISC Technical Guide, Appendix 1. May update.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Cancer Inhalation Intake = 9.78E-04 Noncancer Inhalation Intake = 6.85E-02

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

TABLE 4.7.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - CONSTRUCTION WORKERS - GROUNDWATER

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal	Construction Workers	Adult	SWMU 11	Daevent	Dermally Absorbed Dose per Event	Calculated	mg/cm2-event	USEPA, 2004	Dermally Absorbed Dose (mg/kg/day) =
				Cw	Chemical Concentration in Groundwater	Max or 95% UCL	ug/L	USEPA, 2002a	
				FA	Fraction Absorbed	Chemical Specific	unitless	USEPA, 2004	DAevent x EV x EF x ED x SA
				CF	Conversion factor	0.001	L/cm3	- -	BW x AT
				Kp	Permeability coefficient	Chemical Specific	cm/hr	USEPA, 2004	
				τ	Lag time	Chemical Specific	hr/event	USEPA, 2004	For inorganics
				t*	Time it takes to reach steady state	Chemical Specific	hr/event	USEPA, 2004	DAevent = Kp x CW x CF x tevent
				tevent	Duration of event	2	hr/event	(1)	
				B	Bunge model constant	Chemical Specific	unitless	USEPA, 2004	For organics if tevent <= t*
				SA	Skin Surface Available for Contact	3300	cm2	USEPA, 2004	DAevent= 2 x FA x Kp x Cw x CF x sqrt[(6 x τ x tevent)/pi]
				EV	Event Frequency	1	events/day	(1)	
				EF	Exposure Frequency	75	days/year	(1)	For organics if tevent > t*
				ED	Exposure Duration	1	years	USEPA, 2002	DAevent =FA x Kp x Cw x CF x [tevent/(1+B) +
				BW	Body Weight	70	kg	USEPA, 1989	2 x τ +(1 + 3B + $3B^2$)/(1+B^2)
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	

Notes:

1 - Professional judgment. For some factors, CTE is assumed to be 50 percent of RME.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 2002: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Dermal Intake = (SA x EV x EF x ED)/(BW x AT)

Cancer Dermal Intake = 1.38E-01 Noncancer Dermal Intake = 9.69E+00

Cancer risk from dermal contact = Groundwater concentration x Cancer Dermal Intake x DAevent x Dermal Cancer Slope Factor

Hazard Index from dermal contact = Groundwater concentration x Noncancer Dermal Intake x DAevent / Dermal Reference Dose

TABLE 4.8.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - CONSTRUCTION WORKERS - GROUNDWATER TO AIR

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Construction Workers	Adult	SWMU 11	CA	Chemical concentration in air	Calculated	mg/m3	VDEQ, 2008	Exposure Concentration (mg/m^3) =
				CW	Chemical concentration in water.	Average	ug/L	--	
				CF	Conversion Factor	0.001	mg/ug	--	CA x ET x EF x ED
				ET	Exposure Time	2	hours/day	(1)	AT x 24 hours/day
				EF	Exposure Frequency	75	days/year	(1)	
				ED	Exposure Duration	1	years	USEPA, 2002	CA = CW x CF x VF
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	
				VF	Volatilization Factor	Calculated	(mg/m3)/(mg/L)	VDEQ, 2008	

Notes:

1 - Professional judgment. For some factors, CTE is assumed to be 50 percent of RME.

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 2002: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

VDEQ, 2008: Virginia Department of Environmental Quality (VDEQ, online - http://www.deq.state.va.us/vrprisk/raguide.html).

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Cancer Inhalation Intake = 2.45E-07 Noncancer Inhalation Intake = 1.71E-05

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

TABLE 4.9.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - ADOLESCENT TRESPASSERS - SOILS

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Trespassers	Adolescent	SWMU 11	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	50	mg/day	USEPA, 1993	
				RBA	Relative Bioavailability	Chemical Specific	unitless	USEPA, 1989	
				CF3	Conversion Factor 3	0.000001	kg/mg	--	CSs x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	USEPA, 1993	BW x AT
				EF	Exposure Frequency	13	days/year	(1)	
				ED	Exposure Duration	11	years	(2)	
				BW	Body Weight	43	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	4015	days	USEPA, 1989	
Dermal	Trespassers	Adolescent	SWMU 11	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	0.000001	kg/mg	--	
				SA	Skin Surface Available for Contact	3100	cm2	(3)	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.04	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	13	days/year	(1)	
				ED	Exposure Duration	11	years	(2)	
				BW	Body Weight	43	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	4015	days	USEPA, 1989	

Notes:

1 - Assume one day a week in warm weather months for RME and one day every other week for CTE.

2 - Older child from age 6 to 17.

3 - Assumes head, hands, forearms, lower legs, and feet are exposed (USEPA, 2004).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1993: Superfund's Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Cancer Ingestion Intake = 6.51E-09 Cancer Dermal Intake = 1.61E-08

Noncancer Ingestion Intake = 4.14E-08 Noncancer Dermal Intake = 1.03E-07

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.10.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - ADOLESCENT TRESPASSERS - SOILS TO AIR

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Trespassers	Adolescent	SWMU 11	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	2	hours/day	(1)	CA x ET x EF x ED
				EF	Exposure Frequency	13	days/year	(2)	AT x 24 hours/day
				ED	Exposure Duration	11	years	(3)	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	CA = (1/PEF + 1/VF) x Cs
				AT-N	Averaging Time (Non-Cancer)	4,015	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.316E+09	m3/kg	IDEM, 2009	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	68.81	g/m2-s per kg/m3	IDEM, 2009	
				F_D	dispersion correction factor	1	unitless	USEPA, 2002a	
				Ut	Equivalent threshold of wind velocity at 7m.	11.32	m/sec	IDEM, 2009	
				Um	Mean annual wind speed	4.69	m/sec	IDEM, 2009	
				V	Fraction of vegetative cover	0.5	unitless	IDEM, 2009	
				F(x)	Function dependent of Um/Ut	0.194	unitless	IDEM, 2009	

Notes:

1 - Professional judgment.

2 - Assume one day a week in warm weather months for RME and one day every other week for CTE.

3 - Older child from age 6 to 17.

Sources:

IDEM, 2009: RISC Technical Guide, Appendix 1. May update.

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Cancer Inhalation Intake = 4.66E-04 Noncancer Inhalation Intake = 2.97E-03

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

TABLE 4.11.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - ADOLESCENT TRESPASSERS - SEDIMENT

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Trespassers	Adolescent	SWMU 11	CS	Chemical concentration in sediment	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	50	mg/day	USEPA, 1993	
				RBA	Relative Bioavailability	Chemical Specific	unitless	USEPA, 1989	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	(1)	BW x AT
				EF	Exposure Frequency	13	days/year	(1)	
				ED	Exposure Duration	11	years	USEPA, 1993	
				BW	Body Weight	43	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	4,015	days	USEPA, 1989	
Dermal	Trespassers	Adolescent	SWMU 11	CS	Chemical concentration in sediment	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	3,100	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.04	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	13	days/year	(1)	
				ED	Exposure Duration	11	years	USEPA, 1993	
				BW	Body Weight	43	kg	USEPA, 1993	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	4,015	days	USEPA, 1989	

Notes:

1 - Professional judgment. Assume one day a week in warm weather months for RME and one day every other week for CTE.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1991: Risk Assessment Guidance for Superfund - Supplemental Guidance- Standard Default Exposure Factors Interim Final.

USEPA, 1993: Superfund Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Cancer Ingestion Intake = 6.51E-09 Cancer Dermal Intake = 1.61E-08

Noncancer Ingestion Intake = 4.14E-08 Noncancer Dermal Intake = 1.03E-07

Cancer risk from ingestion = Sediment concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Sediment concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Sediment concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Sediment concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.14.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - CHILD RECREATIONAL USERS - SOILS

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational User	Child	SWMU 11	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	100	mg/day	USEPA, 1993	
				RBA	Relative Bioavailability	Chemical Specific	unitless	USEPA, 1989	
				CF3	Conversion Factor 3	0.000001	kg/mg	--	CSs x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	0.5	unitless	(1)	BW x AT
				EF	Exposure Frequency	26	days/year	(2)	
				ED1	Exposure Duration (Age 0 - 2)	1	years	USEPA, 1989	
				ED2	Exposure Duration (Age 2 - 6)	1	years	USEPA, 1989	
				BW	Body Weight	15	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	730	days	USEPA, 1989	
Dermal	Recreational User	Child	SWMU 11	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	0.000001	kg/mg	--	
				SA	Skin Surface Available for Contact	3,300	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.04	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	26	days/year	(2)	
				ED1	Exposure Duration (Age 0 - 2)	1	years	USEPA, 1989	
				ED2	Exposure Duration (Age 2 - 6)	1	years	USEPA, 1989	
				BW	Body Weight	15	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	730	days	USEPA, 1989	

Notes:

1 - The child recreational user is assumed to be at the site only a portion of the day.

2 - Assume two days a week in warm weather months for RME and one day a week for CTE.

3 - Children will be evaluated as one age group (0 - 6 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, children recreational users will be evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1993: Superfund's Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake = 6.78E-09 Cancer Dermal Intake = 1.79E-08

Mutagenic Chemicals

Cancer Ingestion Intake (Age 0 - 2) = 3.39E-09 Cancer Dermal Intake (Age 0 - 2) = 8.95E-09

Cancer Ingestion Intake (Age 2 - 6) = 3.39E-09 Cancer Dermal Intake (Age 2 - 6) = 8.95E-09

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 2.37E-07 Noncancer Dermal Intake = 6.27E-07

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.13.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - CHILD RECREATIONAL USERS - SOILS TO AIR

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Recreational User	Child	SWMU 11	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	2	hours/day	(1)	CA x ET x EF x ED
				EF	Exposure Frequency	26	days/year	(2)	AT x 24 hours/day
				ED1	Exposure Duration (Age 0 - 2)	1	years	(3), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	1	years	(3), USEPA, 1989, 2005	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	CA = (1/PEF + 1/VF) x Cs
				AT-N	Averaging Time (Non-Cancer)	730	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.316E+09	m3/kg	IDEM, 2009	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	68.81	g/m2-s per kg/m3	IDEM, 2009	
				F_D	dispersion correction factor	1	unitless	USEPA, 2002a	
				Ut	Equivalent threshold of wind velocity at 7m.	11.32	m/sec	IDEM, 2009	
				Um	Mean annual wind speed	4.69	m/sec	IDEM, 2009	
				V	Fraction of vegetative cover	0.5	unitless	IDEM, 2009	
				F(x)	Function dependent of Um/Ut	0.194	unitless	IDEM, 2009	

Notes:

1 - Professional judgment.

2 - Assume two days a week in warm weather months for RME and one day a week for CTE.

3 - Children will be evaluated as one age group (0 - 6 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, children recreational users will be evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

IDEM, 2009: RISC Technical Guide, Appendix 1. May update.

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Non-Mutagenic Chemicals

Cancer Inhalation Intake = 1.70E-04 Noncancer Inhalation Intake = 5.94E-03

Mutagenic Chemicals

Cancer Inhalation Intake (Age 0 - 2) = 8.48E-05

Cancer Inhalation Intake (Age 2 - 6) = 8.48E-05

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

TABLE 4.14.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - CHILD RECREATIONAL USERS - SEDIMENT

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational User	Child	SWMU 11	CS	Chemical concentration in sediment	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	100	mg/day	USEPA, 1993	
				RBA	Relative Bioavailability	Chemical Specific	unitless	USEPA, 1989	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	(1)	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	0.5	unitless	USEPA, 1993	BW x AT
				EF	Exposure Frequency	26	days/year	(1)	
				ED1	Exposure Duration (Age 0 - 2)	1	years	(2), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	1	years	(2), USEPA, 1989, 2005	
				BW	Body Weight	15	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	730	days	USEPA, 1989	
Dermal	Recreational User	Child	SWMU 11	CS	Chemical concentration in sediment	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	3,300	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.04	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	26	days/year	(1)	
				ED1	Exposure Duration (Age 0 - 2)	1	years	(2), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	1	years	(2), USEPA, 1989, 2005	
				BW	Body Weight	15	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	730	days	USEPA, 1989	

Notes:

1 - Professional judgment. Assume two days a week in warm weather months for RME and one day a week for CTE.

2 - Children will be evaluated as one age group (0 - 6 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, children recreational users will be evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1993: Superfund's Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake = 6.78E-09 Cancer Dermal Intake = 1.79E-08

Mutagenic Chemicals

Cancer Ingestion Intake (Age 0 - 2) = 3.39E-09 Cancer Dermal Intake (Age 0 - 2) = 8.95E-09

Cancer Ingestion Intake (Age 2 - 6) = 3.39E-09 Cancer Dermal Intake (Age 2 - 6) = 8.95E-09

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 2.37E-07 Noncancer Dermal Intake = 6.27E-07

Cancer risk from ingestion = Sediment concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Sediment concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Sediment concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Sediment concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.15.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - ADULT RECREATIONAL USERS - SOILS

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational User	Adult	SWMU 11	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	50	mg/day	USEPA, 1993	
				RBA	Relative Bioavailability	Chemical Specific	unitless	USEPA, 1989	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	0.5	unitless	(1)	BW x AT
				EF	Exposure Frequency	26	days/year	(1)	
				ED1	Exposure Duration (Age 6 - 16)	2	years	(3), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	5	years	(3), USEPA, 1989, 2005	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,555	days	USEPA, 1989	
Dermal	Recreational User	Adult	SWMU 11	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	9,070	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.01	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	26	days/year	(1)	
				ED1	Exposure Duration (Age 6 - 16)	2	years	(3), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	5	years	(3), USEPA, 1989, 2005	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,555	days	USEPA, 1989	

Notes:

1 - The adult recreational user is assumed to be at the site only a portion of the day.

2 - Assume two days a week in warm weather months for RME and one day a week for CTE.

3 - Adults will be evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, adult recreational users will be evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1993: Superfund Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake = 2.54E-09 Cancer Dermal Intake = 9.23E-09

Mutagenic Chemicals

Cancer Ingestion Intake (Age 6 - 16) = 7.27E-10 Cancer Dermal Intake (Age 6 - 16) = 2.64E-09

Cancer Ingestion Intake Age 16 - 30) = 1.82E-09 Cancer Dermal Intake (Age 16 - 30) = 6.59E-09

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 2.54E-08 Noncancer Dermal Intake = 9.23E-08

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.16.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - ADULT RECREATIONAL USERS - SOILS TO AIR

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Recreational User	Adult	SWMU 11	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	2	hours/day	(1)	CA x ET x EF x ED
				EF	Exposure Frequency	26	days/year	(1)	AT x 24 hours/day
				ED1	Exposure Duration (Age 6 - 16)	2	years	(2), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	5	years	(2), USEPA, 1989, 2005	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	CA = (1/PEF + 1/VF) x Cs
				AT-N	Averaging Time (Non-Cancer)	2555	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.316E+09	m3/kg	IDEM, 2009	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	68.81	g/m2-s per kg/m3	IDEM, 2009	
				F_D	dispersion correction factor	1	unitless	USEPA, 2002a	
				Ut	Equivalent threshold of wind velocity at 7m.	11.32	m/sec	IDEM, 2009	
				Um	Mean annual wind speed	4.69	m/sec	IDEM, 2009	
				V	Fraction of vegetative cover	0.5	unitless	IDEM, 2009	
				F(x)	Function dependent of Um/Ut	0.194	unitless	IDEM, 2009	

Notes:

1 - Professional judgment. Assume two days a week in warm weather months for RME and one day a week for CTE.

2 - Adults will be evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, adult recreational users will be evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

IDEM, 2009: RISC Technical Guide, Appendix 1. May update.

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Non-Mutagenic Chemicals

Cancer Inhalation Intake = 5.94E-04

Noncarcinogenic Chemicals

Noncancer Inhalation Intake = 5.94E-03

Mutagenic Chemicals

Cancer Inhalation Intake (Age 6 - 16) = 1.70E-04

Cancer Inhalation Intake (Age 16 - 30) = 4.24E-04

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

TABLE 4.17.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - ADULT RECREATIONAL USERS - SEDIMENT

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational User	Adult	SWMU 11	CS	Chemical concentration in sediment	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	50	mg/day	USEPA, 1993	
				RBA	Relative Bioavailability	Chemical Specific	unitless	USEPA, 1989	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	0.5	unitless	(1)	BW x AT
				EF	Exposure Frequency	26	days/year	(1)	
				ED1	Exposure Duration (Age 6 - 16)	2	years	(2), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	5	years	(2), USEPA, 1989, 2005	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,555	days	USEPA, 1989	
Dermal	Recreational User	Adult	SWMU 11	CS	Chemical concentration in sediment	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	9,070	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.01	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	26	days/year	(1)	
				ED1	Exposure Duration (Age 6 - 16)	2	years	(2), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	5	years	(2), USEPA, 1989, 2005	
				BW	Body Weight	70	kg	USEPA, 1993	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,555	days	USEPA, 1989	

Notes:

1 - Professional judgment. Assume two days a week in warm weather months for RME and one day a week for CTE.

2 - Adults will be evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, adult recreational users will be evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1993: Superfund Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake = 2.54E-09 Cancer Dermal Intake = 9.23E-09

Mutagenic Chemicals

Cancer Ingestion Intake (Age 6 - 16) = 7.27E-10 Cancer Dermal Intake (Age 6 - 16) = 2.64E-09

Cancer Ingestion Intake (Age 16 - 30) = 1.82E-09 Cancer Dermal Intake (Age 16 - 30) = 6.59E-09

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 2.54E-08 Noncancer Dermal Intake = 9.23E-08

Cancer risk from ingestion = Sediment concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Sediment concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Sediment concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Sediment concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.18.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - CHILD RESIDENTS - SOILS

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Child	SWMU 11	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	100	mg/day	USEPA, 1993	
				RBA	Relative Bioavailability	Chemical Specific	unitless	USEPA, 1989	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	USEPA, 1993	BW x AT
				EF	Exposure Frequency	234	days/year	USEPA, 1993	
				ED1	Exposure Duration (Age 0 - 2)	1	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	1	years	(1), USEPA, 1989, 2005	
				BW	Body Weight	15	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	730	days	USEPA, 1989	
Dermal	Resident	Child	SWMU 11	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	2,800	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.04	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	234	days/year	USEPA, 1993	
				ED1	Exposure Duration (Age 0 - 2)	1	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	1	years	(1), USEPA, 1989, 2005	
				BW	Body Weight	15	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	730	days	USEPA, 1989	

Notes:

1 - Children will be evaluated as one age group (0 - 6 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential children will be evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1993: Superfund Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake = 1.22E-07 Cancer Dermal Intake = 1.37E-07

Mutagenic Chemicals

Cancer Ingestion Intake (Age 0 - 2) = 6.11E-08 Cancer Dermal Intake (Age 0 - 2) = 6.84E-08

Cancer Ingestion Intake (Age 2 - 6) = 6.11E-08 Cancer Dermal Intake (Age 2 - 6) = 6.84E-08

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 4.27E-06 Noncancer Dermal Intake = 4.79E-06

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.19.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - CHILD RESIDENTS - SOILS TO AIR

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Child	SWMU 11	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	24	hours/day	USEPA, 1993	CA x ET x EF x ED
				EF	Exposure Frequency	234	days/year	USEPA, 1993	AT x 24 hours/day
				ED1	Exposure Duration (Age 0 - 2)	1	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	1	years	(1), USEPA, 1989, 2005	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	CA = (1/PEF + 1/VF) x Cs
				AT-N	Averaging Time (Non-Cancer)	730	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.316E+09	m3/kg	IDEM, 2009	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	68.81	g/m2-s per kg/m3	IDEM, 2009	
				F_D	dispersion correction factor	1	unitless	USEPA, 2002a	
				Ut	Equivalent threshold of wind velocity at 7m.	11.32	m/sec	IDEM, 2009	
				Um	Mean annual wind speed	4.69	m/sec	IDEM, 2009	
				V	Fraction of vegetative cover	0.5	unitless	IDEM, 2009	
				F(x)	Function dependent of Um/Ut	0.194	unitless	IDEM, 2009	

Notes:

1 - Children will be evaluated as one age group (0 - 6 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential children will be evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

IDEM, 2009: RISC Technical Guide, Appendix 1. May update.

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 1991: Risk Assessment Guidance for Superfund - Supplemental Guidance- Standard Default Exposure Factors Interim Final.

USEPA, 1993: Superfund Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Non-Mutagenic Chemicals

Cancer Inhalation Intake = 1.83E-02

Noncarcinogenic Chemicals

Noncancer Inhalation Intake = 6.41E-01

Mutagenic Chemicals

Cancer Inhalation Intake (Age 0 - 2) = 9.16E-03

Cancer Inhalation Intake (Age 2 - 6) = 9.16E-03

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

TABLE 4.20.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - CHILD RESIDENTS - GROUNDWATER

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Residents	Child	SWMU 11	CGW	Chemical Concentration in Groundwater	Max or 95% UCL	mg/kg	USEPA, 2002	Chronic Daily Intake (CDI) (mg/kg/day) =
				CF	Conversion Factor	0.001	mg/ug	--	
				IR-GW	Ingestion Rate of Groundwater	0.74	L/day	USEPA, 1997	CGW x CF x IR-GW x EF x ED
				EF	Exposure Frequency	234	days/year	USEPA, 1993	BW x AT
				ED1	Exposure Duration (Age 0 - 2)	1	years	(1), USEPA, 1993, 2005	
				ED2	Exposure Duration (Age 2 - 6)	1	years	(1), USEPA, 1993, 2005	
				BW	Body Weight	15	years	USEPA, 1993	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	730	days	USEPA, 1989	
Dermal	Residents	Child	SWMU 11	Daevent	Dermally Absorbed Dose per Event	Calculated	mg/cm2-event	USEPA, 2004	Dermally Absorbed Dose (mg/kg/day) =
				Cw	Chemical Concentration in Groundwater	Max or 95% UCL	mg/kg	USEPA, 2002	
				FA	Fraction Absorbed	Chemical Specific	unitless	USEPA, 2004	DAevent x EV x EF x ED x SA
				CF	Conversion factor	0.001	L/cm3	- -	BW x AT
				Kp	Permeability coefficient	Chemical Specific	cm/hr	USEPA, 2004	
				τ	Lag time	Chemical Specific	hr/event	USEPA, 2004	For inorganics
				t*	Time it takes to reach steady state	Chemical Specific	hr/event	USEPA, 2004	DAevent = Kp x CW x CF x tevent
				tevent	Duration of event	0.33	hr/event	USEPA, 2004	
				B	Bunge model constant	Chemical Specific	unitless	USEPA, 2004	For organics if tevent <= t*
				SA	Skin Surface Available for Contact	6,600	cm2	USEPA, 2004	DAevent= 2 x FA x Kp x Cw x CF x sqrt[(6 x τ x tevent)/pi]
				EV	Event Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	234	days/year	USEPA, 1993	For organics if tevent > t*
				ED1	Exposure Duration (Age 0 - 2)	1	years	(1), USEPA, 1993, 2005	DAevent =FA x Kp x Cw x CF x [tevent/(1+B) +
				ED2	Exposure Duration (Age 2 - 6)	1	years	(1), USEPA, 1993, 2005	
				BW	Body Weight	15	kg	USEPA, 1993	2 x τ +(1 + 3B + $3B^2$)/(1+B^2)
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	730	days	USEPA, 1989	

Notes:

1 - Children were evaluated as one age group (0 - 6 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential children were evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1993: Superfund's Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Ingestion Intake = (IR-GW x EF x ED)/(BW x AT)

Dermal Intake = (SA x EV x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake = 9.04E-07 Cancer Dermal Intake = 8.06E+00

Mutagenic Chemicals

Cancer Ingestion Intake (Age 0 - 2) = 4.52E-07 Cancer Dermal Intake (Age 0 - 2) = 4.03E+00

Cancer Ingestion Intake (Age 2 - 6) = 4.52E-07 Cancer Dermal Intake (Age 2 - 6) = 4.03E+00

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 3.16E-05 Noncancer Dermal Intake = 2.82E+02

Cancer risk from ingestion = Groundwater concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Groundwater concentration x Cancer Dermal Intake x DAevent x Dermal Cancer Slope Factor

Hazard Index from ingestion = Groundwater concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Groundwater concentration x Noncancer Dermal Intake x DAevent / Dermal Reference Dose

TABLE 4.21.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - CHILD RESIDENTS - INHALATION OF VOLATILES FROM GROUNDWATER

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Residents	Adult	Site 1	S	Volatile Chemical Generation Rate	Derived	mg/m3-min-showe	Foster & Chrostowski 1987	Exposure Concentration (mg/m^3)=
				K	Masss Transfer Coefficient	Derived	min	Foster&Chrostowski 1987	
				EF	Exposure Frequency	234	showers/year	U.S. EPA, 1993	S x K x EF x ED / AT x Ra x CF
				ED1	Exposure Duration (Age 0 - 2)	1	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	1	years	(1), USEPA, 1989, 2005	
				Ra	Air Exchange Rate	0.017	min^{-1}	Foster&Chrostowski 1987	
				CF	Conversion Factor	1440	min/day	--	
				Ds	Shower Duration	10	min	U.S. EPA, 2004	
				Dt	Total Time in Bathroom	15	min	Professional Judgement	
				Fr	Shower Water Flow Rate	10	L/min	Foster&Chrostowski 1987	
				Sv	Shower Room Air Volume	12	m^3	Foster&Chrostowski 1987	
				ts	Shower Dropler Drop Time	0.5	sec	Foster&Chrostowski 1987	
				d	Shower Droplet Diameter	1	mm	Foster&Chrostowski 1987	
				T1	Calibration Water Temperature	293	K	Foster&Chrostowski 1987	
				Ts	Shower Water Temperature	318	K	Foster&Chrostowski 1987	
				m1	Water Viscosity at T1	1.002	cp	Foster&Chrostowski 1987	
				ms	Water Viscosity at Ts	0.596	cp	Foster&Chrostowski 1987	
				AT-C	Averaging Time (Cancer)	25550	days	U.S. EPA, 1989	
				AT-N	Averaging Time (Noncancer)	730	days	U.S. EPA, 1989	

Notes:

1 - Children were evaluated as one age group (0 - 6 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential children were evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources

U.S. EPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

U.S. EPA, 1991: Risk Assessment Guidance for Superfund - Supplemental Guidance- Standard Default Exposure Factors Interim Final.

U.S. EPA, 1993: Superfund Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

U.S. EPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Foster, S.A. and P.C. Chrostowski, 1987. Inhalation Exposure to Volatile Organic Contaminants in the Shower.

Unit Intake Calculations

Inhalation Intake = (EF x ED x ET)/(AT x Ra x CF)

Non-Mutagenic Chemicals

Cancer Inhalation Intake = 7.63E-04

Noncarcinogenic Chemicals

Noncancer Inhalation Intake = 2.67E-02

Mutagenic Chemicals

Cancer Inhalation Intake (Age 0 - 2) = 3.82E-04

Cancer Inhalation Intake n (Age 2 - 6) = 3.82E-04

TABLE 4.22.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - INHALATION OF INDOOR AIR

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current
Medium: Air
Exposure Medium: Indoor Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Residents	Adult	SWMU 11	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2004	Exposure Concentration (mg/m3) =
				CF	Conversion Factor	0.001	mg/ug	--	CA x ET x EF x ED
				ET	Exposure Time	24	hours/day	USEPA, 1991	AT x 24 hours/day
				EF	Exposure Frequency	234	days/year	U.S. EPA, 1993	
				ED1	Exposure Duration (Age 0 - 2)	1	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	1	years	(1), USEPA, 1989, 2005	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	730	days	USEPA, 1989	

Notes:

1 - Adults will be evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential adults will be evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1991: Human Health Evaluation Manual, Part B: Development of Risk-based Preliminary Remediation Goals. OSWER Directive 9285.7-01B.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2004: User's Guide For Evaluating Subsurface Vapor Intrusion Into Buildings

Unit Intake Calculations

Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Carcinogenic Chemicals	Noncarcinogenic Chemicals
Cancer Inhalation Intake = 9.16E-03	Noncancer Inhalation Intake = 6.41E-01
Cancer Inhalation Intake = 9.16E-03	

TABLE 4.23.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - ADULT RESIDENTS - SOILS

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Adult	SWMU 28	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	50	mg/day	USEPA, 1993	
				RBA	Relative Bioavailability	Chemical Specific	unitless	USEPA, 1989	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	USEPA, 1993	BW x AT
				EF	Exposure Frequency	234	days/year	USEPA, 1993	
				ED1	Exposure Duration (Age 6 - 16)	2	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	5	years	(1), USEPA, 1989, 2005	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,555	days	USEPA, 1989	
Dermal	Resident	Adult	SWMU 28	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	5,700	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.01	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	234	days/year	USEPA, 1993	
				ED1	Exposure Duration (Age 6 - 16)	2	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	5	years	(1), USEPA, 1989, 2005	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,555	days	USEPA, 1989	

Notes:

1 - Adults will be evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential adults will be evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.

USEPA, 1993: Superfund Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake = 4.58E-08 Cancer Dermal Intake = 5.22E-08

Mutagenic Chemicals

Cancer Ingestion Intake (Age 6 - 16) = 1.31E-08 Cancer Dermal Intake (Age 6 - 16) = 1.49E-08

Cancer Ingestion Intake (Age 16 - 30) = 3.27E-08 Cancer Dermal Intake (Age 16 - 30) = 3.73E-08

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 4.58E-07 Noncancer Dermal Intake = 5.22E-07

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.24.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - ADULT RESIDENTS - SOILS TO AIR

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Adult	SWMU 11	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	24	hours/day	USEPA, 1993	CA x ET x EF x ED
				EF	Exposure Frequency	234	days/year	USEPA, 1993	AT x 24 hours/day
				ED1	Exposure Duration (Age 6 - 16)	2	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	5	years	(1), USEPA, 1989, 2005	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	CA = (1/PEF + 1/VF) x Cs
				AT-N	Averaging Time (Non-Cancer)	2555	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.316E+09	m3/kg	IDEM, 2009	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	68.81	g/m2-s per kg/m3	IDEM, 2009	
				F_D	dispersion correction factor	1	unitless	USEPA, 2002a	
				Ut	Equivalent threshold of wind velocity at 7m.	11.32	m/sec	IDEM, 2009	
				Um	Mean annual wind speed	4.69	m/sec	IDEM, 2009	
				V	Fraction of vegetative cover	0.5	unitless	IDEM, 2009	
				F(x)	Function dependent of Um/Ut	0.194	unitless	IDEM, 2009	

Notes:

1 - Adults will be evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential adults will be evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

IDEM, 2009: RISC Technical Guide, Appendix 1. May update.

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 1993: Superfund Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Non-Mutagenic Chemicals

Cancer Inhalation Intake = 6.41E-02

Noncarcinogenic Chemicals

Noncancer Inhalation Intake = 6.41E-01

Mutagenic Chemicals

Cancer Inhalation Intake (Age 6 - 16) = 1.83E-02

Cancer Inhalation Intake (Age 16 - 30) = 4.58E-02

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

TABLE 4.25.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - ADULT RESIDENTS - GROUNDWATER

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Residents	Adult	SWMU 11	CGW	Chemical Concentration in Groundwater	95% UCL or Max	ug/L	USEPA, 2002	Chronic Daily Intake (CDI) (mg/kg/day) =
				CF	Conversion Factor	0.001	mg/ug	--	
				IR-GW	Ingestion Rate of Groundwater	1.4	L/day	USEPA, 1993	CGW x CF x IR-GW x EF x ED
				EF	Exposure Frequency	234	days/year	USEPA, 1993	BW x AT
				ED1	Exposure Duration (Age 6 - 16)	2	years	(1), USEPA, 1993, 2005	
				ED2	Exposure Duration (Age 16 - 30)	5	years	(1), USEPA, 1993, 2005	
				BW	Body Weight	70	kg	USEPA, 1993	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,555	days	USEPA, 1989	
Dermal	Residents	Adult	SWMU 11	Daevent	Dermally Absorbed Dose per Event	Calculated	mg/cm2-event	USEPA, 2004	Dermally Absorbed Dose (mg/kg/day) =
				Cw	Chemical Concentration in Groundwater	Max or 95% UCL	mg/kg	USEPA, 2002a	
				FA	Fraction Absorbed	Chemical Specific	unitless	USEPA, 2004	DAevent x EV x EF x ED x SA
				CF	Conversion factor	0.001	L/cm3	- -	BW x AT
				Kp	Permeability coefficient	Chemical Specific	cm/hr	USEPA, 2004	
				τ	Lag time	Chemical Specific	hr/event	USEPA, 2004	For inorganics
				t*	Time it takes to reach steady state	Chemical Specific	hr/event	USEPA, 2004	DAevent = Kp x CW x CF x tevent
				tevent	Duration of event	0.25	hr/event	USEPA, 2004	
				B	Bunge model constant	Chemical Specific	unitless	USEPA, 2004	For organics if tevent <= t*
				SA	Skin Surface Available for Contact	18,000	cm2	USEPA, 2004	DAevent= 2 x FA x Kp x Cw x CF x sqrt[(6 x τ x tevent)/pi]
				EV	Event Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	234	days/year	USEPA, 1993	
				ED1	Exposure Duration (Age 6 - 16)	2	years	(1), USEPA, 1993, 2005	DAevent =FA x Kp x Cw x CF x [tevent/(1+B) +
				ED2	Exposure Duration (Age 16 - 30)	5	years	(1), USEPA, 1993, 2005	
				BW	Body Weight	70	kg	USEPA, 1993	2 x τ +(1 + 3B + $3B^2$)/(1+B^2)
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,555	days	USEPA, 1989	

Notes:

1 - Adults were evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential adults were evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1993: Superfund's Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Ingestion Intake = (IR-GW x EF x ED)/(BW x AT)

Dermal Intake = (SA x EV x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake = 1.28E-06 Cancer Dermal Intake = 1.65E+01

Mutagenic Chemicals

Cancer Ingestion Intake (Age 6 - 16) = 3.66E-07 Cancer Dermal Intake (Age 6 - 16) = 4.71E+00

Cancer Ingestion Intake (Age 16 - 30) = 9.16E-07 Cancer Dermal Intake (Age 16 - 30) = 1.18E+01

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 1.28E-05 Noncancer Dermal Intake = 1.65E+02

Cancer risk from ingestion = Groundwater concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Groundwater concentration x Cancer Dermal Intake x DAevent x Dermal Cancer Slope Factor

Hazard Index from ingestion = Groundwater concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Groundwater concentration x Noncancer Dermal Intake x DAevent / Dermal Reference Dose

TABLE 4.26.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURE - ADULT RESIDENTS - INHALATION OF VOLATILES FROM GROUNDWATER

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Residents	Adult	SWMU 11	S	Volatile Chemical Generation Rate	Derived	mg/m3-min-shower	Foster & Chrostowski 1987	Exposure Concentration (mg/m^3)=
				K	Masss Transfer Coefficient	Derived	min	Foster&Chrostowski 1987	
				EF	Exposure Frequency	234	showers/year	U.S. EPA, 1993	S x K x EF x ED / AT x Ra x CF
				ED1	Exposure Duration (Age 6 - 16)	2	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	5	years	(1), USEPA, 1989, 2005	
				Ra	Air Exchange Rate	0.017	min^{-1}	Foster&Chrostowski 1987	
				CF	Conversion Factor	1440	min/day	--	
				Ds	Shower Duration	10	min	U.S. EPA, 2004	
				Dt	Total Time in Bathroom	15	min	Professional Judgement	
				Fr	Shower Water Flow Rate	10	L/min	Foster&Chrostowski 1987	
				Sv	Shower Room Air Volume	12	m^3	Foster&Chrostowski 1987	
				ts	Shower Dropler Drop Time	0.5	sec	Foster&Chrostowski 1987	
				d	Shower Droplet Diameter	1	mm	Foster&Chrostowski 1987	
				T1	Calibration Water Temperature	293	K	Foster&Chrostowski 1987	
				Ts	Shower Water Temperature	318	K	Foster&Chrostowski 1987	
				m1	Water Viscosity at T1	1.002	cp	Foster&Chrostowski 1987	
				ms	Water Viscosity at Ts	0.596	cp	Foster&Chrostowski 1987	
				AT-C	Averaging Time (Cancer)	25550	days	U.S. EPA, 1989	
				AT-N	Averaging Time (Noncancer)	2555	days	U.S. EPA, 1989	

Notes:

1 - Adults were evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential adults were evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources

U.S. EPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

U.S. EPA, 1991: Risk Assessment Guidance for Superfund - Supplemental Guidance- Standard Default Exposure Factors Interim Final.

U.S. EPA, 1993: Superfund Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

U.S. EPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Foster, S.A. and P.C. Chrostowski, 1987. Inhalation Exposure to Volatile Organic Contaminants in the Shower.

Unit Intake Calculations

Inhalation Intake = (EF x ED x ET)/(AT x Ra x CF)

Non-Mutagenic Chemicals

Cancer Inhalation Intake = 2.67E-03

Noncarcinogenic Chemicals

Noncancer Inhalation Intake = 2.67E-02

Mutagenic Chemicals

Cancer Inhalation Intake (Age 6 - 16) = 7.63E-04

Cancer Inhalation Intake (Age 16 - 30) = 1.91E-03

TABLE 4.27.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - INHALATION OF INDOOR AIR

NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current
Medium: Air
Exposure Medium: Indoor Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Residents	Adult	SWMU 11	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2004	Exposure Concentration (mg/m3) =
				CF	Conversion Factor	0.001	mg/ug	--	CA x ET x EF x ED
				ET	Exposure Time	24	hours/day	USEPA, 1991	AT x 24 hours/day
				EF	Exposure Frequency	234	days/year	U.S. EPA, 1993	
				ED	Exposure Duration (Age 6 - 16)	2	years	(1), USEPA, 1989, 2005	
				ED	Exposure Duration (Age 6 - 16)	5	years	(1), USEPA, 1989, 2005	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2555	days	USEPA, 1989	

Notes:

1 - Adults will be evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential adults will be evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1991: Human Health Evaluation Manual, Part B: Development of Risk-based Preliminary Remediation Goals. OSWER Directive 9285.7-01B.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2004: User's Guide For Evaluating Subsurface Vapor Intrusion Into Buildings

Unit Intake Calculations

Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Carcinogenic Chemicals	Noncarcinogenic Chemicals
Cancer Inhalation Intake = 1.83E-02	Noncancer Inhalation Intake = 6.41E-01
Cancer Inhalation Intake = 4.58E-02	

RAGS Part D Table 5

Non-Cancer Toxicity Data

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NON-CANCER TOXICITY DATA

Table No.

5-1 Non-Cancer Toxicity Data - Oral/Dermal

5-2 Non-Cancer Toxicity Data - Inhalation

TABLE 5.1
NON-CANCER TOXICITY DATA -- ORAL/DERMAL
NSA CRANE, CRANE, INDIANA

Chemical of Potential Concern	Chronic/ Subchronic	Oral RfD		Oral Absorption Efficiency for Dermal[1]	Absorbed RfD for Dermal[2]		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfD:Target Organ(s)	
		Value	Units		Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
Volatiles										
Benzene	Subchronic	1.0E-02	mg/kg/day	1	1.0E-02	mg/kg/day	Blood	100/1	PPRTV	9/29/2009
	Chronic	4.0E-03	mg/kg/day	1	4.0E-03	mg/kg/day	Blood	300/1	IRIS	12/12/2013
Chloroform	Subchronic	1.0E-01	mg/kg/day	1	1.0E-01	mg/kg/day	Liver	100/1	ATSDR	9/1997
	Chronic	1.0E-02	mg/kg/day	1	1.0E-02	mg/kg/day	Liver	100/1	IRIS	12/12/2013
cis-1,2-Dichloroethene	Subchronic	2.0E-02	mg/kg/day	1	2.0E-02	mg/kg/day	Kidney	300/1	PPRTV	2/3/2011
	Chronic	2.0E-03	mg/kg/day	1	2.0E-03	mg/kg/day	Kidney	3000/1	IRIS	12/12/2013
Tetrachloroethene	Subchronic	1.0E-01	mg/kg/day	1	1.0E-01	mg/kg/day	Liver	NA	HEAST	9/1997
	Chronic	6.0E-03	mg/kg/day	1	6.0E-03	mg/kg/day	Central Nervous System	1000/1	IRIS	12/12/2013
Trichloroethene	Chronic	5.0E-04	mg/kg/day	1	5.0E-04	mg/kg/day	Immune System, Developmental	1000/1	IRIS	12/12/2013
Vinyl Chloride	Chronic	3.0E-03	mg/kg/day	1	3.0E-03	mg/kg/day	Liver	30/1	IRIS	12/12/2013
Polycyclic Aromatic Hydrocarbons										
Benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dioxins/Furans										
2,3,7,8-TCDD Equivalents	Subchronic	2.0E-08	mg/kg/day	1	2.0E-08	mg/kg/day	Developmental	30	ATSDR	12/1998
	Chronic	7.0E-10	mg/kg/day	1	7.0E-10	mg/kg/day	Reproductive	30/1	IRIS	12/12/2013
Metals										
Aluminum	Subchronic	1.0E+00	mg/kg/day	1	1.0E+00	mg/kg/day	Central Nervous System	30/1	ATSDR	9/2008
	Chronic	1.0E+00	mg/kg/day	1	1.0E+00	mg/kg/day	Central Nervous System	100	PPRTV	10/23/2006
Arsenic	Chronic	3.0E-04	mg/kg/day	1	3.0E-04	mg/kg/day	Skin, Cardiovascular System	3/1	IRIS	12/12/2013
Chromium[3]	Subchronic	5.0E-03	mg/kg/day	0.025	1.3E-04	mg/kg/day	Kidney	100/1	ATSDR	9/2012
	Chronic	3.0E-03	mg/kg/day	0.025	7.5E-05	mg/kg/day	None Reported	300/3	IRIS	12/12/2013
Iron	Subchronic	7.0E-01	mg/kg/day	1	7.0E-01	mg/kg/day	Gastrointestinal System	1.5	PPRTV	9/11/2006
	Chronic	7.0E-01	mg/kg/day	1	7.0E-01	mg/kg/day	Gastrointestinal System	1.5	PPRTV	9/11/2006
Thallium[4]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	Subchronic	1.0E-02	mg/kg/day	0.026	2.6E-04	mg/kg/day	Kidney	10/1	ATSDR	11/2012
	Chronic	5.0E-03	mg/kg/day	0.026	5.0E-03	mg/kg/day	Kidney	300	EPA RSL	11/2013

Notes:

1 - U.S. EPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.

2 - Adjusted dermal RfD = Oral RfD x Oral Absorption Efficiency for Dermal.

3 - Values are for hexavalent chromium.

4 - Toxicity criteria used to derive the RSLs is only suitable for screening and is not to be used for quantifying risks.

Definitions:

ATSDR = Agency for Toxic Substances and Disease Registry.

HEAST = Health Effects Assessment Summary Tables.

IRIS = Integrated Risk Information System.

NA = Not Available.

PPRTV = Provisional Peer Reviewed Toxicity Value.

RfD = Reference Dose.

RSL = USEPA Regional Screening Levels for Chemical Contaminants at Superfund Sites, November 2013.

TABLE 5.2
NON-CANCER TOXICITY DATA -- INHALATION
NSA CRANE, CRANE, INDIANA

Chemical of Potential Concern	Chronic/ Subchronic	Inhalation RfC		Extrapolated RfD[1]		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfC : Target Organ(s)	
		Value	Units	Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
Volatiles									
Benzene	Subchronic	8.0E-02	mg/m^3	2.3E-02	(mg/kg/day)	Blood	100/1	PPRTV	9/29/2009
	Chronic	3.0E-02	mg/m^3	8.6E-03	(mg/kg/day)	Blood	300/1	IRIS	12/12/2013
Chloroform	Subchronic	2.4E-01	mg/m^3	6.9E-02	(mg/kg/day)	Liver	300/1	ATSDR	9/1997
	Chronic	9.8E-02	mg/m^3	2.8E-02	(mg/kg/day)	Liver	NA	ATSDR	9/1997
cis-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	Chronic	4.0E-02	mg/m^3	1.1E-02	(mg/kg/day)	Central Nervous System	1000/1	IRIS	12/12/2013
Trichloroethene	Chronic	2.0E-03	mg/m^3	5.7E-04	(mg/kg/day)	Immune System, Developmental	100/1	IRIS	12/12/2013
Vinyl Chloride	Subchronic	7.7E-02	mg/m^3	2.2E-02	(mg/kg/day)	Liver	30/1	ATSDR	7/2006
	Chronic	1.0E-01	mg/m^3	2.9E-02	(mg/kg/day)	Liver	30/1	IRIS	12/12/2013
Polycyclic Aromatic Hydrocarbons									
Benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dioxins/Furans									
2,3,7,8-TCDD Equivalents	Chronic	4.0E-08	mg/m^3	1.1E-08	(mg/kg/day)	Developmental	NA	Cal EPA	9/2009
Metals									
Aluminum	Chronic	5.0E-03	mg/m^3	1.4E-03	(mg/kg/day)	Central Nervous System	300	PPRTV	10/23/2006
Arsenic	Chronic	1.5E-05	mg/m^3	4.3E-06	(mg/kg/day)	Skin, Cardiovascular System	NA	Cal EPA	9/2009
Chromium[2]	Subchronic	3.0E-04	mg/m^3	8.6E-05	(mg/kg/day)	Respiratory	30/1	ATSDR	9/2012
	Chronic	1.0E-04	mg/m^3	2.9E-05	(mg/kg/day)	Respiratory	300/1	IRIS	9/3/2013
Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	Chronic	1.0E-04	mg/m^3	2.9E-05	(mg/kg/day)	Respiratory	30/1	ATSDR	9/2012

Notes:

1 - Extrapolated RfD = RfC *$20m^3$/day / 70 kg.

2 - Values are for hexavalent chromium.

Definitions:

ATSDR = Agency for Toxic Substances and Disease Registry.

Cal EPA = California Environmental Protection Agency, Technical Support Document for Describing Available Cancer Slope Factors, September 2009.

IRIS = Integrated Risk Information System.

NA = Not Available.

PPRTV = Provisional Peer Reviewed Toxicity Value.

RfC = Reference Concentration.

RfD = Reference Dose.

RAGS Part D Table 6

Cancer Toxicity Data

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CANCER TOXICITY DATA

Table No.

6-1 Cancer Toxicity Data - Oral/Dermal

6-2 Cancer Toxicity Data - Inhalation

TABLE 6.1
CANCER TOXICITY DATA -- ORAL/DERMAL
NSA CRANE, CRANE, INDIANA

Chemical of Potential Concern	Oral Cancer Slope Factor		Oral Absorption Efficiency for Dermal[1]	Absorbed Cancer Slope Factor for Dermal[2]		Weight of Evidence/ Cancer Guideline Description	Oral CSF	
	Value	Units		Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
Volatiles								
Benzene	5.5E-02	$(mg/kg/day)^{-1}$	1	5.5E-02	$(mg/kg/day)^{-1}$	A / Known human carcinogen	IRIS	12/12/2013
Chloroform	3.1E-02	$(mg/kg/day)^{-1}$	1	3.1E-02	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	Cal EPA	9/2009
cis-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	2.1E-03	$(mg/kg/day)^{-1}$	1	2.1E-03	$(mg/kg/day)^{-1}$	Likely to be carcinogenic to humans	IRIS	12/12/2013
Trichloroethene - non-mutagen[3]	3.7E-02	$(mg/kg/day)^{-1}$	1	3.7E-02	$(mg/kg/day)^{-1}$	Carcinogenic to humans	IRIS	12/12/2013
Trichloroethene - mutagen[3][4]	9.3E-03	$(mg/kg/day)^{-1}$	1	9.3E-03	$(mg/kg/day)^{-1}$	Carcinogenic to humans	IRIS	12/12/2013
Vinyl Chloride	7.2E-01	$(mg/kg/day)^{-1}$	1	7.2E-01	$(mg/kg/day)^{-1}$	A / Likely human carcinogen	IRIS	12/12/2013
Polycyclic Aromatic Hydrocarbons								
Benzo(a)anthracene[4]	7.3E-01	$(mg/kg/day)^{-1}$	1	7.3E-01	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(1)	7/1993
Benzo(a)pyrene[4]	7.3E+00	$(mg/kg/day)^{-1}$	1	7.3E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	IRIS	12/12/2013
Benzo(b)fluoranthene[4]	7.3E-01	$(mg/kg/day)^{-1}$	1	7.3E-01	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(1)	7/1993
Dibenzo(a,h)anthracene[4]	7.3E+00	$(mg/kg/day)^{-1}$	1	7.3E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(1)	7/1993
Indeno(1,2,3-cd)pyrene[4]	7.3E-01	$(mg/kg/day)^{-1}$	1	7.3E-01	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(1)	7/1993
Dioxins/Furans								
2,3,7,8-TCDD Equivalents	1.3E+05	$(mg/kg/day)^{-1}$	1	1.3E+05	$(mg/kg/day)^{-1}$	NA	Cal EPA	9/2009
Metals								
Aluminum	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	1.5E+00	$(mg/kg/day)^{-1}$	1	1.5E+00	$(mg/kg/day)^{-1}$	A / Known human carcinogen	IRIS	12/12/2013
Chromium[4][5]	5.0E-01	$(mg/kg/day)^{-1}$	0.025	2.0E+01	$(mg/kg/day)^{-1}$	Carcinogenic potential cannot be determined (oral route)	NJDEP	4/8/2009
Iron	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

1 - USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.
2 - Adjusted cancer slope factor for dermal = Oral cancer slope factor / Oral absorption efficiency for dermal.
3 - See text for a discussion of trichloroethene toxicity.
4 - Hexavalent chromium, carcinogenic PAHs, and trichloroethene are considered to act via the mutagenic mode of action. These chemicals are evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).
5 - Values are for hexavalent chromium.

Definitions:

Cal EPA = California Environmental Protection Agency, Technical Support Document for Describing Available Cancer Slope Factors, September 2009.

CSF = Cancer Slope Factor.

IRIS = Integrated Risk Information System.

NA = Not Available.

NJDEP = New Jersey Department of Environmental Protection, Derivation of Ingestion-Based Soil Remediation Criterion for Cr+6 Based on the NTP Chronic Bioassay Data for Sodium Dichromate Dihydrate, April 8, 2009.

USEPA (1) = Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons, July 1993 EPA/600/R-93/089.

TABLE 6.2
CANCER TOXICITY DATA -- INHALATION
NSA CRANE, CRANE, INDIANA

Chemical of Potential Concern	Unit Risk		Inhalation Cancer Slope Factor[1]		Weight of Evidence/ Cancer Guideline Description	Unit Risk : Inhalation CSF	
	Value	Units	Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
Volatiles							
Benzene	7.8E-06	$(ug/m^3)^{-1}$	2.7E-02	$(mg/kg/day)^{-1}$	A / Known human carcinogen	IRIS	12/12/2013
Chloroform	2.3E-05	$(ug/m^3)^{-1}$	8.1E-02	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	IRIS	12/12/2013
cis-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	2.6E-07	$(ug/m^3)^{-1}$	9.1E-04	$(mg/kg/day)^{-1}$	Likely to be carcinogenic to humans	IRIS	12/12/2013
Trichloroethene - non-mutagen[2]	3.1E-06	$(ug/m^3)^{-1}$	1.1E-02	$(mg/kg/day)^{-1}$	Carcinogenic to humans	IRIS	12/12/2013
Trichloroethene - mutagen[2][3]	1.0E-06	$(ug/m^3)^{-1}$	3.5E-03	$(mg/kg/day)^{-1}$	Carcinogenic to humans	IRIS	12/12/2013
Vinyl Chloride	4.4E-06	$(ug/m^3)^{-1}$	1.5E-02	$(mg/kg/day)^{-1}$	A / Known/likely human carcinogen	IRIS	12/12/2013
Polycyclic Aromatic Hydrocarbons							
Benzo(a)anthracene[3]	1.1E-04	$(ug/m^3)^{-1}$	3.9E-01	$(mg/kg/day)^{-1}$	NA	Cal EPA	9/2009
Benzo(a)pyrene[3]	1.1E-03	$(ug/m^3)^{-1}$	3.9E+00	$(mg/kg/day)^{-1}$	NA	Cal EPA	9/2009
Benzo(b)fluoranthene[3]	1.1E-04	$(ug/m^3)^{-1}$	3.9E-01	$(mg/kg/day)^{-1}$	NA	Cal EPA	9/2009
Dibenzo(a,h)anthracene[3]	1.2E-03	$(ug/m^3)^{-1}$	4.2E+00	$(mg/kg/day)^{-1}$	NA	Cal EPA	9/2009
Indeno(1,2,3-cd)pyrene[3]	1.1E-04	$(ug/m^3)^{-1}$	3.9E-01	$(mg/kg/day)^{-1}$	NA	Cal EPA	9/2009
Dioxins/Furans							
2,3,7,8-TCDD Equivalents	3.8E+01	$(ug/m^3)^{-1}$	1.3E+05	$(mg/kg/day)^{-1}$	NA	Cal EPA	9/2009
Metals							
Aluminum	NA	NA	NA	NA	NA	NA	NA
Arsenic	4.3E-03	$(ug/m^3)^{-1}$	1.5E+01	$(mg/kg/day)^{-1}$	A / Known human carcinogen	IRIS	12/12/2013
Chromium[3][4]	8.4E-02	$(ug/m^3)^{-1}$	2.9E+02	$(mg/kg/day)^{-1}$	Known/likely human carcinogen (Inhalation route)	IRIS	12/12/2013
Iron	NA	NA	NA	NA	NA	NA	NA
Thallium	NA	NA	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA	NA	NA

Notes:
1 - Inhalation CSF = Unit Risk * 70 kg / $20m^3$/day.
2 - See text for a discussion of trichloroethene toxicity.
3 - Hexavalent chromium, carcinogenic PAHs, and trichloroethene are considered to act via the mutagenic mode of action. These chemicals are evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).
4 - Values are for hexavalent chromium.
Definitions:
Cal EPA = California Environmental Protection Agency, Technical Support Document for Describing Available Cancer Slope Factors, September 2009.
CSF = Cancer Slope Factor.
IRIS = Integrated Risk Information System.
NA = Not Available.
PPRTV = Provisional Peer Reviewed Toxicity Value.

RAGS Part D Table 7

Calculation of Cancer Risks and Non-Cancer Hazards

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RAGS PART D TABLE 7 - NORTH WATERFRONT
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

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	Reasonable Maximum Exposures
7.1.RME	Maintenance Workers
7.2.RME	Construction Workers
7.3.RME	Industrial Workers
7.4.RME	Adolescent Trespassers
7.5.RME	Child Recreational Users
7.6.RME	Adult Recreational Users
7.7.RME	Hypothetical Child Residents
7.8.RME	Hypothetical Adult Residents
	Central Tendency Exposures
7.1.CTE	Maintenance Workers
7.2.CTE	Construction Workers
7.3.CTE	Industrial Workers
7.4.CTE	Adolescent Trespassers
7.5.CTE	Child Recreational Users
7.6.CTE	Adult Recreational Users
7.7.CTE	Hypothetical Child Residents
7.8.CTE	Hypothetical Adult Residents

TABLE 7.1.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Receptor Population: Maintenance Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	SWMU 11	Ingestion	2,3,7,8-TCDD Equivalents	0.0000087	mg/kg	2.9E-13	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	3.8E-08	8.2E-13	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.001
				Benzo(a)anthracene	0.066	mg/kg	2.2E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.6E-09	6.2E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.071	mg/kg	2.4E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.7E-08	6.7E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.09	mg/kg	3.0E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.2E-09	8.5E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0821	mg/kg	2.8E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.0E-08	7.7E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.04	mg/kg	1.3E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	9.8E-10	3.8E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	15200	mg/kg	5.1E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	1.4E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.001
				Iron	22600	mg/kg	7.6E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	2.1E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.003
			Exp. Route Total								8.0E-08					0.006
			Dermal	2,3,7,8-TCDD Equivalents	0.0000087	mg/kg	5.8E-14	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	7.5E-09	1.6E-13	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.0002
				Benzo(a)anthracene	0.066	mg/kg	1.9E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.4E-09	5.3E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.071	mg/kg	2.0E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.5E-08	5.7E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.09	mg/kg	2.6E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.9E-09	7.3E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0821	mg/kg	2.4E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.7E-08	6.6E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.04	mg/kg	1.2E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	8.4E-10	3.2E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	15200	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Iron	22600	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
			Exp. Route Total								4.4E-08					0.0002
		Exposure Point Total									1.2E-07					0.006
	Exposure Medium Total										1.2E-07					0.006
	Air	SWMU 11	Inhalation	2,3,7,8-TCDD Equivalents	6.6E-15	mg/m^3	5.2E-17	(mg/m^3)	3.8E+01	$(ug/m^3)^{-1}$	2.0E-12	1.4E-16	(mg/m^3)	4.0E-08	(mg/m^3)	3.6E-9
				Benzo(a)anthracene	5.0E-11	mg/m^3	3.9E-13	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	4.3E-14	1.1E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	5.4E-11	mg/m^3	4.2E-13	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	4.6E-13	1.2E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	6.8E-11	mg/m^3	5.4E-13	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	5.9E-14	1.5E-12	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	6.2E-11	mg/m^3	4.9E-13	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	5.9E-13	1.4E-12	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	3.0E-11	mg/m^3	2.4E-13	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	2.6E-14	6.7E-13	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	1.2E-05	mg/m^3	9.0E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	2.5E-07	(mg/m^3)	5.0E-03	(mg/m^3)	0.00005
				Iron	1.7E-05	mg/m^3	1.3E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	3.8E-07	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								3.1E-12					0.00005
		Exposure Point Total									3.1E-12					0.00005
	Exposure Medium Total										3.1E-12					0.00005
Medium Total											1.2E-07					0.006
Surface Soil	Surface Soil	IA 6	Ingestion	Benzo(a)anthracene	0.107	mg/kg	3.6E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.6E-09	1.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.13	mg/kg	4.4E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.2E-08	1.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.17	mg/kg	5.7E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	4.2E-09	1.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0308	mg/kg	1.0E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	7.5E-09	2.9E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.0794	mg/kg	2.7E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.9E-09	7.5E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	14400	mg/kg	4.8E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	1.4E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.001
				Iron	30100	mg/kg	1.0E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	2.8E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.004
			Exp. Route Total								4.8E-08					0.005
			Dermal	Benzo(a)anthracene	0.107	mg/kg	3.1E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.2E-09	8.6E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.13	mg/kg	3.7E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.7E-08	1.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.17	mg/kg	4.9E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.6E-09	1.4E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0308	mg/kg	8.9E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	6.5E-09	2.5E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.0794	mg/kg	2.3E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.7E-09	6.4E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	14400	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Iron	30100	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
			Exp. Route Total								4.1E-08					--
		Exposure Point Total									8.9E-08					0.005
	Exposure Medium Total										8.9E-08					0.005

TABLE 7.1.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Receptor Population: Maintenance Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Air	IA 6	Inhalation	Benzo(a)anthracene	8.1E-11	mg/m^3	6.4E-13	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	7.0E-14	1.8E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	9.9E-11	mg/m^3	7.7E-13	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	8.5E-13	2.2E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.3E-10	mg/m^3	1.0E-12	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.1E-13	2.8E-12	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	2.3E-11	mg/m^3	1.8E-13	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	2.2E-13	5.1E-13	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	6.0E-11	mg/m^3	4.7E-13	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	5.2E-14	1.3E-12	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	1.1E-05	mg/m^3	8.6E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	2.4E-07	(mg/m^3)	5.0E-03	(mg/m^3)	0.00005
				Iron	2.3E-05	mg/m^3	1.8E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	5.0E-07	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								1.3E-12					0.00005
		Exposure Point Total									1.3E-12					0.00005
	Exposure Medium Total										1.3E-12					0.00005
Medium Total											8.9E-08					0.005
Subsurface Soil	Subsurface Soil	SWMU 11	Ingestion	Tetrachloroethene	2.87	mg/kg	9.6E-08	(mg/kg/day)	2.1E-03	(mg/kg/day)$^{-1}$	2.0E-10	2.7E-07	(mg/kg/day)	6.0E-03	(mg/kg/day)	0.00004
				Trichloroethene (Mutagenic)	0.238	mg/kg	8.0E-09	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	7.4E-11	2.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	0.238	mg/kg	8.0E-09	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	2.9E-10	2.2E-08	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.00004
				Vinyl Chloride	0.154	mg/kg	5.2E-09	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	3.7E-09	1.4E-08	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.000005
				Arsenic	20.4	mg/kg	4.1E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	6.2E-07	1.1E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.004
				Chromium	74.9	mg/kg	2.5E-06	(mg/kg/day)	5.0E-01	(mg/kg/day)$^{-1}$	1.3E-06	7.0E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.002
				Iron	75600	mg/kg	2.5E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	7.1E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.01
				Vanadium	86.2	mg/kg	2.9E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	8.1E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.002
			Exp. Route Total								1.9E-06					0.02
			Dermal	Tetrachloroethene	2.87	mg/kg	0.0E+00	(mg/kg/day)	2.1E-03	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	6.0E-03	(mg/kg/day)	--
				Trichloroethene (Mutagenic)	0.238	mg/kg	0.0E+00	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	0.238	mg/kg	0.0E+00	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	5.0E-04	(mg/kg/day)	--
				Vinyl Chloride	0.154	mg/kg	0.0E+00	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	3.0E-03	(mg/kg/day)	--
				Arsenic	20.4	mg/kg	1.4E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	2.0E-07	3.8E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.001
				Chromium	74.9	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Iron	75600	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Vanadium	86.2	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								2.0E-07					0.001
		Exposure Point Total									2.1E-06					0.02
	Exposure Medium Total										2.1E-06					0.02
	Air	SWMU 11	Inhalation	Tetrachloroethene	1.1E-03	mg/m^3	8.8E-06	(mg/m^3)	2.6E-07	(ug/m^3)$^{-1}$	2.3E-09	2.5E-05	(mg/m^3)	4.0E-02	(mg/m^3)	0.0006
				Trichloroethene (Mutagenic)	9.9E-05	mg/m^3	7.8E-07	(mg/m^3)	1.0E-06	(ug/m^3)$^{-1}$	7.8E-10	2.2E-06	(mg/m^3)	NA	(mg/m^3)	--
				Trichloroethene (Nonmutagenic	9.9E-05	mg/m^3	7.8E-07	(mg/m^3)	3.1E-06	(ug/m^3)$^{-1}$	2.4E-09	2.2E-06	(mg/m^3)	2.0E-03	(mg/m^3)	0.001
				Vinyl Chloride	1.5E-04	mg/m^3	1.2E-06	(mg/m^3)	4.4E-06	(ug/m^3)$^{-1}$	5.1E-09	3.3E-06	(mg/m^3)	1.0E-01	(mg/m^3)	0.00003
				Arsenic	1.6E-08	mg/m^3	1.2E-10	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	5.2E-10	3.4E-10	(mg/m^3)	1.5E-05	(mg/m^3)	0.00002
				Chromium	5.7E-08	mg/m^3	4.5E-10	(mg/m^3)	8.4E-02	(ug/m^3)$^{-1}$	3.7E-08	1.2E-09	(mg/m^3)	1.0E-04	(mg/m^3)	0.00001
				Iron	5.7E-05	mg/m^3	4.5E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	1.3E-06	(mg/m^3)	NA	(mg/m^3)	--
				Vanadium	6.6E-08	mg/m^3	5.1E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	1.4E-09	(mg/m^3)	1.0E-04	(mg/m^3)	0.00001
			Exp. Route Total								4.9E-08					0.002
		Exposure Point Total									4.9E-08					0.002
	Exposure Medium Total										4.9E-08					0.002
Medium Total											2.1E-06					0.02
										Total of Receptor Risks Across All Media	2.3E-06				Total of Receptor Hazards Across All Media	0.03

Notes:

1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 7.2.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	SWMU 11	Ingestion	2,3,7,8-TCDD Equivalents	0.0000087	mg/kg	2.4E-13	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	3.1E-08	1.7E-11	(mg/kg/day)	2.0E-08	(mg/kg/day)	0.0008
				Benzo(a)anthracene	0.066	mg/kg	1.8E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.3E-09	1.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.071	mg/kg	2.0E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.4E-08	1.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.09	mg/kg	2.5E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.8E-09	1.7E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0821	mg/kg	2.3E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.7E-08	1.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.04	mg/kg	1.1E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	8.1E-10	7.7E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	15200	mg/kg	4.2E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	2.9E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.03
				Iron	22600	mg/kg	6.3E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	4.4E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.06
			Exp. Route Total								6.6E-08					0.09
			Dermal	2,3,7,8-TCDD Equivalents	0.0000087	mg/kg	2.2E-14	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	2.8E-09	1.5E-12	(mg/kg/day)	2.0E-08	(mg/kg/day)	0.00008
				Benzo(a)anthracene	0.066	mg/kg	7.1E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	5.2E-10	5.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.071	mg/kg	7.7E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	5.6E-09	5.4E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.09	mg/kg	9.7E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	7.1E-10	6.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0821	mg/kg	8.9E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	6.5E-09	6.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.04	mg/kg	4.3E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.2E-10	3.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	15200	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Iron	22600	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
			Exp. Route Total								1.6E-08					0.00008
		Exposure Point Total									8.3E-08					0.09
	Exposure Medium Total										8.3E-08					0.09
	Air	SWMU 11	Inhalation	2,3,7,8-TCDD Equivalents	6.5E-12	mg/m^3	1.3E-14	(mg/m^3)	3.8E+01	$(ug/m^3)^{-1}$	4.8E-10	8.9E-13	(mg/m^3)	4.0E-08	(mg/m^3)	0.00002
				Benzo(a)anthracene	4.9E-08	mg/m^3	9.6E-11	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.1E-11	6.7E-09	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	5.3E-08	mg/m^3	1.0E-10	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	1.1E-10	7.3E-09	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	6.7E-08	mg/m^3	1.3E-10	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.4E-11	9.2E-09	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	6.1E-08	mg/m^3	1.2E-10	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	1.4E-10	8.4E-09	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	3.0E-08	mg/m^3	5.8E-11	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	6.4E-12	4.1E-09	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	1.1E-02	mg/m^3	2.2E-05	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	1.6E-03	(mg/m^3)	5.0E-03	(mg/m^3)	0.3
				Iron	1.7E-02	mg/m^3	3.3E-05	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	2.3E-03	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								7.7E-10					0.3
		Exposure Point Total									7.7E-10					0.3
	Exposure Medium Total										7.7E-10					0.3
Medium Total											8.3E-08					0.4
Surface Soil	Surface Soil	IA 6	Ingestion	Benzo(a)anthracene	0.107	mg/kg	3.0E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.2E-09	2.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.13	mg/kg	3.6E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.6E-08	2.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.17	mg/kg	4.7E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.4E-09	3.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0308	mg/kg	8.5E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	6.2E-09	6.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.0794	mg/kg	2.2E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.6E-09	1.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	14400	mg/kg	4.0E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	2.8E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.03
				Iron	30100	mg/kg	8.3E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	5.8E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.08
			Exp. Route Total								4.0E-08					0.1
			Dermal	Benzo(a)anthracene	0.107	mg/kg	1.2E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	8.4E-10	8.1E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.13	mg/kg	1.4E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.0E-08	9.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.17	mg/kg	1.8E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.3E-09	1.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0308	mg/kg	3.3E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.4E-09	2.3E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.0794	mg/kg	8.6E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	6.3E-10	6.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	14400	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Iron	30100	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
			Exp. Route Total								1.5E-08					--
		Exposure Point Total									5.5E-08					0.1
	Exposure Medium Total										5.5E-08					0.1

TABLE 7.2.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Air	IA 6	Inhalation	Benzo(a)anthracene	8.0E-08	mg/m^3	1.6E-10	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.7E-11	1.1E-08	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	9.7E-08	mg/m^3	1.9E-10	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	2.1E-10	1.3E-08	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.3E-07	mg/m^3	2.5E-10	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	2.7E-11	1.7E-08	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	2.3E-08	mg/m^3	4.5E-11	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	5.4E-11	3.1E-09	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	5.9E-08	mg/m^3	1.2E-10	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.3E-11	8.1E-09	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	1.1E-02	mg/m^3	2.1E-05	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	1.5E-03	(mg/m^3)	5.0E-03	(mg/m^3)	0.3
				Iron	2.2E-02	mg/m^3	4.4E-05	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	3.1E-03	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								3.2E-10					0.3
		Exposure Point Total									3.2E-10					0.3
	Exposure Medium Total										3.2E-10					0.3
Medium Total											5.5E-08					0.4
Subsurface Soil	Subsurface Soil	SWMU 11	Ingestion	Tetrachloroethene	2.87	mg/kg	7.9E-08	(mg/kg/day)	2.1E-03	(mg/kg/day)$^{-1}$	1.7E-10	5.6E-06	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.00006
				Trichloroethene (Mutagenic)	0.238	mg/kg	6.6E-09	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	6.1E-11	4.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	0.238	mg/kg	6.6E-09	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	2.4E-10	4.6E-07	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.0009
				Vinyl Chloride	0.154	mg/kg	4.3E-09	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	3.1E-09	3.0E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.0010
				Arsenic	20.4	mg/kg	3.4E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	5.1E-07	2.4E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.08
				Chromium	74.9	mg/kg	2.1E-06	(mg/kg/day)	5.0E-01	(mg/kg/day)$^{-1}$	1.0E-06	1.5E-04	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.03
				Iron	75600	mg/kg	2.1E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	1.5E-01	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.2
				Vanadium	86.2	mg/kg	2.4E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	1.7E-04	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.02
			Exp. Route Total								1.5E-06					0.3
			Dermal	Tetrachloroethene	2.87	mg/kg	0.0E+00	(mg/kg/day)	2.1E-03	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	1.0E-01	(mg/kg/day)	--
				Trichloroethene (Mutagenic)	0.238	mg/kg	0.0E+00	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	0.238	mg/kg	0.0E+00	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	5.0E-04	(mg/kg/day)	--
				Vinyl Chloride	0.154	mg/kg	0.0E+00	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Arsenic	20.4	mg/kg	5.1E-08	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	7.6E-08	3.6E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.01
				Chromium	74.9	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
				Iron	75600	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Vanadium	86.2	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	2.6E-04	(mg/kg/day)	--
			Exp. Route Total								7.6E-08					0.01
		Exposure Point Total									1.6E-06					0.3
	Exposure Medium Total										1.6E-06					0.3
	Air	SWMU 11	Inhalation	Tetrachloroethene	5.5E-03	mg/m^3	1.1E-05	(mg/m^3)	2.6E-07	(ug/m^3)$^{-1}$	2.8E-09	7.5E-04	(mg/m^3)	4.0E-02	(mg/m^3)	0.02
				Trichloroethene (Mutagenic)	4.8E-04	mg/m^3	9.5E-07	(mg/m^3)	1.0E-06	(ug/m^3)$^{-1}$	9.5E-10	6.6E-05	(mg/m^3)	NA	(mg/m^3)	--
				Trichloroethene (Nonmutagenic	4.8E-04	mg/m^3	9.5E-07	(mg/m^3)	3.1E-06	(ug/m^3)$^{-1}$	2.9E-09	6.6E-05	(mg/m^3)	2.0E-03	(mg/m^3)	0.03
				Vinyl Chloride	7.2E-04	mg/m^3	1.4E-06	(mg/m^3)	4.4E-06	(ug/m^3)$^{-1}$	6.2E-09	9.9E-05	(mg/m^3)	7.7E-02	(mg/m^3)	0.001
				Arsenic	1.5E-05	mg/m^3	3.0E-08	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	1.3E-07	2.1E-06	(mg/m^3)	1.5E-05	(mg/m^3)	0.1
				Chromium	5.6E-05	mg/m^3	1.1E-07	(mg/m^3)	8.4E-02	(ug/m^3)$^{-1}$	9.2E-06	7.7E-06	(mg/m^3)	3.0E-04	(mg/m^3)	0.03
				Iron	5.6E-02	mg/m^3	1.1E-04	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	7.7E-03	(mg/m^3)	NA	(mg/m^3)	--
				Vanadium	6.4E-05	mg/m^3	1.3E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	8.8E-06	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								9.3E-06					0.2
		Exposure Point Total									9.3E-06					0.2
	Exposure Medium Total										9.3E-06					0.2
Medium Total											1.1E-05					0.6

TABLE 7.2.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	SWMU 11	Dermal	Benzene	3.23	ug/L	3.3E-08	(mg/kg/day)	5.5E-02	$(mg/kg/day)^{-1}$	1.8E-09	2.3E-06	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.0002
				Chloroform	1.29	ug/L	7.2E-09	(mg/kg/day)	3.1E-02	$(mg/kg/day)^{-1}$	2.2E-10	5.1E-07	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.000005
				cis-1,2-Dichloroethene	27.6	ug/L	2.2E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	1.6E-05	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.0008
				Tetrachloroethene	25.5	ug/L	8.8E-07	(mg/kg/day)	2.1E-03	$(mg/kg/day)^{-1}$	1.8E-09	6.1E-05	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.0006
				Trichloroethene (Mutagenic)	115	ug/L	1.2E-06	(mg/kg/day)	9.3E-03	$(mg/kg/day)^{-1}$	1.1E-08	8.1E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	115	ug/L	1.2E-06	(mg/kg/day)	3.7E-02	$(mg/kg/day)^{-1}$	4.2E-08	8.1E-05	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.2
				Vinyl Chloride	0.503	ug/L	1.9E-09	(mg/kg/day)	7.2E-01	$(mg/kg/day)^{-1}$	1.4E-09	1.3E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.0004
			Exp. Route Total								5.9E-08					0.2
		Exposure Point Total									5.9E-08					0.2
	Exposure Medium Total										5.9E-08					0.2
	Air	SWMU 11	Inhalation	Benzene	1.3E-04	mg/m^3	6.6E-08	(mg/m^3)	7.8E-06	$(ug/m^3)^{-1}$	5.1E-10	4.6E-06	(mg/m^3)	8.0E-02	(mg/m^3)	0.00006
				Chloroform	4.3E-05	mg/m^3	2.1E-08	(mg/m^3)	2.3E-05	$(ug/m^3)^{-1}$	4.9E-10	1.5E-06	(mg/m^3)	2.4E-01	(mg/m^3)	0.000006
				cis-1,2-Dichloroethene	1.0E-03	mg/m^3	5.0E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	3.5E-05	(mg/m^3)	NA	(mg/m^3)	--
				Tetrachloroethene	7.3E-04	mg/m^3	3.6E-07	(mg/m^3)	2.6E-07	$(ug/m^3)^{-1}$	9.3E-11	2.5E-05	(mg/m^3)	4.0E-02	(mg/m^3)	0.0006
				Trichloroethene (Mutagenic)	3.7E-03	mg/m^3	1.8E-06	(mg/m^3)	1.0E-06	$(ug/m^3)^{-1}$	1.8E-09	1.3E-04	(mg/m^3)	NA	(mg/m^3)	--
				Trichloroethene (Nonmutagenic	3.7E-03	mg/m^3	1.8E-06	(mg/m^3)	3.1E-06	$(ug/m^3)^{-1}$	5.6E-09	1.3E-04	(mg/m^3)	2.0E-03	(mg/m^3)	0.06
				Vinyl Chloride	2.4E-05	mg/m^3	1.2E-08	(mg/m^3)	4.4E-06	$(ug/m^3)^{-1}$	5.1E-11	8.1E-07	(mg/m^3)	7.7E-02	(mg/m^3)	0.00001
			Exp. Route Total								8.6E-09					0.06
		Exposure Point Total									8.6E-09					0.06
	Exposure Medium Total										8.6E-09					0.06
Medium Total											6.7E-08					0.2
										Total of Receptor Risks Across All Media	1.1E-05				Total of Receptor Hazards Across All Media	1.6

Notes:

1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 7.3.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	SWMU 11	Ingestion	2,3,7,8-TCDD Equivalents	0.0000087	mg/kg	3.0E-12	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	4.0E-07	8.5E-12	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.01
				Benzo(a)anthracene	0.066	mg/kg	2.3E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.7E-08	6.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.071	mg/kg	2.5E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.8E-07	6.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.09	mg/kg	3.1E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.3E-08	8.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0821	mg/kg	2.9E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.1E-07	8.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.04	mg/kg	1.4E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.0E-08	3.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	15200	mg/kg	5.3E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	1.5E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.01
				Iron	22600	mg/kg	7.9E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	2.2E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.03
			Exp. Route Total								8.4E-07					0.06
			Dermal	2,3,7,8-TCDD Equivalents	0.0000087	mg/kg	6.0E-13	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	7.8E-08	1.7E-12	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.002
				Benzo(a)anthracene	0.066	mg/kg	2.0E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.4E-08	5.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.071	mg/kg	2.1E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.6E-07	6.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.09	mg/kg	2.7E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.0E-08	7.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0821	mg/kg	2.5E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.8E-07	6.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.04	mg/kg	1.2E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	8.8E-09	3.4E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	15200	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Iron	22600	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
			Exp. Route Total								4.6E-07					0.002
		Exposure Point Total									1.3E-06					0.06
	Exposure Medium Total										1.3E-06					0.06
	Air	SWMU 11	Inhalation	2,3,7,8-TCDD Equivalents	6.6E-15	mg/m^3	5.4E-16	(mg/m^3)	3.8E+01	$(ug/m^3)^{-1}$	2.0E-11	1.5E-15	(mg/m^3)	4.0E-08	(mg/m^3)	3.8E-8
				Benzo(a)anthracene	5.0E-11	mg/m^3	4.1E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	4.5E-13	1.1E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	5.4E-11	mg/m^3	4.4E-12	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	4.8E-12	1.2E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	6.8E-11	mg/m^3	5.6E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	6.1E-13	1.6E-11	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	6.2E-11	mg/m^3	5.1E-12	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	6.1E-12	1.4E-11	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	3.0E-11	mg/m^3	2.5E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	2.7E-13	6.9E-12	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	1.2E-05	mg/m^3	9.4E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	2.6E-06	(mg/m^3)	5.0E-03	(mg/m^3)	0.0005
				Iron	1.7E-05	mg/m^3	1.4E-06	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	3.9E-06	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								3.3E-11					0.0005
		Exposure Point Total									3.3E-11					0.0005
	Exposure Medium Total										3.3E-11					0.0005
Medium Total											1.3E-06					0.06
Surface Soil	Surface Soil	IA 6	Ingestion	Benzo(a)anthracene	0.107	mg/kg	3.7E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.7E-08	1.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.13	mg/kg	4.5E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.3E-07	1.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.17	mg/kg	5.9E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	4.3E-08	1.7E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0308	mg/kg	1.1E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	7.9E-08	3.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.0794	mg/kg	2.8E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.0E-08	7.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	14400	mg/kg	5.0E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	1.4E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.01
				Iron	30100	mg/kg	1.1E-02	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	2.9E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.04
			Exp. Route Total								5.0E-07					0.06
			Dermal	Benzo(a)anthracene	0.107	mg/kg	3.2E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.3E-08	9.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.13	mg/kg	3.9E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.8E-07	1.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.17	mg/kg	5.1E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.7E-08	1.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0308	mg/kg	9.2E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	6.7E-08	2.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.0794	mg/kg	2.4E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.7E-08	6.7E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	14400	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Iron	30100	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
			Exp. Route Total								4.3E-07					--
		Exposure Point Total									9.3E-07					0.06
	Exposure Medium Total										9.3E-07					0.06

TABLE 7.3.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Air	IA 6	Inhalation	Benzo(a)anthracene	8.1E-11	mg/m^3	6.6E-12	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	7.3E-13	1.9E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	9.9E-11	mg/m^3	8.1E-12	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	8.9E-12	2.3E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.3E-10	mg/m^3	1.1E-11	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.2E-12	2.9E-11	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	2.3E-11	mg/m^3	1.9E-12	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	2.3E-12	5.3E-12	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	6.0E-11	mg/m^3	4.9E-12	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	5.4E-13	1.4E-11	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	1.1E-05	mg/m^3	8.9E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	2.5E-06	(mg/m^3)	5.0E-03	(mg/m^3)	0.0005
				Iron	2.3E-05	mg/m^3	1.9E-06	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	5.2E-06	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								1.4E-11					0.0005
		Exposure Point Total									1.4E-11					0.0005
	Exposure Medium Total										1.4E-11					0.0005
Medium Total											9.3E-07					0.06
Subsurface Soil	Subsurface Soil	SWMU 11	Ingestion	Tetrachloroethene	2.87	mg/kg	1.0E-06	(mg/kg/day)	2.1E-03	(mg/kg/day)$^{-1}$	2.1E-09	2.8E-06	(mg/kg/day)	6.0E-03	(mg/kg/day)	0.0005
				Trichloroethene (Mutagenic)	0.238	mg/kg	8.3E-08	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	7.7E-10	2.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	0.238	mg/kg	8.3E-08	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	3.1E-09	2.3E-07	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.0005
				Vinyl Chloride	0.154	mg/kg	5.4E-08	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	3.9E-08	1.5E-07	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.00005
				Arsenic	20.4	mg/kg	4.3E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	6.4E-06	1.2E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.04
				Chromium	74.9	mg/kg	2.6E-05	(mg/kg/day)	5.0E-01	(mg/kg/day)$^{-1}$	1.3E-05	7.3E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.02
				Iron	75600	mg/kg	2.6E-02	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	7.4E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.1
				Vanadium	86.2	mg/kg	3.0E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	8.4E-05	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.02
			Exp. Route Total								2.0E-05					0.2
			Dermal	Tetrachloroethene	2.87	mg/kg	0.0E+00	(mg/kg/day)	2.1E-03	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	6.0E-03	(mg/kg/day)	--
				Trichloroethene (Mutagenic)	0.238	mg/kg	0.0E+00	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	0.238	mg/kg	0.0E+00	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	5.0E-04	(mg/kg/day)	--
				Vinyl Chloride	0.154	mg/kg	0.0E+00	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	3.0E-03	(mg/kg/day)	--
				Arsenic	20.4	mg/kg	1.4E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	2.1E-06	4.0E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.01
				Chromium	74.9	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Iron	75600	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Vanadium	86.2	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								2.1E-06					0.01
		Exposure Point Total									2.2E-05					0.2
	Exposure Medium Total										2.2E-05					0.2
	Air	SWMU 11	Inhalation	Tetrachloroethene	1.1E-03	mg/m^3	9.2E-05	(mg/m^3)	2.6E-07	(ug/m^3)$^{-1}$	2.4E-08	2.6E-04	(mg/m^3)	4.0E-02	(mg/m^3)	0.006
				Trichloroethene (Mutagenic)	9.9E-05	mg/m^3	8.1E-06	(mg/m^3)	1.0E-06	(ug/m^3)$^{-1}$	8.1E-09	2.3E-05	(mg/m^3)	NA	(mg/m^3)	--
				Trichloroethene (Nonmutagenic	9.9E-05	mg/m^3	8.1E-06	(mg/m^3)	3.1E-06	(ug/m^3)$^{-1}$	2.5E-08	2.3E-05	(mg/m^3)	2.0E-03	(mg/m^3)	0.01
				Vinyl Chloride	1.5E-04	mg/m^3	1.2E-05	(mg/m^3)	4.4E-06	(ug/m^3)$^{-1}$	5.3E-08	3.4E-05	(mg/m^3)	1.0E-01	(mg/m^3)	0.0003
				Arsenic	1.6E-08	mg/m^3	1.3E-09	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	5.4E-09	3.5E-09	(mg/m^3)	1.5E-05	(mg/m^3)	0.0002
				Chromium	5.7E-08	mg/m^3	4.6E-09	(mg/m^3)	8.4E-02	(ug/m^3)$^{-1}$	3.9E-07	1.3E-08	(mg/m^3)	1.0E-04	(mg/m^3)	0.0001
				Iron	5.7E-05	mg/m^3	4.7E-06	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	1.3E-05	(mg/m^3)	NA	(mg/m^3)	--
				Vanadium	6.6E-08	mg/m^3	5.3E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	1.5E-08	(mg/m^3)	1.0E-04	(mg/m^3)	0.0001
			Exp. Route Total								5.1E-07					0.02
		Exposure Point Total									5.1E-07					0.02
	Exposure Medium Total										5.1E-07					0.02
Medium Total											2.2E-05					0.2
										Total of Receptor Risks Across All Media	2.4E-05				Total of Receptor Hazards Across All Media	0.3

Notes:

1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 7.4.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	SWMU 11	Ingestion	2,3,7,8-TCDD Equivalents	0.0000087	mg/kg	2.3E-13	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	2.9E-08	1.4E-12	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.002
				Benzo(a)anthracene	0.066	mg/kg	5.2E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.8E-09	1.1E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.071	mg/kg	5.5E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	4.0E-08	1.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.09	mg/kg	7.0E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	5.1E-09	1.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0821	mg/kg	6.4E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	4.7E-08	1.4E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.04	mg/kg	3.1E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.3E-09	6.6E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	15200	mg/kg	4.0E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	2.5E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.003
				Iron	22600	mg/kg	5.9E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	3.7E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.005
			Exp. Route Total								1.3E-07					0.010
			Dermal	2,3,7,8-TCDD Equivalents	0.0000087	mg/kg	4.5E-14	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	5.8E-09	2.8E-13	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.0004
				Benzo(a)anthracene	0.066	mg/kg	4.4E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.2E-09	9.3E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.071	mg/kg	4.7E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.5E-08	1.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.09	mg/kg	6.0E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	4.4E-09	1.3E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0821	mg/kg	5.5E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	4.0E-08	1.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.04	mg/kg	2.7E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.9E-09	5.7E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	15200	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Iron	22600	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
			Exp. Route Total								9.0E-08					0.0004
		Exposure Point Total									2.2E-07					0.01
	Exposure Medium Total										2.2E-07					0.01
	Air	SWMU 11	Inhalation	2,3,7,8-TCDD Equivalents	6.6E-15	mg/m^3	1.2E-17	(mg/m^3)	3.8E+01	$(ug/m^3)^{-1}$	4.7E-13	7.8E-17	(mg/m^3)	4.0E-08	(mg/m^3)	2.0E-9
				Benzo(a)anthracene	5.0E-11	mg/m^3	2.8E-13	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	3.1E-14	6.0E-13	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	5.4E-11	mg/m^3	3.0E-13	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	3.3E-13	6.4E-13	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	6.8E-11	mg/m^3	3.8E-13	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	4.2E-14	8.1E-13	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	6.2E-11	mg/m^3	3.5E-13	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	4.2E-13	7.4E-13	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	3.0E-11	mg/m^3	1.7E-13	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.9E-14	3.6E-13	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	1.2E-05	mg/m^3	2.2E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	1.4E-07	(mg/m^3)	5.0E-03	(mg/m^3)	0.00003
				Iron	1.7E-05	mg/m^3	3.2E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	2.0E-07	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								1.3E-12					0.00003
		Exposure Point Total									1.3E-12					0.00003
	Exposure Medium Total										1.3E-12					0.00003
Medium Total											2.2E-07					0.01
Surface Soil	Surface Soil	IA 6	Ingestion	Benzo(a)anthracene	0.107	mg/kg	8.4E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	6.1E-09	1.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.13	mg/kg	1.0E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	7.4E-08	2.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.17	mg/kg	1.3E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	9.7E-09	2.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0308	mg/kg	2.4E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.8E-08	5.1E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.0794	mg/kg	6.2E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	4.5E-09	1.3E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	14400	mg/kg	3.7E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	2.4E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.002
				Iron	30100	mg/kg	7.8E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	5.0E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.007
			Exp. Route Total								1.1E-07					0.010
			Dermal	Benzo(a)anthracene	0.107	mg/kg	7.1E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	5.2E-09	1.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.13	mg/kg	8.7E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	6.3E-08	1.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.17	mg/kg	1.1E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	8.3E-09	2.4E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0308	mg/kg	2.1E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.5E-08	4.4E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.0794	mg/kg	5.3E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.9E-09	1.1E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	14400	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Iron	30100	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
			Exp. Route Total								9.6E-08					--
		Exposure Point Total									2.1E-07					0.010
	Exposure Medium Total										2.1E-07					0.010

TABLE 7.4.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Air	IA 6	Inhalation	Benzo(a)anthracene	8.1E-11	mg/m^3	4.6E-13	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	5.0E-14	9.7E-13	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	9.9E-11	mg/m^3	5.5E-13	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	6.1E-13	1.2E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.3E-10	mg/m^3	7.2E-13	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	8.0E-14	1.5E-12	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	2.3E-11	mg/m^3	1.3E-13	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	1.6E-13	2.8E-13	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	6.0E-11	mg/m^3	3.4E-13	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	3.7E-14	7.2E-13	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	1.1E-05	mg/m^3	2.0E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	1.3E-07	(mg/m^3)	5.0E-03	(mg/m^3)	0.00003
				Iron	2.3E-05	mg/m^3	4.3E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	2.7E-07	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								9.3E-13					0.00003
		Exposure Point Total									9.3E-13					0.00003
	Exposure Medium Total										9.3E-13					0.00003
Medium Total											2.1E-07					0.010
Subsurface Soil	Subsurface Soil	SWMU 11	Ingestion	Tetrachloroethene	2.87	mg/kg	7.5E-08	(mg/kg/day)	2.1E-03	(mg/kg/day)$^{-1}$	1.6E-10	4.8E-07	(mg/kg/day)	6.0E-03	(mg/kg/day)	0.00008
				Trichloroethene (Mutagenic)	0.238	mg/kg	1.9E-08	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	1.7E-10	3.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	0.238	mg/kg	6.2E-09	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	2.3E-10	3.9E-08	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.00008
				Vinyl Chloride	0.154	mg/kg	4.0E-09	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	2.9E-09	2.6E-08	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.000009
				Arsenic	20.4	mg/kg	3.2E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	4.8E-07	2.0E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.007
				Chromium	74.9	mg/kg	5.8E-06	(mg/kg/day)	5.0E-01	(mg/kg/day)$^{-1}$	2.9E-06	1.2E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.004
				Iron	75600	mg/kg	2.0E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	1.3E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.02
				Vanadium	86.2	mg/kg	2.2E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	1.4E-05	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.003
			Exp. Route Total								3.4E-06					0.03
			Dermal	Tetrachloroethene	2.87	mg/kg	0.0E+00	(mg/kg/day)	2.1E-03	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	6.0E-03	(mg/kg/day)	--
				Trichloroethene (Mutagenic)	0.238	mg/kg	0.0E+00	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	0.238	mg/kg	0.0E+00	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	5.0E-04	(mg/kg/day)	--
				Vinyl Chloride	0.154	mg/kg	0.0E+00	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	3.0E-03	(mg/kg/day)	--
				Arsenic	20.4	mg/kg	1.0E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.6E-07	6.7E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.002
				Chromium	74.9	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Iron	75600	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Vanadium	86.2	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								1.6E-07					0.002
		Exposure Point Total									3.6E-06					0.03
	Exposure Medium Total										3.6E-06					0.03
	Air	SWMU 11	Inhalation	Tetrachloroethene	1.1E-03	mg/m^3	2.1E-06	(mg/m^3)	2.6E-07	(ug/m^3)$^{-1}$	5.5E-10	1.3E-05	(mg/m^3)	4.0E-02	(mg/m^3)	0.0003
				Trichloroethene (Mutagenic)	9.9E-05	mg/m^3	5.6E-07	(mg/m^3)	1.0E-06	(ug/m^3)$^{-1}$	5.6E-10	1.2E-06	(mg/m^3)	NA	(mg/m^3)	--
				Trichloroethene (Nonmutagenic	9.9E-05	mg/m^3	1.9E-07	(mg/m^3)	3.1E-06	(ug/m^3)$^{-1}$	5.7E-10	1.2E-06	(mg/m^3)	2.0E-03	(mg/m^3)	0.0006
				Vinyl Chloride	1.5E-04	mg/m^3	2.8E-07	(mg/m^3)	4.4E-06	(ug/m^3)$^{-1}$	1.2E-09	1.8E-06	(mg/m^3)	1.0E-01	(mg/m^3)	0.00002
				Arsenic	1.6E-08	mg/m^3	2.9E-11	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	1.2E-10	1.8E-10	(mg/m^3)	1.5E-05	(mg/m^3)	0.00001
				Chromium	5.7E-08	mg/m^3	3.2E-10	(mg/m^3)	8.4E-02	(ug/m^3)$^{-1}$	2.7E-08	6.8E-10	(mg/m^3)	1.0E-04	(mg/m^3)	0.000007
				Iron	5.7E-05	mg/m^3	1.1E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	6.8E-07	(mg/m^3)	NA	(mg/m^3)	--
				Vanadium	6.6E-08	mg/m^3	1.2E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	7.8E-10	(mg/m^3)	1.0E-04	(mg/m^3)	0.000008
			Exp. Route Total								3.0E-08					0.0010
		Exposure Point Total									3.0E-08					0.0010
	Exposure Medium Total										3.0E-08					0.0010
Medium Total											3.6E-06					0.03

TABLE 7.4.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Sediment	Sediment	SWMU 11	Ingestion	2,3,7,8-TCDD Equivalents	9.05E-06	mg/kg	2.4E-13	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	3.1E-08	1.5E-12	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.002
				Benzo(a)pyrene	0.122	mg/kg	9.5E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	7.0E-08	2.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.147	mg/kg	1.1E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	8.4E-09	2.4E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.018	mg/kg	1.4E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.0E-08	3.0E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Arsenic	20.8	mg/kg	3.2E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	4.9E-07	2.1E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.007
				Chromium	92.6	mg/kg	7.2E-06	(mg/kg/day)	5.0E-01	$(mg/kg/day)^{-1}$	3.6E-06	1.5E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.005
				Iron	29600	mg/kg	7.7E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	4.9E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.007
				Thallium	0.61	mg/kg	1.6E-08	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	1.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Vanadium	35.9	mg/kg	9.3E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	5.9E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.001
			Exp. Route Total								4.2E-06					0.02
			Dermal	2,3,7,8-TCDD Equivalents	9.05E-06	mg/kg	4.6E-14	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	6.0E-09	3.0E-13	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.0004
				Benzo(a)pyrene	0.122	mg/kg	8.1E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	5.9E-08	1.7E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.147	mg/kg	9.8E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	7.1E-09	2.1E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.018	mg/kg	1.2E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	8.8E-09	2.5E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Arsenic	20.8	mg/kg	1.1E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	1.6E-07	6.8E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.002
				Chromium	92.6	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Iron	29600	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Thallium	0.61	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Vanadium	35.9	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								2.4E-07					0.003
		Exposure Point Total									4.5E-06					0.03
	Exposure Medium Total										4.5E-06					0.03
Medium Total											4.5E-06					0.03
										Total of Receptor Risks Across All Media	8.5E-06			Total of Receptor Hazards Across All Media		0.08

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 7.5.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	SWMU 11	Ingestion	2,3,7,8-TCDD Equivalents	0.0000087	mg/kg	7.1E-13	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	9.2E-08	8.3E-12	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.01
				Benzo(a)anthracene	0.066	mg/kg	2.9E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.1E-08	6.3E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.071	mg/kg	3.1E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.3E-07	6.7E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.09	mg/kg	3.9E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.9E-08	8.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0821	mg/kg	3.6E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.6E-07	7.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.04	mg/kg	1.7E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.3E-08	3.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	15200	mg/kg	1.2E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	1.4E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.01
				Iron	22600	mg/kg	1.8E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	2.1E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.03
			Exp. Route Total								6.4E-07					0.06
			Dermal	2,3,7,8-TCDD Equivalents	0.0000087	mg/kg	1.4E-13	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	1.8E-08	1.6E-12	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.002
				Benzo(a)anthracene	0.066	mg/kg	2.5E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.8E-08	5.4E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.071	mg/kg	2.6E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.9E-07	5.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.09	mg/kg	3.4E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.4E-08	7.3E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0821	mg/kg	3.1E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.2E-07	6.7E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.04	mg/kg	1.5E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.1E-08	3.3E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	15200	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Iron	22600	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
			Exp. Route Total								4.9E-07					0.002
		Exposure Point Total									1.1E-06					0.06
	Exposure Medium Total										1.1E-06					0.06
	Air	SWMU 11	Inhalation	2,3,7,8-TCDD Equivalents	6.6E-15	mg/m^3	1.3E-17	(mg/m^3)	3.8E+01	$(ug/m^3)^{-1}$	5.1E-13	1.6E-16	(mg/m^3)	4.0E-08	(mg/m^3)	3.9E-9
				Benzo(a)anthracene	5.0E-11	mg/m^3	5.4E-13	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	6.0E-14	1.2E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	5.4E-11	mg/m^3	5.9E-13	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	6.4E-13	1.3E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	6.8E-11	mg/m^3	7.4E-13	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	8.2E-14	1.6E-12	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	6.2E-11	mg/m^3	6.8E-13	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	8.1E-13	1.5E-12	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	3.0E-11	mg/m^3	3.3E-13	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	3.6E-14	7.2E-13	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	1.2E-05	mg/m^3	2.4E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	2.7E-07	(mg/m^3)	5.0E-03	(mg/m^3)	0.00005
				Iron	1.7E-05	mg/m^3	3.5E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	4.1E-07	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								2.1E-12					0.00005
		Exposure Point Total									2.1E-12					0.00005
	Exposure Medium Total										2.1E-12					0.00005
Medium Total											1.1E-06					0.06
Surface Soil	Surface Soil	IA 6	Ingestion	Benzo(a)anthracene	0.107	mg/kg	4.6E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.4E-08	1.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.13	mg/kg	5.6E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	4.1E-07	1.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.17	mg/kg	7.4E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	5.4E-08	1.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0308	mg/kg	1.3E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	9.8E-08	2.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.0794	mg/kg	3.4E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.5E-08	7.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	14400	mg/kg	1.2E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	1.4E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.01
				Iron	30100	mg/kg	2.5E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	2.9E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.04
			Exp. Route Total								6.2E-07					0.05
			Dermal	Benzo(a)anthracene	0.107	mg/kg	4.0E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.9E-08	8.7E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.13	mg/kg	4.8E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.5E-07	1.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.17	mg/kg	6.3E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	4.6E-08	1.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0308	mg/kg	1.1E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	8.4E-08	2.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.0794	mg/kg	3.0E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.2E-08	6.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	14400	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Iron	30100	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
			Exp. Route Total								5.3E-07					--
		Exposure Point Total									1.2E-06					0.05
	Exposure Medium Total										1.2E-06					0.05

TABLE 7.5.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Air	IA 6	Inhalation	Benzo(a)anthracene	8.1E-11	mg/m^3	8.8E-13	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	9.7E-14	1.9E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	9.9E-11	mg/m^3	1.1E-12	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	1.2E-12	2.3E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.3E-10	mg/m^3	1.4E-12	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.5E-13	3.1E-12	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	2.3E-11	mg/m^3	2.5E-13	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	3.0E-13	5.6E-13	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	6.0E-11	mg/m^3	6.5E-13	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	7.2E-14	1.4E-12	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	1.1E-05	mg/m^3	2.2E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	2.6E-07	(mg/m^3)	5.0E-03	(mg/m^3)	0.00005
				Iron	2.3E-05	mg/m^3	4.7E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	5.4E-07	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								1.8E-12					0.00005
		Exposure Point Total									1.8E-12					0.00005
	Exposure Medium Total										1.8E-12					0.00005
Medium Total											1.2E-06					0.05
Subsurface Soil	Subsurface Soil	SWMU 11	Ingestion	Tetrachloroethene	2.87	mg/kg	2.3E-07	(mg/kg/day)	2.1E-03	(mg/kg/day)$^{-1}$	4.9E-10	2.7E-06	(mg/kg/day)	6.0E-03	(mg/kg/day)	0.0005
				Trichloroethene (Mutagenic)	0.238	mg/kg	1.0E-07	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	9.6E-10	2.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	0.238	mg/kg	1.9E-08	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	7.1E-10	2.3E-07	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.0005
				Vinyl Chloride	0.154	mg/kg	1.0E-06	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	7.5E-07	1.5E-07	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.00005
				Arsenic	20.4	mg/kg	1.0E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.5E-06	1.2E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.04
				Chromium	74.9	mg/kg	3.3E-05	(mg/kg/day)	5.0E-01	(mg/kg/day)$^{-1}$	1.6E-05	7.1E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.02
				Iron	75600	mg/kg	6.2E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	7.2E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.1
				Vanadium	86.2	mg/kg	7.0E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	8.2E-05	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.02
			Exp. Route Total								1.9E-05					0.2
			Dermal	Tetrachloroethene	2.87	mg/kg	0.0E+00	(mg/kg/day)	2.1E-03	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	6.0E-03	(mg/kg/day)	--
				Trichloroethene (Mutagenic)	0.238	mg/kg	0.0E+00	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	0.238	mg/kg	0.0E+00	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	5.0E-04	(mg/kg/day)	--
				Vinyl Chloride	0.154	mg/kg	0.0E+00	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	3.0E-03	(mg/kg/day)	--
				Arsenic	20.4	mg/kg	3.3E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	4.9E-07	3.8E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.01
				Chromium	74.9	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Iron	75600	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Vanadium	86.2	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								4.9E-07					0.01
		Exposure Point Total									1.9E-05					0.2
	Exposure Medium Total										1.9E-05					0.2
	Air	SWMU 11	Inhalation	Tetrachloroethene	1.1E-03	mg/m^3	2.3E-06	(mg/m^3)	2.6E-07	(ug/m^3)$^{-1}$	6.0E-10	2.7E-05	(mg/m^3)	4.0E-02	(mg/m^3)	0.0007
				Trichloroethene (Mutagenic)	9.9E-05	mg/m^3	1.1E-06	(mg/m^3)	1.0E-06	(ug/m^3)$^{-1}$	1.1E-09	2.4E-06	(mg/m^3)	NA	(mg/m^3)	--
				Trichloroethene (Nonmutagenic	9.9E-05	mg/m^3	2.0E-07	(mg/m^3)	3.1E-06	(ug/m^3)$^{-1}$	6.3E-10	2.4E-06	(mg/m^3)	2.0E-03	(mg/m^3)	0.001
				Vinyl Chloride	1.5E-04	mg/m^3	1.5E-04	(mg/m^3)	4.4E-06	(ug/m^3)$^{-1}$	6.6E-07	3.5E-06	(mg/m^3)	1.0E-01	(mg/m^3)	0.00004
				Arsenic	1.6E-08	mg/m^3	3.2E-11	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	1.4E-10	3.7E-10	(mg/m^3)	1.5E-05	(mg/m^3)	0.00002
				Chromium	5.7E-08	mg/m^3	6.2E-10	(mg/m^3)	8.4E-02	(ug/m^3)$^{-1}$	5.2E-08	1.4E-09	(mg/m^3)	1.0E-04	(mg/m^3)	0.00001
				Iron	5.7E-05	mg/m^3	1.2E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	1.4E-06	(mg/m^3)	NA	(mg/m^3)	--
				Vanadium	6.6E-08	mg/m^3	1.3E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	1.6E-09	(mg/m^3)	1.0E-04	(mg/m^3)	0.00002
			Exp. Route Total								7.1E-07					0.002
		Exposure Point Total									7.1E-07					0.002
	Exposure Medium Total										7.1E-07					0.002
Medium Total											2.0E-05					0.2

TABLE 7.5.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Sediment	Sediment	SWMU 11	Ingestion	2,3,7,8-TCDD Equivalents	9.05E-06	mg/kg	7.4E-13	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	9.6E-08	8.6E-12	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.01
				Benzo(a)pyrene	0.122	mg/kg	5.3E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.9E-07	1.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.147	mg/kg	6.4E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	4.7E-08	1.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.018	mg/kg	7.8E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	5.7E-08	1.7E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Arsenic	20.8	mg/kg	1.0E-06	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	1.5E-06	1.2E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.04
				Chromium	92.6	mg/kg	4.0E-05	(mg/kg/day)	5.0E-01	$(mg/kg/day)^{-1}$	2.0E-05	8.8E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.03
				Iron	29600	mg/kg	2.4E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	2.8E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.04
				Thallium	0.61	mg/kg	5.0E-08	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	5.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Vanadium	35.9	mg/kg	2.9E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	3.4E-05	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.007
			Exp. Route Total								2.2E-05					0.1
			Dermal	2,3,7,8-TCDD Equivalents	9.05E-06	mg/kg	1.5E-13	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	1.9E-08	1.7E-12	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.002
				Benzo(a)pyrene	0.122	mg/kg	4.5E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.3E-07	9.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.147	mg/kg	5.5E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	4.0E-08	1.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.018	mg/kg	6.7E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	4.9E-08	1.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Arsenic	20.8	mg/kg	3.4E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	5.0E-07	3.9E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.01
				Chromium	92.6	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Iron	29600	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Thallium	0.61	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Vanadium	35.9	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								9.4E-07					0.02
		Exposure Point Total									2.3E-05					0.1
	Exposure Medium Total										2.3E-05					0.1
Medium Total											2.3E-05					0.1
										Total of Receptor Risks Across All Media	4.5E-05				Total of Receptor Hazards Across All Media	0.5

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 7.6.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	SWMU 11	Ingestion	2,3,7,8-TCDD Equivalents	0.0000087	mg/kg	3.0E-13	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	3.9E-08	8.9E-13	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.001
				Benzo(a)anthracene	0.066	mg/kg	4.2E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.1E-09	6.7E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.071	mg/kg	4.5E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.3E-08	7.2E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.09	mg/kg	5.8E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	4.2E-09	9.2E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0821	mg/kg	5.3E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.8E-08	8.4E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.04	mg/kg	2.6E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.9E-09	4.1E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	15200	mg/kg	5.3E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	1.5E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.002
				Iron	22600	mg/kg	7.9E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	2.3E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.003
			Exp. Route Total								1.2E-07					0.006
			Dermal	2,3,7,8-TCDD Equivalents	0.0000087	mg/kg	1.2E-13	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	1.5E-08	3.4E-13	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.0005
				Benzo(a)anthracene	0.066	mg/kg	7.0E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	5.1E-09	1.1E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.071	mg/kg	7.5E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	5.5E-08	1.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.09	mg/kg	9.5E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	6.9E-09	1.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0821	mg/kg	8.7E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	6.3E-08	1.4E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.04	mg/kg	4.2E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.1E-09	6.7E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	15200	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Iron	22600	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
			Exp. Route Total								1.5E-07					0.0005
		Exposure Point Total									2.7E-07					0.007
	Exposure Medium Total										2.7E-07					0.007
	Air	SWMU 11	Inhalation	2,3,7,8-TCDD Equivalents	6.6E-15	mg/m^3	5.4E-17	(mg/m^3)	3.8E+01	$(ug/m^3)^{-1}$	2.0E-12	1.6E-16	(mg/m^3)	4.0E-08	(mg/m^3)	3.9E-9
				Benzo(a)anthracene	5.0E-11	mg/m^3	7.5E-13	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	8.2E-14	1.2E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	5.4E-11	mg/m^3	8.1E-13	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	8.9E-13	1.3E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	6.8E-11	mg/m^3	1.0E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.1E-13	1.6E-12	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	6.2E-11	mg/m^3	9.3E-13	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	1.1E-12	1.5E-12	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	3.0E-11	mg/m^3	4.5E-13	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	5.0E-14	7.2E-13	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	1.2E-05	mg/m^3	9.4E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	2.7E-07	(mg/m^3)	5.0E-03	(mg/m^3)	0.00005
				Iron	1.7E-05	mg/m^3	1.4E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	4.1E-07	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								4.3E-12					0.00005
		Exposure Point Total									4.3E-12					0.00005
	Exposure Medium Total										4.3E-12					0.00005
Medium Total											2.7E-07					0.007
Surface Soil	Surface Soil	IA 6	Ingestion	Benzo(a)anthracene	0.107	mg/kg	6.8E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	5.0E-09	1.1E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.13	mg/kg	8.3E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	6.1E-08	1.3E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.17	mg/kg	1.1E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	7.9E-09	1.7E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0308	mg/kg	2.0E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.4E-08	3.1E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.0794	mg/kg	5.1E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.7E-09	8.1E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	14400	mg/kg	5.0E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	1.5E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.001
				Iron	30100	mg/kg	1.1E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	3.1E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.004
			Exp. Route Total								9.2E-08					0.006
			Dermal	Benzo(a)anthracene	0.107	mg/kg	1.1E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	8.2E-09	1.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.13	mg/kg	1.4E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.0E-07	2.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.17	mg/kg	1.8E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.3E-08	2.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0308	mg/kg	3.3E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.4E-08	5.2E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.0794	mg/kg	8.4E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	6.1E-09	1.3E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	14400	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Iron	30100	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
			Exp. Route Total								1.5E-07					--
		Exposure Point Total									2.4E-07					0.006
	Exposure Medium Total										2.4E-07					0.006

TABLE 7.6.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Air	IA 6	Inhalation	Benzo(a)anthracene	8.1E-11	mg/m^3	1.2E-12	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.3E-13	1.9E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	9.9E-11	mg/m^3	1.5E-12	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	1.6E-12	2.3E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.3E-10	mg/m^3	1.9E-12	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	2.1E-13	3.1E-12	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	2.3E-11	mg/m^3	3.5E-13	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	4.2E-13	5.6E-13	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	6.0E-11	mg/m^3	9.0E-13	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	9.9E-14	1.4E-12	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	1.1E-05	mg/m^3	8.9E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	2.6E-07	(mg/m^3)	5.0E-03	(mg/m^3)	0.00005
				Iron	2.3E-05	mg/m^3	1.9E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	5.4E-07	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								2.5E-12					0.00005
		Exposure Point Total									2.5E-12					0.00005
	Exposure Medium Total										2.5E-12					0.00005
Medium Total											2.4E-07					0.006
Subsurface Soil	Subsurface Soil	SWMU 11	Ingestion	Tetrachloroethene	2.87	mg/kg	1.0E-07	(mg/kg/day)	2.1E-03	(mg/kg/day)$^{-1}$	2.1E-10	2.9E-07	(mg/kg/day)	6.0E-03	(mg/kg/day)	0.00005
				Trichloroethene (Mutagenic)	0.238	mg/kg	1.5E-08	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	1.4E-10	2.4E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	0.238	mg/kg	8.3E-09	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	3.0E-10	2.4E-08	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.00005
				Vinyl Chloride	0.154	mg/kg	5.4E-09	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	3.9E-09	1.6E-08	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.000005
				Arsenic	20.4	mg/kg	4.3E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	6.4E-07	1.2E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.004
				Chromium	74.9	mg/kg	4.8E-06	(mg/kg/day)	5.0E-01	(mg/kg/day)$^{-1}$	2.4E-06	7.6E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.003
				Iron	75600	mg/kg	2.6E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	7.7E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.01
				Vanadium	86.2	mg/kg	3.0E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	8.8E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.002
			Exp. Route Total								3.0E-06					0.02
			Dermal	Tetrachloroethene	2.87	mg/kg	0.0E+00	(mg/kg/day)	2.1E-03	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	6.0E-03	(mg/kg/day)	--
				Trichloroethene (Mutagenic)	0.238	mg/kg	0.0E+00	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	0.238	mg/kg	0.0E+00	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	5.0E-04	(mg/kg/day)	--
				Vinyl Chloride	0.154	mg/kg	0.0E+00	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	3.0E-03	(mg/kg/day)	--
				Arsenic	20.4	mg/kg	2.7E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	4.1E-07	7.9E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.003
				Chromium	74.9	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Iron	75600	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Vanadium	86.2	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								4.1E-07					0.003
		Exposure Point Total									3.4E-06					0.02
	Exposure Medium Total										3.4E-06					0.02
	Air	SWMU 11	Inhalation	Tetrachloroethene	1.1E-03	mg/m^3	9.2E-06	(mg/m^3)	2.6E-07	(ug/m^3)$^{-1}$	2.4E-09	2.7E-05	(mg/m^3)	4.0E-02	(mg/m^3)	0.0007
				Trichloroethene (Mutagenic)	9.9E-05	mg/m^3	1.5E-06	(mg/m^3)	1.0E-06	(ug/m^3)$^{-1}$	1.5E-09	2.4E-06	(mg/m^3)	NA	(mg/m^3)	--
				Trichloroethene (Nonmutagenic	9.9E-05	mg/m^3	8.1E-07	(mg/m^3)	3.1E-06	(ug/m^3)$^{-1}$	2.5E-09	2.4E-06	(mg/m^3)	2.0E-03	(mg/m^3)	0.001
				Vinyl Chloride	1.5E-04	mg/m^3	1.2E-06	(mg/m^3)	4.4E-06	(ug/m^3)$^{-1}$	5.3E-09	3.5E-06	(mg/m^3)	1.0E-01	(mg/m^3)	0.00004
				Arsenic	1.6E-08	mg/m^3	1.3E-10	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	5.4E-10	3.7E-10	(mg/m^3)	1.5E-05	(mg/m^3)	0.00002
				Chromium	5.7E-08	mg/m^3	8.5E-10	(mg/m^3)	8.4E-02	(ug/m^3)$^{-1}$	7.1E-08	1.4E-09	(mg/m^3)	1.0E-04	(mg/m^3)	0.00001
				Iron	5.7E-05	mg/m^3	4.7E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	1.4E-06	(mg/m^3)	NA	(mg/m^3)	--
				Vanadium	6.6E-08	mg/m^3	5.3E-10	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	1.6E-09	(mg/m^3)	1.0E-04	(mg/m^3)	0.00002
			Exp. Route Total								8.4E-08					0.002
		Exposure Point Total									8.4E-08					0.002
	Exposure Medium Total										8.4E-08					0.002
Medium Total											3.5E-06					0.02

TABLE 7.6.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Sediment	Sediment	SWMU 11	Ingestion	2,3,7,8-TCDD Equivalents	9.05E-06	mg/kg	3.2E-13	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	4.1E-08	9.2E-13	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.001
				Benzo(a)pyrene	0.122	mg/kg	7.8E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	5.7E-08	1.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.147	mg/kg	9.4E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	6.9E-09	1.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.018	mg/kg	1.2E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	8.4E-09	1.8E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Arsenic	20.8	mg/kg	4.4E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	6.5E-07	1.3E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.004
				Chromium	92.6	mg/kg	5.9E-06	(mg/kg/day)	5.0E-01	$(mg/kg/day)^{-1}$	3.0E-06	9.4E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.003
				Iron	29600	mg/kg	1.0E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	3.0E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.004
				Thallium	0.61	mg/kg	2.1E-08	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	6.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Vanadium	35.9	mg/kg	1.3E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	3.7E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.0007
			Exp. Route Total								3.7E-06					0.01
			Dermal	2,3,7,8-TCDD Equivalents	9.05E-06	mg/kg	1.2E-13	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	1.6E-08	3.5E-13	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.0005
				Benzo(a)pyrene	0.122	mg/kg	1.3E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	9.4E-08	2.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.147	mg/kg	1.6E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.1E-08	2.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.018	mg/kg	1.9E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.4E-08	3.0E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Arsenic	20.8	mg/kg	2.8E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	4.1E-07	8.1E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.003
				Chromium	92.6	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Iron	29600	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Thallium	0.61	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Vanadium	35.9	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								5.5E-07					0.003
		Exposure Point Total									4.3E-06					0.02
	Exposure Medium Total										4.3E-06					0.02
Medium Total											4.3E-06					0.02
										Total of Receptor Risks Across All Media	8.3E-06				Total of Receptor Hazards Across All Media	0.05

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 7.7.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	SWMU 11	Ingestion	2,3,7,8-TCDD Equivalents	0.0000087	mg/kg	9.5E-12	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	1.2E-06	1.1E-10	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.2
				Benzo(a)anthracene	0.066	mg/kg	3.9E-07	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.8E-07	8.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.071	mg/kg	4.1E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.0E-06	9.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.09	mg/kg	5.3E-07	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.8E-07	1.2E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0821	mg/kg	4.8E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.5E-06	1.0E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.04	mg/kg	2.3E-07	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.7E-07	5.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	15200	mg/kg	1.7E-02	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	1.9E-01	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.2
				Iron	22600	mg/kg	2.5E-02	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	2.9E-01	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.4
			Exp. Route Total								8.6E-06					0.8
			Dermal	2,3,7,8-TCDD Equivalents	0.0000087	mg/kg	8.0E-13	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	1.0E-07	9.3E-12	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.01
				Benzo(a)anthracene	0.066	mg/kg	1.4E-07	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.0E-07	3.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.071	mg/kg	1.5E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.1E-06	3.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.09	mg/kg	1.9E-07	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.4E-07	4.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0821	mg/kg	1.7E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.3E-06	3.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.04	mg/kg	8.5E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	6.2E-08	1.9E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	15200	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Iron	22600	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
			Exp. Route Total								2.8E-06					0.01
		Exposure Point Total									1.1E-05					0.8
	Exposure Medium Total										1.1E-05					0.8
	Air	SWMU 11	Inhalation	2,3,7,8-TCDD Equivalents	6.6E-15	mg/m^3	5.4E-16	(mg/m^3)	3.8E+01	$(ug/m^3)^{-1}$	2.1E-11	6.3E-15	(mg/m^3)	4.0E-08	(mg/m^3)	1.6E-7
				Benzo(a)anthracene	5.0E-11	mg/m^3	2.2E-11	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	2.4E-12	4.8E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	5.4E-11	mg/m^3	2.4E-11	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	2.6E-11	5.2E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	6.8E-11	mg/m^3	3.0E-11	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	3.3E-12	6.6E-11	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	6.2E-11	mg/m^3	2.7E-11	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	3.3E-11	6.0E-11	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	3.0E-11	mg/m^3	1.3E-11	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.5E-12	2.9E-11	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	1.2E-05	mg/m^3	9.5E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	1.1E-05	(mg/m^3)	5.0E-03	(mg/m^3)	0.002
				Iron	1.7E-05	mg/m^3	1.4E-06	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	1.6E-05	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								8.7E-11					0.002
		Exposure Point Total									8.7E-11					0.002
	Exposure Medium Total										8.7E-11					0.002
Medium Total											1.1E-05					0.8
Surface Soil	Surface Soil	IA 6	Ingestion	Benzo(a)anthracene	0.107	mg/kg	6.3E-07	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	4.6E-07	1.4E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.13	mg/kg	7.6E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	5.5E-06	1.7E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.17	mg/kg	9.9E-07	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	7.3E-07	2.2E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0308	mg/kg	1.8E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.3E-06	3.9E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.0794	mg/kg	4.6E-07	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.4E-07	1.0E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	14400	mg/kg	1.6E-02	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	1.8E-01	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.2
				Iron	30100	mg/kg	3.3E-02	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	3.8E-01	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.5
			Exp. Route Total								8.4E-06					0.7
			Dermal	Benzo(a)anthracene	0.107	mg/kg	2.3E-07	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.7E-07	5.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.13	mg/kg	2.8E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.0E-06	6.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.17	mg/kg	3.6E-07	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.6E-07	7.9E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0308	mg/kg	6.6E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	4.8E-07	1.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.0794	mg/kg	1.7E-07	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.2E-07	3.7E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	14400	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Iron	30100	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
			Exp. Route Total								3.1E-06					--
		Exposure Point Total									1.1E-05					0.7
	Exposure Medium Total										1.1E-05					0.7

TABLE 7.7.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Air	IA 6	Inhalation	Benzo(a)anthracene	8.1E-11	mg/m^3	3.6E-11	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	3.9E-12	7.8E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	9.9E-11	mg/m^3	4.3E-11	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	4.8E-11	9.5E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.3E-10	mg/m^3	5.7E-11	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	6.2E-12	1.2E-10	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	2.3E-11	mg/m^3	1.0E-11	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	1.2E-11	2.2E-11	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	6.0E-11	mg/m^3	2.6E-11	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	2.9E-12	5.8E-11	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	1.1E-05	mg/m^3	9.0E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	1.0E-05	(mg/m^3)	5.0E-03	(mg/m^3)	0.002
				Iron	2.3E-05	mg/m^3	1.9E-06	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	2.2E-05	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								7.3E-11					0.002
		Exposure Point Total									7.3E-11					0.002
	Exposure Medium Total										7.3E-11					0.002
Medium Total											1.1E-05					0.7
Subsurface Soil	Subsurface Soil	SWMU 11	Ingestion	Tetrachloroethene	2.87	mg/kg	3.1E-06	(mg/kg/day)	2.1E-03	(mg/kg/day)$^{-1}$	6.6E-09	3.7E-05	(mg/kg/day)	6.0E-03	(mg/kg/day)	0.006
				Trichloroethene (Mutagenic)	0.238	mg/kg	1.4E-06	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	1.3E-08	3.0E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	0.238	mg/kg	2.6E-07	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	9.6E-09	3.0E-06	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.006
				Vinyl Chloride	0.154	mg/kg	2.2E-06	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	1.6E-06	2.0E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.0007
				Arsenic	20.4	mg/kg	1.3E-05	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	2.0E-05	1.6E-04	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.5
				Chromium	74.9	mg/kg	4.4E-04	(mg/kg/day)	5.0E-01	(mg/kg/day)$^{-1}$	2.2E-04	9.6E-04	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.3
				Iron	75600	mg/kg	8.3E-02	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	9.7E-01	(mg/kg/day)	7.0E-01	(mg/kg/day)	1.4
				Vanadium	86.2	mg/kg	9.4E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	1.1E-03	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.2
			Exp. Route Total								2.4E-04					2.5
			Dermal	Tetrachloroethene	2.87	mg/kg	0.0E+00	(mg/kg/day)	2.1E-03	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	6.0E-03	(mg/kg/day)	--
				Trichloroethene (Mutagenic)	0.238	mg/kg	0.0E+00	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	0.238	mg/kg	0.0E+00	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	5.0E-04	(mg/kg/day)	--
				Vinyl Chloride	0.154	mg/kg	0.0E+00	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	3.0E-03	(mg/kg/day)	--
				Arsenic	20.4	mg/kg	1.9E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	2.8E-06	2.2E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.07
				Chromium	74.9	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Iron	75600	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Vanadium	86.2	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								2.8E-06					0.07
		Exposure Point Total									2.4E-04					2.5
	Exposure Medium Total										2.4E-04					2.5
	Air	SWMU 11	Inhalation	Tetrachloroethene	1.1E-03	mg/m^3	9.3E-05	(mg/m^3)	2.6E-07	(ug/m^3)$^{-1}$	2.4E-08	1.1E-03	(mg/m^3)	4.0E-02	(mg/m^3)	0.03
				Trichloroethene (Mutagenic)	9.9E-05	mg/m^3	4.4E-05	(mg/m^3)	1.0E-06	(ug/m^3)$^{-1}$	4.4E-08	9.5E-05	(mg/m^3)	NA	(mg/m^3)	--
				Trichloroethene (Nonmutagenic	9.9E-05	mg/m^3	8.2E-06	(mg/m^3)	3.1E-06	(ug/m^3)$^{-1}$	2.5E-08	9.5E-05	(mg/m^3)	2.0E-03	(mg/m^3)	0.05
				Vinyl Chloride	1.5E-04	mg/m^3	1.6E-04	(mg/m^3)	4.4E-06	(ug/m^3)$^{-1}$	7.1E-07	1.4E-04	(mg/m^3)	1.0E-01	(mg/m^3)	0.001
				Arsenic	1.6E-08	mg/m^3	1.3E-09	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	5.5E-09	1.5E-08	(mg/m^3)	1.5E-05	(mg/m^3)	0.0010
				Chromium	5.7E-08	mg/m^3	2.5E-08	(mg/m^3)	8.4E-02	(ug/m^3)$^{-1}$	2.1E-06	5.5E-08	(mg/m^3)	1.0E-04	(mg/m^3)	0.0005
				Iron	5.7E-05	mg/m^3	4.7E-06	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	5.5E-05	(mg/m^3)	NA	(mg/m^3)	--
				Vanadium	6.6E-08	mg/m^3	5.4E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	6.3E-08	(mg/m^3)	1.0E-04	(mg/m^3)	0.0006
			Exp. Route Total								2.9E-06					0.08
		Exposure Point Total									2.9E-06					0.08
	Exposure Medium Total										2.9E-06					0.08
Medium Total											2.5E-04					2.6

TABLE 7.7.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	SWMU 11	Ingestion	Benzene	3.23	ug/L	1.8E-05	(mg/kg/day)	5.5E-02	$(mg/kg/day)^{-1}$	9.7E-07	2.1E-04	(mg/kg/day)	4.0E-03	(mg/kg/day)	0.05
				Chloroform	1.29	ug/L	7.1E-06	(mg/kg/day)	3.1E-02	$(mg/kg/day)^{-1}$	2.2E-07	8.2E-05	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.008
				cis-1,2-Dichloroethene	27.6	ug/L	1.5E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	1.8E-03	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.9
				Tetrachloroethene	25.5	ug/L	1.4E-04	(mg/kg/day)	2.1E-03	$(mg/kg/day)^{-1}$	2.9E-07	1.6E-03	(mg/kg/day)	6.0E-03	(mg/kg/day)	0.3
				Trichloroethene (Mutagenic)	115	ug/L	3.4E-03	(mg/kg/day)	9.3E-03	$(mg/kg/day)^{-1}$	3.1E-05	7.4E-03	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	115	ug/L	6.3E-04	(mg/kg/day)	3.7E-02	$(mg/kg/day)^{-1}$	2.3E-05	7.4E-03	(mg/kg/day)	5.0E-04	(mg/kg/day)	15
				Vinyl Chloride	0.503	ug/L	3.6E-05	(mg/kg/day)	7.2E-01	$(mg/kg/day)^{-1}$	2.6E-05	3.2E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.01
			Exp. Route Total								8.2E-05					16
			Dermal	Benzene	3.23	ug/L	2.7E-06	(mg/kg/day)	5.5E-02	$(mg/kg/day)^{-1}$	1.5E-07	3.2E-05	(mg/kg/day)	4.0E-03	(mg/kg/day)	0.008
				Chloroform	1.29	ug/L	6.2E-07	(mg/kg/day)	3.1E-02	$(mg/kg/day)^{-1}$	1.9E-08	7.2E-06	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.0007
				cis-1,2-Dichloroethene	27.6	ug/L	1.9E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	2.2E-04	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.1
				Tetrachloroethene	25.5	ug/L	8.1E-05	(mg/kg/day)	2.1E-03	$(mg/kg/day)^{-1}$	1.7E-07	9.5E-04	(mg/kg/day)	6.0E-03	(mg/kg/day)	0.2
				Trichloroethene (Mutagenic)	115	ug/L	5.4E-04	(mg/kg/day)	9.3E-03	$(mg/kg/day)^{-1}$	5.1E-06	1.2E-03	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	115	ug/L	1.0E-04	(mg/kg/day)	3.7E-02	$(mg/kg/day)^{-1}$	3.7E-06	1.2E-03	(mg/kg/day)	5.0E-04	(mg/kg/day)	2.4
				Vinyl Chloride	0.503	ug/L	2.0E-06	(mg/kg/day)	7.2E-01	$(mg/kg/day)^{-1}$	1.4E-06	1.7E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.0006
			Exp. Route Total								1.1E-05					2.7
		Exposure Point Total									9.3E-05					19
	Exposure Medium Total										9.3E-05					19
	Air	SWMU 11	Inhalation	Benzene	6.3E-03	mg/m^3	2.2E-05	(mg/m^3)	7.8E-06	$(ug/m^3)^{-1}$	1.7E-07	2.5E-04	(mg/m^3)	3.0E-02	(mg/m^3)	0.008
				Chloroform	2.0E-03	mg/m^3	6.9E-06	(mg/m^3)	2.3E-05	$(ug/m^3)^{-1}$	1.6E-07	8.1E-05	(mg/m^3)	9.8E-02	(mg/m^3)	0.0008
				cis-1,2-Dichloroethene	4.8E-02	mg/m^3	1.6E-04	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	1.9E-03	(mg/m^3)	NA	(mg/m^3)	--
				Tetrachloroethene	3.6E-02	mg/m^3	1.2E-04	(mg/m^3)	2.6E-07	$(ug/m^3)^{-1}$	3.2E-08	1.4E-03	(mg/m^3)	4.0E-02	(mg/m^3)	0.04
				Trichloroethene (Mutagenic)	1.8E-01	mg/m^3	3.3E-03	(mg/m^3)	1.0E-06	$(ug/m^3)^{-1}$	3.3E-06	7.2E-03	(mg/m^3)	NA	(mg/m^3)	--
				Trichloroethene (Nonmutagenic	1.8E-01	mg/m^3	6.1E-04	(mg/m^3)	3.1E-06	$(ug/m^3)^{-1}$	1.9E-06	7.2E-03	(mg/m^3)	2.0E-03	(mg/m^3)	3.6
				Vinyl Chloride	1.1E-03	mg/m^3	1.1E-03	(mg/m^3)	4.4E-06	$(ug/m^3)^{-1}$	5.0E-06	4.5E-05	(mg/m^3)	1.0E-01	(mg/m^3)	0.0004
			Exp. Route Total								1.0E-05					3.6
		Exposure Point Total									1.0E-05					3.6
	Exposure Medium Total										1.0E-05					3.6
Medium Total											1.0E-04					22
Vapor Intrusion	Air	SWMU 11	Inhalation	Benzene	6.4E-06	mg/m^3	2.1E-06	(mg/m^3)	7.8E-06	$(ug/m^3)^{-1}$	1.6E-08	6.1E-06	(mg/m^3)	3.0E-02	(mg/m^3)	0.0002
				Chloroform	2.3E-06	mg/m^3	7.6E-07	(mg/m^3)	2.3E-05	$(ug/m^3)^{-1}$	1.7E-08	2.2E-06	(mg/m^3)	9.8E-02	(mg/m^3)	0.00002
				cis-1,2-Dichloroethene	4.6E-05	mg/m^3	1.5E-05	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	4.4E-05	(mg/m^3)	NA	(mg/m^3)	--
				Tetrachloroethene	9.2E-05	mg/m^3	3.0E-05	(mg/m^3)	2.6E-07	$(ug/m^3)^{-1}$	7.9E-09	8.8E-05	(mg/m^3)	4.0E-02	(mg/m^3)	0.002
				Trichloroethene (Mutagenic)	3.1E-04	mg/m^3	6.0E-04	(mg/m^3)	1.0E-06	$(ug/m^3)^{-1}$	6.0E-07	3.0E-04	(mg/m^3)	NA	(mg/m^3)	--
				Trichloroethene (Nonmutagenic	3.1E-04	mg/m^3	1.0E-04	(mg/m^3)	3.1E-06	$(ug/m^3)^{-1}$	3.1E-07	3.0E-04	(mg/m^3)	2.0E-03	(mg/m^3)	0.1
				Vinyl Chloride	4.9E-06	mg/m^3	5.3E-06	(mg/m^3)	4.4E-06	$(ug/m^3)^{-1}$	2.3E-08	4.7E-06	(mg/m^3)	1.0E-01	(mg/m^3)	0.00005
			Exp. Route Total								9.8E-07					0.2
		Exposure Point Total									9.8E-07					0.2
	Exposure Medium Total										9.8E-07					0.2
Medium Total											9.8E-07					0.2
										Total of Receptor Risks Across All Media	3.7E-04			Total of Receptor Hazards Across All Media		26

Notes:

1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 7.8.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	SWMU 11	Ingestion	2,3,7,8-TCDD Equivalents	0.0000087	mg/kg	4.1E-12	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	5.3E-07	1.2E-11	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.02
				Benzo(a)anthracene	0.066	mg/kg	5.7E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	4.1E-08	9.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.071	mg/kg	6.1E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	4.5E-07	9.7E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.09	mg/kg	7.7E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	5.7E-08	1.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0821	mg/kg	7.1E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	5.2E-07	1.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.04	mg/kg	3.4E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.5E-08	5.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	15200	mg/kg	7.1E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	2.1E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.02
				Iron	22600	mg/kg	1.1E-02	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	3.1E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.04
			Exp. Route Total								1.6E-06					0.08
			Dermal	2,3,7,8-TCDD Equivalents	0.0000087	mg/kg	4.9E-13	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	6.4E-08	1.4E-12	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.002
				Benzo(a)anthracene	0.066	mg/kg	2.9E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.2E-08	4.7E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.071	mg/kg	3.2E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.3E-07	5.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.09	mg/kg	4.0E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.9E-08	6.4E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0821	mg/kg	3.7E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.7E-07	5.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.04	mg/kg	1.8E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.3E-08	2.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	15200	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Iron	22600	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
			Exp. Route Total								6.3E-07					0.002
		Exposure Point Total									2.2E-06					0.08
	Exposure Medium Total										2.2E-06					0.08
	Air	SWMU 11	Inhalation	2,3,7,8-TCDD Equivalents	6.6E-15	mg/m^3	2.2E-15	(mg/m^3)	3.8E+01	$(ug/m^3)^{-1}$	8.3E-11	6.3E-15	(mg/m^3)	4.0E-08	(mg/m^3)	1.6E-7
				Benzo(a)anthracene	5.0E-11	mg/m^3	3.0E-11	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	3.3E-12	4.8E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	5.4E-11	mg/m^3	3.3E-11	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	3.6E-11	5.2E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	6.8E-11	mg/m^3	4.1E-11	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	4.5E-12	6.6E-11	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	6.2E-11	mg/m^3	3.8E-11	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	4.5E-11	6.0E-11	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	3.0E-11	mg/m^3	1.8E-11	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	2.0E-12	2.9E-11	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	1.2E-05	mg/m^3	3.8E-06	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	1.1E-05	(mg/m^3)	5.0E-03	(mg/m^3)	0.002
				Iron	1.7E-05	mg/m^3	5.6E-06	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	1.6E-05	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								1.7E-10					0.002
		Exposure Point Total									1.7E-10					0.002
	Exposure Medium Total										1.7E-10					0.002
Medium Total											2.2E-06					0.09
Surface Soil	Surface Soil	IA 6	Ingestion	Benzo(a)anthracene	0.107	mg/kg	9.2E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	6.7E-08	1.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.13	mg/kg	1.1E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	8.2E-07	1.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.17	mg/kg	1.5E-07	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.1E-07	2.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0308	mg/kg	2.7E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.9E-07	4.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.0794	mg/kg	6.8E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	5.0E-08	1.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	14400	mg/kg	6.8E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	2.0E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.02
				Iron	30100	mg/kg	1.4E-02	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	4.1E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.06
			Exp. Route Total								1.2E-06					0.08
			Dermal	Benzo(a)anthracene	0.107	mg/kg	4.8E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.5E-08	7.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.13	mg/kg	5.8E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	4.2E-07	9.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.17	mg/kg	7.6E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	5.5E-08	1.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0308	mg/kg	1.4E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.0E-07	2.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.0794	mg/kg	3.5E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.6E-08	5.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	14400	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Iron	30100	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
			Exp. Route Total								6.4E-07					--
		Exposure Point Total									1.9E-06					0.08
	Exposure Medium Total										1.9E-06					0.08

TABLE 7.8.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Air	IA 6	Inhalation	Benzo(a)anthracene	8.1E-11	mg/m^3	4.9E-11	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	5.4E-12	7.8E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	9.9E-11	mg/m^3	6.0E-11	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	6.5E-11	9.5E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.3E-10	mg/m^3	7.8E-11	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	8.6E-12	1.2E-10	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	2.3E-11	mg/m^3	1.4E-11	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	1.7E-11	2.2E-11	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	6.0E-11	mg/m^3	3.6E-11	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	4.0E-12	5.8E-11	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	1.1E-05	mg/m^3	3.6E-06	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	1.0E-05	(mg/m^3)	5.0E-03	(mg/m^3)	0.002
				Iron	2.3E-05	mg/m^3	7.5E-06	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	2.2E-05	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								1.0E-10					0.002
		Exposure Point Total									1.0E-10					0.002
	Exposure Medium Total										1.0E-10					0.002
Medium Total											1.9E-06					0.08
Subsurface Soil	Subsurface Soil	SWMU 11	Ingestion	Tetrachloroethene	2.87	mg/kg	1.3E-06	(mg/kg/day)	2.1E-03	(mg/kg/day)$^{-1}$	2.8E-09	3.9E-06	(mg/kg/day)	6.0E-03	(mg/kg/day)	0.0007
				Trichloroethene (Mutagenic)	0.238	mg/kg	2.0E-07	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	1.9E-09	3.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	0.238	mg/kg	1.1E-07	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	4.1E-09	3.3E-07	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.0007
				Vinyl Chloride	0.154	mg/kg	7.2E-08	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	5.2E-08	2.1E-07	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.00007
				Arsenic	20.4	mg/kg	5.7E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	8.6E-06	1.7E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.06
				Chromium	74.9	mg/kg	6.4E-05	(mg/kg/day)	5.0E-01	(mg/kg/day)$^{-1}$	3.2E-05	1.0E-04	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.03
				Iron	75600	mg/kg	3.6E-02	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	1.0E-01	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.1
				Vanadium	86.2	mg/kg	4.0E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	1.2E-04	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.02
			Exp. Route Total								4.1E-05					0.3
			Dermal	Tetrachloroethene	2.87	mg/kg	0.0E+00	(mg/kg/day)	2.1E-03	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	6.0E-03	(mg/kg/day)	--
				Trichloroethene (Mutagenic)	0.238	mg/kg	0.0E+00	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	0.238	mg/kg	0.0E+00	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	5.0E-04	(mg/kg/day)	--
				Vinyl Chloride	0.154	mg/kg	0.0E+00	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	3.0E-03	(mg/kg/day)	--
				Arsenic	20.4	mg/kg	1.1E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.7E-06	3.3E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.01
				Chromium	74.9	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Iron	75600	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Vanadium	86.2	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								1.7E-06					0.01
		Exposure Point Total									4.3E-05					0.3
	Exposure Medium Total										4.3E-05					0.3
	Air	SWMU 11	Inhalation	Tetrachloroethene	1.1E-03	mg/m^3	3.7E-04	(mg/m^3)	2.6E-07	(ug/m^3)$^{-1}$	9.6E-08	1.1E-03	(mg/m^3)	4.0E-02	(mg/m^3)	0.03
				Trichloroethene (Mutagenic)	9.9E-05	mg/m^3	6.0E-05	(mg/m^3)	1.0E-06	(ug/m^3)$^{-1}$	6.0E-08	9.5E-05	(mg/m^3)	NA	(mg/m^3)	--
				Trichloroethene (Nonmutagenic	9.9E-05	mg/m^3	3.3E-05	(mg/m^3)	3.1E-06	(ug/m^3)$^{-1}$	1.0E-07	9.5E-05	(mg/m^3)	2.0E-03	(mg/m^3)	0.05
				Vinyl Chloride	1.5E-04	mg/m^3	4.9E-05	(mg/m^3)	4.4E-06	(ug/m^3)$^{-1}$	2.2E-07	1.4E-04	(mg/m^3)	1.0E-01	(mg/m^3)	0.001
				Arsenic	1.6E-08	mg/m^3	5.1E-09	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	2.2E-08	1.5E-08	(mg/m^3)	1.5E-05	(mg/m^3)	0.0010
				Chromium	5.7E-08	mg/m^3	3.4E-08	(mg/m^3)	8.4E-02	(ug/m^3)$^{-1}$	2.9E-06	5.5E-08	(mg/m^3)	1.0E-04	(mg/m^3)	0.0005
				Iron	5.7E-05	mg/m^3	1.9E-05	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	5.5E-05	(mg/m^3)	NA	(mg/m^3)	--
				Vanadium	6.6E-08	mg/m^3	2.2E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	6.3E-08	(mg/m^3)	1.0E-04	(mg/m^3)	0.0006
			Exp. Route Total								3.4E-06					0.08
		Exposure Point Total									3.4E-06					0.08
	Exposure Medium Total										3.4E-06					0.08
Medium Total											4.6E-05					0.4

TABLE 7.8.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	SWMU 11	Ingestion	Benzene	3.23	ug/L	3.0E-05	(mg/kg/day)	5.5E-02	(mg/kg/day)$^{-1}$	1.7E-06	8.8E-05	(mg/kg/day)	4.0E-03	(mg/kg/day)	0.02
				Chloroform	1.29	ug/L	1.2E-05	(mg/kg/day)	3.1E-02	(mg/kg/day)$^{-1}$	3.8E-07	3.5E-05	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.004
				cis-1,2-Dichloroethene	27.6	ug/L	2.6E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	7.6E-04	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.4
				Tetrachloroethene	25.5	ug/L	2.4E-04	(mg/kg/day)	2.1E-03	(mg/kg/day)$^{-1}$	5.0E-07	7.0E-04	(mg/kg/day)	6.0E-03	(mg/kg/day)	0.1
				Trichloroethene (Mutagenic)	115	ug/L	2.0E-03	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	1.8E-05	3.2E-03	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	115	ug/L	1.1E-03	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	4.0E-05	3.2E-03	(mg/kg/day)	5.0E-04	(mg/kg/day)	6.3
				Vinyl Chloride	0.503	ug/L	4.7E-06	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	3.4E-06	1.4E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.005
			Exp. Route Total								6.4E-05					6.8
			Dermal	Benzene	3.23	ug/L	4.6E-06	(mg/kg/day)	5.5E-02	(mg/kg/day)$^{-1}$	2.5E-07	1.3E-05	(mg/kg/day)	4.0E-03	(mg/kg/day)	0.003
				Chloroform	1.29	ug/L	1.1E-06	(mg/kg/day)	3.1E-02	(mg/kg/day)$^{-1}$	3.4E-08	3.2E-06	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.0003
				cis-1,2-Dichloroethene	27.6	ug/L	3.2E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	9.4E-05	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.05
				Tetrachloroethene	25.5	ug/L	1.4E-04	(mg/kg/day)	2.1E-03	(mg/kg/day)$^{-1}$	3.0E-07	4.2E-04	(mg/kg/day)	6.0E-03	(mg/kg/day)	0.07
				Trichloroethene (Mutagenic)	115	ug/L	3.3E-04	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	3.1E-06	5.3E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	115	ug/L	1.8E-04	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	6.7E-06	5.3E-04	(mg/kg/day)	5.0E-04	(mg/kg/day)	1.1
				Vinyl Chloride	0.503	ug/L	2.5E-07	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	1.8E-07	7.3E-07	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.0002
			Exp. Route Total								1.1E-05					1.2
		Exposure Point Total									7.5E-05					8.0
	Exposure Medium Total										7.5E-05					8.0
	Air	SWMU 11	Inhalation	Benzene	6.3E-03	mg/m^3	8.6E-05	(mg/m^3)	7.8E-06	(ug/m^3)$^{-1}$	6.7E-07	2.5E-04	(mg/m^3)	3.0E-02	(mg/m^3)	0.008
				Chloroform	2.0E-03	mg/m^3	2.8E-05	(mg/m^3)	2.3E-05	(ug/m^3)$^{-1}$	6.4E-07	8.1E-05	(mg/m^3)	9.8E-02	(mg/m^3)	0.0008
				cis-1,2-Dichloroethene	4.8E-02	mg/m^3	6.6E-04	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	1.9E-03	(mg/m^3)	NA	(mg/m^3)	--
				Tetrachloroethene	3.6E-02	mg/m^3	4.9E-04	(mg/m^3)	2.6E-07	(ug/m^3)$^{-1}$	1.3E-07	1.4E-03	(mg/m^3)	4.0E-02	(mg/m^3)	0.04
				Trichloroethene (Mutagenic)	1.8E-01	mg/m^3	4.5E-03	(mg/m^3)	1.0E-06	(ug/m^3)$^{-1}$	4.5E-06	7.2E-03	(mg/m^3)	NA	(mg/m^3)	--
				Trichloroethene (Nonmutagenic	1.8E-01	mg/m^3	2.5E-03	(mg/m^3)	3.1E-06	(ug/m^3)$^{-1}$	7.6E-06	7.2E-03	(mg/m^3)	2.0E-03	(mg/m^3)	3.6
				Vinyl Chloride	1.1E-03	mg/m^3	1.5E-05	(mg/m^3)	4.4E-06	(ug/m^3)$^{-1}$	6.8E-08	4.5E-05	(mg/m^3)	1.0E-01	(mg/m^3)	0.0004
			Exp. Route Total								1.4E-05					3.6
		Exposure Point Total									1.4E-05					3.6
	Exposure Medium Total										1.4E-05					3.6
Medium Total											8.8E-05					12
Air	Air	SWMU 11	Inhalation	Benzene	6.4E-06	mg/m^3	2.1E-06	(mg/m^3)	7.8E-06	(ug/m^3)$^{-1}$	1.6E-08	6.1E-06	(mg/m^3)	3.0E-02	(mg/m^3)	0.0002
				Chloroform	2.3E-06	mg/m^3	7.6E-07	(mg/m^3)	2.3E-05	(ug/m^3)$^{-1}$	1.7E-08	2.2E-06	(mg/m^3)	9.8E-02	(mg/m^3)	0.00002
				cis-1,2-Dichloroethene	4.6E-05	mg/m^3	1.5E-05	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	4.4E-05	(mg/m^3)	NA	(mg/m^3)	--
				Tetrachloroethene	9.2E-05	mg/m^3	3.0E-05	(mg/m^3)	2.6E-07	(ug/m^3)$^{-1}$	7.9E-09	8.8E-05	(mg/m^3)	4.0E-02	(mg/m^3)	0.002
				Trichloroethene (Mutagenic)	3.1E-04	mg/m^3	1.9E-04	(mg/m^3)	1.0E-06	(ug/m^3)$^{-1}$	1.9E-07	3.0E-04	(mg/m^3)	NA	(mg/m^3)	--
				Trichloroethene (Nonmutagenic	3.1E-04	mg/m^3	1.0E-04	(mg/m^3)	3.1E-06	(ug/m^3)$^{-1}$	3.1E-07	3.0E-04	(mg/m^3)	2.0E-03	(mg/m^3)	0.1
				Vinyl Chloride	4.9E-06	mg/m^3	1.6E-06	(mg/m^3)	4.4E-06	(ug/m^3)$^{-1}$	7.1E-09	4.7E-06	(mg/m^3)	1.0E-01	(mg/m^3)	0.00005
			Exp. Route Total								5.5E-07					0.2
		Exposure Point Total									5.5E-07					0.2
	Exposure Medium Total										5.5E-07					0.2
Medium Total											5.5E-07					0.2
										Total of Receptor Risks Across All Media	1.4E-04			Total of Receptor Hazards Across All Media		12

Notes:

1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 7.1.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Receptor Population: Maintenance Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	SWMU 11	Ingestion	2,3,7,8-TCDD Equivalents	0.0000087	mg/kg	2.6E-14	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	3.4E-09	2.0E-13	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.0003
				Benzo(a)anthracene	0.066	mg/kg	2.0E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.5E-10	1.5E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.071	mg/kg	2.1E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.6E-09	1.7E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.09	mg/kg	2.7E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.0E-10	2.1E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0821	mg/kg	2.5E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.8E-09	1.9E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.04	mg/kg	1.2E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	8.8E-11	9.4E-10	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	15200	mg/kg	4.6E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	3.6E-04	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.0004
				Iron	22600	mg/kg	6.8E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	5.3E-04	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.0008
			Exp. Route Total								7.2E-09					0.001
			Dermal	2,3,7,8-TCDD Equivalents	0.0000087	mg/kg	1.0E-15	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	1.4E-10	8.1E-15	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.00001
				Benzo(a)anthracene	0.066	mg/kg	3.4E-11	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.5E-11	2.7E-10	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.071	mg/kg	3.7E-11	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.7E-10	2.9E-10	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.09	mg/kg	4.7E-11	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.4E-11	3.6E-10	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0821	mg/kg	4.3E-11	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.1E-10	3.3E-10	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.04	mg/kg	2.1E-11	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.5E-11	1.6E-10	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	15200	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Iron	22600	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
			Exp. Route Total								7.9E-10					0.00001
		Exposure Point Total									8.0E-09					0.001
	Exposure Medium Total										8.0E-09					0.001
	Air	SWMU 11	Inhalation	2,3,7,8-TCDD Equivalents	6.6E-15	mg/m^3	9.3E-18	(mg/m^3)	3.8E+01	$(ug/m^3)^{-1}$	3.5E-13	7.2E-17	(mg/m^3)	4.0E-08	(mg/m^3)	1.8E-9
				Benzo(a)anthracene	5.0E-11	mg/m^3	7.1E-14	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	7.8E-15	5.5E-13	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	5.4E-11	mg/m^3	7.6E-14	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	8.4E-14	5.9E-13	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	6.8E-11	mg/m^3	9.6E-14	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.1E-14	7.5E-13	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	6.2E-11	mg/m^3	8.8E-14	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	1.1E-13	6.8E-13	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	3.0E-11	mg/m^3	4.3E-14	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	4.7E-15	3.3E-13	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	1.2E-05	mg/m^3	1.6E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	1.3E-07	(mg/m^3)	5.0E-03	(mg/m^3)	0.00003
				Iron	1.7E-05	mg/m^3	2.4E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	1.9E-07	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								5.7E-13					0.00003
		Exposure Point Total									5.7E-13					0.00003
	Exposure Medium Total										5.7E-13					0.00003
Medium Total											8.0E-09					0.001
Surface Soil	Surface Soil	IA 6	Ingestion	Benzo(a)anthracene	0.107	mg/kg	3.2E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.4E-10	2.5E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.13	mg/kg	3.9E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.9E-09	3.1E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.17	mg/kg	5.1E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.7E-10	4.0E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0308	mg/kg	9.3E-11	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	6.8E-10	7.2E-10	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.0794	mg/kg	2.4E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.8E-10	1.9E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	14400	mg/kg	4.3E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	3.4E-04	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.0003
				Iron	30100	mg/kg	9.1E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	7.1E-04	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.001
			Exp. Route Total								4.3E-09					0.001
			Dermal	Benzo(a)anthracene	0.107	mg/kg	5.5E-11	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	4.0E-11	4.3E-10	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.13	mg/kg	6.7E-11	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	4.9E-10	5.2E-10	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.17	mg/kg	8.8E-11	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	6.4E-11	6.9E-10	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0308	mg/kg	1.6E-11	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.2E-10	1.2E-10	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.0794	mg/kg	4.1E-11	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.0E-11	3.2E-10	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	14400	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Iron	30100	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
			Exp. Route Total								7.4E-10					--
		Exposure Point Total									5.1E-09					0.001
	Exposure Medium Total										5.1E-09					0.001

TABLE 7.1.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Receptor Population: Maintenance Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Air	IA 6	Inhalation	Benzo(a)anthracene	8.1E-11	mg/m^3	1.1E-13	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.3E-14	8.9E-13	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	9.9E-11	mg/m^3	1.4E-13	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	1.5E-13	1.1E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.3E-10	mg/m^3	1.8E-13	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	2.0E-14	1.4E-12	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	2.3E-11	mg/m^3	3.3E-14	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	4.0E-14	2.6E-13	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	6.0E-11	mg/m^3	8.5E-14	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	9.4E-15	6.6E-13	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	1.1E-05	mg/m^3	1.5E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	1.2E-07	(mg/m^3)	5.0E-03	(mg/m^3)	0.00002
				Iron	2.3E-05	mg/m^3	3.2E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	2.5E-07	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								2.3E-13					0.00002
		Exposure Point Total									2.3E-13					0.00002
	Exposure Medium Total										2.3E-13					0.00002
Medium Total											5.1E-09					0.001
Subsurface Soil	Subsurface Soil	SWMU 11	Ingestion	Tetrachloroethene	2.87	mg/kg	8.7E-09	(mg/kg/day)	2.1E-03	(mg/kg/day)$^{-1}$	1.8E-11	6.7E-08	(mg/kg/day)	6.0E-03	(mg/kg/day)	0.00001
				Trichloroethene (Mutagenic)	0.238	mg/kg	7.2E-10	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	6.7E-12	5.6E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	0.238	mg/kg	7.2E-10	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	2.6E-11	5.6E-09	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.00001
				Vinyl Chloride	0.154	mg/kg	4.6E-10	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	3.3E-10	3.6E-09	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.000001
				Arsenic	20.4	mg/kg	3.7E-08	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	5.5E-08	2.9E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.0010
				Chromium	74.9	mg/kg	2.3E-07	(mg/kg/day)	5.0E-01	(mg/kg/day)$^{-1}$	1.1E-07	1.8E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.0006
				Iron	75600	mg/kg	2.3E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	1.8E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.003
				Vanadium	86.2	mg/kg	2.6E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	2.0E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.0004
			Exp. Route Total								1.7E-07					0.005
			Dermal	Tetrachloroethene	2.87	mg/kg	0.0E+00	(mg/kg/day)	2.1E-03	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	6.0E-03	(mg/kg/day)	--
				Trichloroethene (Mutagenic)	0.238	mg/kg	0.0E+00	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	0.238	mg/kg	0.0E+00	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	5.0E-04	(mg/kg/day)	--
				Vinyl Chloride	0.154	mg/kg	0.0E+00	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	3.0E-03	(mg/kg/day)	--
				Arsenic	20.4	mg/kg	2.4E-09	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	3.7E-09	1.9E-08	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.00006
				Chromium	74.9	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Iron	75600	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Vanadium	86.2	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								3.7E-09					0.00006
		Exposure Point Total									1.7E-07					0.005
	Exposure Medium Total										1.7E-07					0.005
	Air	SWMU 11	Inhalation	Tetrachloroethene	1.1E-03	mg/m^3	1.6E-06	(mg/m^3)	2.6E-07	(ug/m^3)$^{-1}$	4.1E-10	1.2E-05	(mg/m^3)	4.0E-02	(mg/m^3)	0.0003
				Trichloroethene (Mutagenic)	9.9E-05	mg/m^3	1.4E-07	(mg/m^3)	1.0E-06	(ug/m^3)$^{-1}$	1.4E-10	1.1E-06	(mg/m^3)	NA	(mg/m^3)	--
				Trichloroethene (Nonmutagenic	9.9E-05	mg/m^3	1.4E-07	(mg/m^3)	3.1E-06	(ug/m^3)$^{-1}$	4.3E-10	1.1E-06	(mg/m^3)	2.0E-03	(mg/m^3)	0.0005
				Vinyl Chloride	1.5E-04	mg/m^3	2.1E-07	(mg/m^3)	4.4E-06	(ug/m^3)$^{-1}$	9.2E-10	1.6E-06	(mg/m^3)	1.0E-01	(mg/m^3)	0.00002
				Arsenic	1.6E-08	mg/m^3	2.2E-11	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	9.4E-11	1.7E-10	(mg/m^3)	1.5E-05	(mg/m^3)	0.00001
				Chromium	5.7E-08	mg/m^3	8.0E-11	(mg/m^3)	8.4E-02	(ug/m^3)$^{-1}$	6.7E-09	6.2E-10	(mg/m^3)	1.0E-04	(mg/m^3)	0.000006
				Iron	5.7E-05	mg/m^3	8.1E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	6.3E-07	(mg/m^3)	NA	(mg/m^3)	--
				Vanadium	6.6E-08	mg/m^3	9.2E-11	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	7.2E-10	(mg/m^3)	1.0E-04	(mg/m^3)	0.000007
			Exp. Route Total								8.7E-09					0.0009
		Exposure Point Total									8.7E-09					0.0009
	Exposure Medium Total										8.7E-09					0.0009
Medium Total											1.8E-07					0.005
										Total of Receptor Risks Across All Media	1.9E-07				Total of Receptor Hazards Across All Media	0.008

Notes:

1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 7.2.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	SWMU 11	Ingestion	2,3,7,8-TCDD Equivalents	0.0000087	mg/kg	6.0E-14	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	7.8E-09	4.2E-12	(mg/kg/day)	2.0E-08	(mg/kg/day)	0.0002
				Benzo(a)anthracene	0.066	mg/kg	4.6E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.3E-10	3.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.071	mg/kg	4.9E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.6E-09	3.4E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.09	mg/kg	6.2E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	4.5E-10	4.4E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0821	mg/kg	5.7E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	4.1E-09	4.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.04	mg/kg	2.8E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.0E-10	1.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	15200	mg/kg	1.1E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	7.4E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.007
				Iron	22600	mg/kg	1.6E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	1.1E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.02
			Exp. Route Total								1.7E-08					0.02
			Dermal	2,3,7,8-TCDD Equivalents	0.0000087	mg/kg	3.6E-15	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	4.7E-10	2.5E-13	(mg/kg/day)	2.0E-08	(mg/kg/day)	0.00001
				Benzo(a)anthracene	0.066	mg/kg	1.2E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	8.7E-11	8.3E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.071	mg/kg	1.3E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	9.3E-10	8.9E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.09	mg/kg	1.6E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.2E-10	1.1E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0821	mg/kg	1.5E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.1E-09	1.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.04	mg/kg	7.2E-11	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	5.3E-11	5.0E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	15200	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Iron	22600	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
			Exp. Route Total								2.7E-09					0.00001
		Exposure Point Total									1.9E-08					0.02
	Exposure Medium Total										1.9E-08					0.02
	Air	SWMU 11	Inhalation	2,3,7,8-TCDD Equivalents	6.5E-12	mg/m^3	6.4E-15	(mg/m^3)	3.8E+01	$(ug/m^3)^{-1}$	2.4E-10	4.4E-13	(mg/m^3)	4.0E-08	(mg/m^3)	0.00001
				Benzo(a)anthracene	4.9E-08	mg/m^3	4.8E-11	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	5.3E-12	3.4E-09	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	5.3E-08	mg/m^3	5.2E-11	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	5.7E-11	3.6E-09	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	6.7E-08	mg/m^3	6.6E-11	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	7.2E-12	4.6E-09	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	6.1E-08	mg/m^3	6.0E-11	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	7.2E-11	4.2E-09	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	3.0E-08	mg/m^3	2.9E-11	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	3.2E-12	2.0E-09	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	1.1E-02	mg/m^3	1.1E-05	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	7.8E-04	(mg/m^3)	5.0E-03	(mg/m^3)	0.2
				Iron	1.7E-02	mg/m^3	1.7E-05	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	1.2E-03	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								3.9E-10					0.2
		Exposure Point Total									3.9E-10					0.2
	Exposure Medium Total										3.9E-10					0.2
Medium Total											2.0E-08					0.2
Surface Soil	Surface Soil	IA 6	Ingestion	Benzo(a)anthracene	0.107	mg/kg	7.4E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	5.4E-10	5.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.13	mg/kg	9.0E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	6.6E-09	6.3E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.17	mg/kg	1.2E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	8.6E-10	8.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0308	mg/kg	2.1E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.6E-09	1.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.0794	mg/kg	5.5E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	4.0E-10	3.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	14400	mg/kg	1.0E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	7.0E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.007
				Iron	30100	mg/kg	2.1E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	1.5E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.02
			Exp. Route Total								9.9E-09					0.03
			Dermal	Benzo(a)anthracene	0.107	mg/kg	1.9E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.4E-10	1.3E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.13	mg/kg	2.3E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.7E-09	1.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.17	mg/kg	3.1E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.2E-10	2.1E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0308	mg/kg	5.5E-11	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	4.0E-10	3.9E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.0794	mg/kg	1.4E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.0E-10	1.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	14400	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Iron	30100	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
			Exp. Route Total								2.6E-09					--
		Exposure Point Total									1.3E-08					0.03
	Exposure Medium Total										1.3E-08					0.03

TABLE 7.2.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Air	IA 6	Inhalation	Benzo(a)anthracene	8.0E-08	mg/m^3	7.8E-11	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	8.6E-12	5.5E-09	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	9.7E-08	mg/m^3	9.5E-11	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	1.0E-10	6.6E-09	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.3E-07	mg/m^3	1.2E-10	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.4E-11	8.7E-09	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	2.3E-08	mg/m^3	2.2E-11	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	2.7E-11	1.6E-09	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	5.9E-08	mg/m^3	5.8E-11	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	6.4E-12	4.1E-09	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	1.1E-02	mg/m^3	1.1E-05	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	7.4E-04	(mg/m^3)	5.0E-03	(mg/m^3)	0.1
				Iron	2.2E-02	mg/m^3	2.2E-05	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	1.5E-03	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								1.6E-10					0.1
		Exposure Point Total									1.6E-10					0.1
	Exposure Medium Total										1.6E-10					0.1
Medium Total											1.3E-08					0.2
Subsurface Soil	Subsurface Soil	SWMU 11	Ingestion	Tetrachloroethene	2.87	mg/kg	2.0E-08	(mg/kg/day)	2.1E-03	(mg/kg/day)$^{-1}$	4.2E-11	1.4E-06	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.00001
				Trichloroethene (Mutagenic)	0.238	mg/kg	1.6E-09	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	1.5E-11	1.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	0.238	mg/kg	1.6E-09	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	6.0E-11	1.2E-07	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.0002
				Vinyl Chloride	0.154	mg/kg	1.1E-09	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	7.7E-10	7.5E-08	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.0002
				Arsenic	20.4	mg/kg	8.5E-08	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.3E-07	5.9E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.02
				Chromium	74.9	mg/kg	5.2E-07	(mg/kg/day)	5.0E-01	(mg/kg/day)$^{-1}$	2.6E-07	3.6E-05	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.007
				Iron	75600	mg/kg	5.2E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	3.7E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.05
				Vanadium	86.2	mg/kg	6.0E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	4.2E-05	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.004
			Exp. Route Total								3.9E-07					0.08
			Dermal	Tetrachloroethene	2.87	mg/kg	0.0E+00	(mg/kg/day)	2.1E-03	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	1.0E-01	(mg/kg/day)	--
				Trichloroethene (Mutagenic)	0.238	mg/kg	0.0E+00	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	0.238	mg/kg	0.0E+00	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	5.0E-04	(mg/kg/day)	--
				Vinyl Chloride	0.154	mg/kg	0.0E+00	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	3.0E-04	(mg/kg/day)	--
				Arsenic	20.4	mg/kg	8.5E-09	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.3E-08	5.9E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.002
				Chromium	74.9	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
				Iron	75600	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Vanadium	86.2	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	2.6E-04	(mg/kg/day)	--
			Exp. Route Total								1.3E-08					0.002
		Exposure Point Total									4.0E-07					0.09
	Exposure Medium Total										4.0E-07					0.09
	Air	SWMU 11	Inhalation	Tetrachloroethene	5.5E-03	mg/m^3	5.4E-06	(mg/m^3)	2.6E-07	(ug/m^3)$^{-1}$	1.4E-09	3.8E-04	(mg/m^3)	4.0E-02	(mg/m^3)	0.009
				Trichloroethene (Mutagenic)	4.8E-04	mg/m^3	4.7E-07	(mg/m^3)	1.0E-06	(ug/m^3)$^{-1}$	4.7E-10	3.3E-05	(mg/m^3)	NA	(mg/m^3)	--
				Trichloroethene (Nonmutagenic	4.8E-04	mg/m^3	4.7E-07	(mg/m^3)	3.1E-06	(ug/m^3)$^{-1}$	1.5E-09	3.3E-05	(mg/m^3)	2.0E-03	(mg/m^3)	0.02
				Vinyl Chloride	7.2E-04	mg/m^3	7.1E-07	(mg/m^3)	4.4E-06	(ug/m^3)$^{-1}$	3.1E-09	5.0E-05	(mg/m^3)	7.7E-02	(mg/m^3)	0.0006
				Arsenic	1.5E-05	mg/m^3	1.5E-08	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	6.4E-08	1.0E-06	(mg/m^3)	1.5E-05	(mg/m^3)	0.07
				Chromium	5.6E-05	mg/m^3	5.5E-08	(mg/m^3)	8.4E-02	(ug/m^3)$^{-1}$	4.6E-06	3.8E-06	(mg/m^3)	3.0E-04	(mg/m^3)	0.01
				Iron	5.6E-02	mg/m^3	5.5E-05	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	3.9E-03	(mg/m^3)	NA	(mg/m^3)	--
				Vanadium	6.4E-05	mg/m^3	6.3E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	4.4E-06	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								4.7E-06					0.1
		Exposure Point Total									4.7E-06					0.1
	Exposure Medium Total										4.7E-06					0.1
Medium Total											5.1E-06					0.2

TABLE 7.2.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	SWMU 11	Dermal	Benzene	3.23	ug/L	1.7E-08	(mg/kg/day)	5.5E-02	$(mg/kg/day)^{-1}$	9.2E-10	1.2E-06	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.0001
				Chloroform	1.29	ug/L	3.6E-09	(mg/kg/day)	3.1E-02	$(mg/kg/day)^{-1}$	1.1E-10	2.5E-07	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.000003
				cis-1,2-Dichloroethene	27.6	ug/L	1.1E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	7.8E-06	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.0004
				Tetrachloroethene	25.5	ug/L	4.4E-07	(mg/kg/day)	2.1E-03	$(mg/kg/day)^{-1}$	9.2E-10	3.1E-05	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.0003
				Trichloroethene (Mutagenic)	115	ug/L	5.8E-07	(mg/kg/day)	9.3E-03	$(mg/kg/day)^{-1}$	5.4E-09	4.1E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	115	ug/L	5.8E-07	(mg/kg/day)	3.7E-02	$(mg/kg/day)^{-1}$	2.1E-08	4.1E-05	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.08
				Vinyl Chloride	0.503	ug/L	9.6E-10	(mg/kg/day)	7.2E-01	$(mg/kg/day)^{-1}$	6.9E-10	6.7E-08	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.0002
			Exp. Route Total								2.9E-08					0.08
		Exposure Point Total									2.9E-08					0.08
	Exposure Medium Total										2.9E-08					0.08
	Air	SWMU 11	Inhalation	Benzene	1.3E-04	mg/m^3	3.3E-08	(mg/m^3)	7.8E-06	$(ug/m^3)^{-1}$	2.6E-10	2.3E-06	(mg/m^3)	8.0E-02	(mg/m^3)	0.00003
				Chloroform	4.3E-05	mg/m^3	1.1E-08	(mg/m^3)	2.3E-05	$(ug/m^3)^{-1}$	2.4E-10	7.4E-07	(mg/m^3)	2.4E-01	(mg/m^3)	0.000003
				cis-1,2-Dichloroethene	1.0E-03	mg/m^3	2.5E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	1.8E-05	(mg/m^3)	NA	(mg/m^3)	--
				Tetrachloroethene	7.3E-04	mg/m^3	1.8E-07	(mg/m^3)	2.6E-07	$(ug/m^3)^{-1}$	4.7E-11	1.3E-05	(mg/m^3)	4.0E-02	(mg/m^3)	0.0003
				Trichloroethene (Mutagenic)	3.7E-03	mg/m^3	9.1E-07	(mg/m^3)	1.0E-06	$(ug/m^3)^{-1}$	9.1E-10	6.3E-05	(mg/m^3)	NA	(mg/m^3)	--
				Trichloroethene (Nonmutagenic	3.7E-03	mg/m^3	9.1E-07	(mg/m^3)	3.1E-06	$(ug/m^3)^{-1}$	2.8E-09	6.3E-05	(mg/m^3)	2.0E-03	(mg/m^3)	0.03
				Vinyl Chloride	2.4E-05	mg/m^3	5.8E-09	(mg/m^3)	4.4E-06	$(ug/m^3)^{-1}$	2.5E-11	4.0E-07	(mg/m^3)	7.7E-02	(mg/m^3)	0.000005
			Exp. Route Total								4.3E-09					0.03
		Exposure Point Total									4.3E-09					0.03
	Exposure Medium Total										4.3E-09					0.03
Medium Total											3.4E-08					0.1
										Total of Receptor Risks Across All Media	5.1E-06				Total of Receptor Hazards Across All Media	0.7

Notes:

1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 7.3.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	SWMU 11	Ingestion	2,3,7,8-TCDD Equivalents	0.0000087	mg/kg	4.8E-13	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	6.2E-08	3.7E-12	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.005
				Benzo(a)anthracene	0.066	mg/kg	3.6E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.7E-09	2.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.071	mg/kg	3.9E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.9E-08	3.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.09	mg/kg	5.0E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.6E-09	3.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0821	mg/kg	4.5E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.3E-08	3.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.04	mg/kg	2.2E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.6E-09	1.7E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	15200	mg/kg	8.4E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	6.5E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.007
				Iron	22600	mg/kg	1.2E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	9.7E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.01
			Exp. Route Total								1.3E-07					0.03
			Dermal	2,3,7,8-TCDD Equivalents	0.0000087	mg/kg	1.9E-14	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	2.5E-09	1.5E-13	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.0002
				Benzo(a)anthracene	0.066	mg/kg	6.2E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	4.6E-10	4.9E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.071	mg/kg	6.7E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	4.9E-09	5.2E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.09	mg/kg	8.5E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	6.2E-10	6.6E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0821	mg/kg	7.8E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	5.7E-09	6.0E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.04	mg/kg	3.8E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.8E-10	2.9E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	15200	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Iron	22600	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
			Exp. Route Total								1.4E-08					0.0002
		Exposure Point Total									1.5E-07					0.03
	Exposure Medium Total										1.5E-07					0.03
	Air	SWMU 11	Inhalation	2,3,7,8-TCDD Equivalents	6.6E-15	mg/m^3	1.7E-16	(mg/m^3)	3.8E+01	$(ug/m^3)^{-1}$	6.5E-12	1.3E-15	(mg/m^3)	4.0E-08	(mg/m^3)	3.3E-8
				Benzo(a)anthracene	5.0E-11	mg/m^3	1.3E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.4E-13	1.0E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	5.4E-11	mg/m^3	1.4E-12	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	1.5E-12	1.1E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	6.8E-11	mg/m^3	1.8E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.9E-13	1.4E-11	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	6.2E-11	mg/m^3	1.6E-12	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	1.9E-12	1.2E-11	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	3.0E-11	mg/m^3	7.8E-13	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	8.6E-14	6.1E-12	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	1.2E-05	mg/m^3	3.0E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	2.3E-06	(mg/m^3)	5.0E-03	(mg/m^3)	0.0005
				Iron	1.7E-05	mg/m^3	4.4E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	3.4E-06	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								1.0E-11					0.0005
		Exposure Point Total									1.0E-11					0.0005
	Exposure Medium Total										1.0E-11					0.0005
Medium Total											1.5E-07					0.03
Surface Soil	Surface Soil	IA 6	Ingestion	Benzo(a)anthracene	0.107	mg/kg	5.9E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	4.3E-09	4.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.13	mg/kg	7.2E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	5.2E-08	5.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.17	mg/kg	9.4E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	6.8E-09	7.3E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0308	mg/kg	1.7E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.2E-08	1.3E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.0794	mg/kg	4.4E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.2E-09	3.4E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	14400	mg/kg	7.9E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	6.2E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.006
				Iron	30100	mg/kg	1.7E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	1.3E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.02
			Exp. Route Total								7.9E-08					0.02
			Dermal	Benzo(a)anthracene	0.107	mg/kg	1.0E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	7.4E-10	7.9E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.13	mg/kg	1.2E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	9.0E-09	9.6E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.17	mg/kg	1.6E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.2E-09	1.3E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0308	mg/kg	2.9E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.1E-09	2.3E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.0794	mg/kg	7.5E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	5.5E-10	5.8E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	14400	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Iron	30100	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
			Exp. Route Total								1.4E-08					--
		Exposure Point Total									9.3E-08					0.02
	Exposure Medium Total										9.3E-08					0.02

TABLE 7.3.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Air	IA 6	Inhalation	Benzo(a)anthracene	8.1E-11	mg/m^3	2.1E-12	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	2.3E-13	1.6E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	9.9E-11	mg/m^3	2.5E-12	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	2.8E-12	2.0E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.3E-10	mg/m^3	3.3E-12	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	3.7E-13	2.6E-11	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	2.3E-11	mg/m^3	6.0E-13	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	7.2E-13	4.7E-12	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	6.0E-11	mg/m^3	1.6E-12	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.7E-13	1.2E-11	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	1.1E-05	mg/m^3	2.8E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	2.2E-06	(mg/m^3)	5.0E-03	(mg/m^3)	0.0004
				Iron	2.3E-05	mg/m^3	5.9E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	4.6E-06	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								4.3E-12					0.0004
		Exposure Point Total									4.3E-12					0.0004
	Exposure Medium Total										4.3E-12					0.0004
Medium Total											9.3E-08					0.03
Subsurface Soil	Subsurface Soil	SWMU 11	Ingestion	Tetrachloroethene	2.87	mg/kg	1.6E-07	(mg/kg/day)	2.1E-03	(mg/kg/day)$^{-1}$	3.3E-10	1.2E-06	(mg/kg/day)	6.0E-03	(mg/kg/day)	0.0002
				Trichloroethene (Mutagenic)	0.238	mg/kg	1.3E-08	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	1.2E-10	1.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	0.238	mg/kg	1.3E-08	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	4.8E-10	1.0E-07	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.0002
				Vinyl Chloride	0.154	mg/kg	8.5E-09	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	6.1E-09	6.6E-08	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.00002
				Arsenic	20.4	mg/kg	6.7E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.0E-06	5.2E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.02
				Chromium	74.9	mg/kg	4.1E-06	(mg/kg/day)	5.0E-01	(mg/kg/day)$^{-1}$	2.1E-06	3.2E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.01
				Iron	75600	mg/kg	4.2E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	3.2E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.05
				Vanadium	86.2	mg/kg	4.7E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	3.7E-05	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.007
			Exp. Route Total								3.1E-06					0.08
			Dermal	Tetrachloroethene	2.87	mg/kg	0.0E+00	(mg/kg/day)	2.1E-03	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	6.0E-03	(mg/kg/day)	--
				Trichloroethene (Mutagenic)	0.238	mg/kg	0.0E+00	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	0.238	mg/kg	0.0E+00	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	5.0E-04	(mg/kg/day)	--
				Vinyl Chloride	0.154	mg/kg	0.0E+00	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	3.0E-03	(mg/kg/day)	--
				Arsenic	20.4	mg/kg	4.5E-08	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	6.7E-08	3.5E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.001
				Chromium	74.9	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Iron	75600	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Vanadium	86.2	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								6.7E-08					0.001
		Exposure Point Total									3.1E-06					0.08
	Exposure Medium Total										3.1E-06					0.08
	Air	SWMU 11	Inhalation	Tetrachloroethene	1.1E-03	mg/m^3	2.9E-05	(mg/m^3)	2.6E-07	(ug/m^3)$^{-1}$	7.5E-09	2.3E-04	(mg/m^3)	4.0E-02	(mg/m^3)	0.006
				Trichloroethene (Mutagenic)	9.9E-05	mg/m^3	2.6E-06	(mg/m^3)	1.0E-06	(ug/m^3)$^{-1}$	2.6E-09	2.0E-05	(mg/m^3)	NA	(mg/m^3)	--
				Trichloroethene (Nonmutagenic	9.9E-05	mg/m^3	2.6E-06	(mg/m^3)	3.1E-06	(ug/m^3)$^{-1}$	7.9E-09	2.0E-05	(mg/m^3)	2.0E-03	(mg/m^3)	0.010
				Vinyl Chloride	1.5E-04	mg/m^3	3.8E-06	(mg/m^3)	4.4E-06	(ug/m^3)$^{-1}$	1.7E-08	3.0E-05	(mg/m^3)	1.0E-01	(mg/m^3)	0.0003
				Arsenic	1.6E-08	mg/m^3	4.0E-10	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	1.7E-09	3.1E-09	(mg/m^3)	1.5E-05	(mg/m^3)	0.0002
				Chromium	5.7E-08	mg/m^3	1.5E-09	(mg/m^3)	8.4E-02	(ug/m^3)$^{-1}$	1.2E-07	1.1E-08	(mg/m^3)	1.0E-04	(mg/m^3)	0.0001
				Iron	5.7E-05	mg/m^3	1.5E-06	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	1.1E-05	(mg/m^3)	NA	(mg/m^3)	--
				Vanadium	6.6E-08	mg/m^3	1.7E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	1.3E-08	(mg/m^3)	1.0E-04	(mg/m^3)	0.0001
			Exp. Route Total								1.6E-07					0.02
		Exposure Point Total									1.6E-07					0.02
	Exposure Medium Total										1.6E-07					0.02
Medium Total											3.3E-06					0.10
										Total of Receptor Risks Across All Media	3.5E-06				Total of Receptor Hazards Across All Media	0.2

Notes:

1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 7.4.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	SWMU 11	Ingestion	2,3,7,8-TCDD Equivalents	0.0000087	mg/kg	5.7E-14	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	7.4E-09	3.6E-13	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.0005
				Benzo(a)anthracene	0.066	mg/kg	1.3E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	9.4E-10	2.7E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.071	mg/kg	1.4E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.0E-08	2.9E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.09	mg/kg	1.8E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.3E-09	3.7E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0821	mg/kg	1.6E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.2E-08	3.4E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.04	mg/kg	7.8E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	5.7E-10	1.7E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	15200	mg/kg	9.9E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	6.3E-04	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.0006
				Iron	22600	mg/kg	1.5E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	9.4E-04	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.001
			Exp. Route Total								3.2E-08					0.002
			Dermal	2,3,7,8-TCDD Equivalents	0.0000087	mg/kg	4.2E-15	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	5.5E-10	2.7E-14	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.00004
				Benzo(a)anthracene	0.066	mg/kg	4.2E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.0E-10	8.8E-10	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.071	mg/kg	4.5E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.3E-09	9.5E-10	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.09	mg/kg	5.7E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	4.1E-10	1.2E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0821	mg/kg	5.2E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.8E-09	1.1E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.04	mg/kg	2.5E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.8E-10	5.3E-10	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	15200	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Iron	22600	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
			Exp. Route Total								8.5E-09					0.00004
		Exposure Point Total									4.0E-08					0.003
	Exposure Medium Total										4.0E-08					0.003
	Air	SWMU 11	Inhalation	2,3,7,8-TCDD Equivalents	6.6E-15	mg/m^3	3.1E-18	(mg/m^3)	3.8E+01	$(ug/m^3)^{-1}$	1.2E-13	2.0E-17	(mg/m^3)	4.0E-08	(mg/m^3)	4.9E-10
				Benzo(a)anthracene	5.0E-11	mg/m^3	7.0E-14	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	7.7E-15	1.5E-13	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	5.4E-11	mg/m^3	7.5E-14	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	8.3E-14	1.6E-13	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	6.8E-11	mg/m^3	9.6E-14	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.1E-14	2.0E-13	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	6.2E-11	mg/m^3	8.7E-14	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	1.0E-13	1.9E-13	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	3.0E-11	mg/m^3	4.3E-14	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	4.7E-15	9.0E-14	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	1.2E-05	mg/m^3	5.4E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	3.4E-08	(mg/m^3)	5.0E-03	(mg/m^3)	0.000007
				Iron	1.7E-05	mg/m^3	8.0E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	5.1E-08	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								3.3E-13					0.000007
		Exposure Point Total									3.3E-13					0.000007
	Exposure Medium Total										3.3E-13					0.000007
Medium Total											4.0E-08					0.003
Surface Soil	Surface Soil	IA 6	Ingestion	Benzo(a)anthracene	0.107	mg/kg	2.1E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.5E-09	4.4E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.13	mg/kg	2.5E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.9E-08	5.4E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.17	mg/kg	3.3E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.4E-09	7.0E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0308	mg/kg	6.0E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	4.4E-09	1.3E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.0794	mg/kg	1.6E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.1E-09	3.3E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	14400	mg/kg	9.4E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	6.0E-04	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.0006
				Iron	30100	mg/kg	2.0E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	1.2E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.002
			Exp. Route Total								2.8E-08					0.002
			Dermal	Benzo(a)anthracene	0.107	mg/kg	6.7E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	4.9E-10	1.4E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.13	mg/kg	8.2E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	6.0E-09	1.7E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.17	mg/kg	1.1E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	7.8E-10	2.3E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0308	mg/kg	1.9E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.4E-09	4.1E-10	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.0794	mg/kg	5.0E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.6E-10	1.1E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	14400	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Iron	30100	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
			Exp. Route Total								9.0E-09					--
		Exposure Point Total									3.7E-08					0.002
	Exposure Medium Total										3.7E-08					0.002

TABLE 7.4.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Air	IA 6	Inhalation	Benzo(a)anthracene	8.1E-11	mg/m^3	1.1E-13	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.3E-14	2.4E-13	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	9.9E-11	mg/m^3	1.4E-13	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	1.5E-13	2.9E-13	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.3E-10	mg/m^3	1.8E-13	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	2.0E-14	3.8E-13	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	2.3E-11	mg/m^3	3.3E-14	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	3.9E-14	6.9E-14	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	6.0E-11	mg/m^3	8.4E-14	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	9.3E-15	1.8E-13	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	1.1E-05	mg/m^3	5.1E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	3.2E-08	(mg/m^3)	5.0E-03	(mg/m^3)	0.000006
				Iron	2.3E-05	mg/m^3	1.1E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	6.8E-08	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								2.3E-13					0.000006
		Exposure Point Total									2.3E-13					0.000006
	Exposure Medium Total										2.3E-13					0.000006
Medium Total											3.7E-08					0.002
Subsurface Soil	Subsurface Soil	SWMU 11	Ingestion	Tetrachloroethene	2.87	mg/kg	1.9E-08	(mg/kg/day)	2.1E-03	(mg/kg/day)$^{-1}$	3.9E-11	1.2E-07	(mg/kg/day)	6.0E-03	(mg/kg/day)	0.00002
				Trichloroethene (Mutagenic)	0.238	mg/kg	4.6E-09	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	4.3E-11	9.9E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	0.238	mg/kg	1.5E-09	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	5.7E-11	9.9E-09	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.00002
				Vinyl Chloride	0.154	mg/kg	1.0E-09	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	7.2E-10	6.4E-09	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.000002
				Arsenic	20.4	mg/kg	8.0E-08	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.2E-07	5.1E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.002
				Chromium	74.9	mg/kg	1.5E-06	(mg/kg/day)	5.0E-01	(mg/kg/day)$^{-1}$	7.3E-07	3.1E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.001
				Iron	75600	mg/kg	4.9E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	3.1E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.004
				Vanadium	86.2	mg/kg	5.6E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	3.6E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.0007
			Exp. Route Total								8.5E-07					0.008
			Dermal	Tetrachloroethene	2.87	mg/kg	0.0E+00	(mg/kg/day)	2.1E-03	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	6.0E-03	(mg/kg/day)	--
				Trichloroethene (Mutagenic)	0.238	mg/kg	0.0E+00	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	0.238	mg/kg	0.0E+00	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	5.0E-04	(mg/kg/day)	--
				Vinyl Chloride	0.154	mg/kg	0.0E+00	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	3.0E-03	(mg/kg/day)	--
				Arsenic	20.4	mg/kg	9.9E-09	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.5E-08	6.3E-08	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.0002
				Chromium	74.9	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Iron	75600	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Vanadium	86.2	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								1.5E-08					0.0002
		Exposure Point Total									8.7E-07					0.008
	Exposure Medium Total										8.7E-07					0.008
	Air	SWMU 11	Inhalation	Tetrachloroethene	1.1E-03	mg/m^3	5.3E-07	(mg/m^3)	2.6E-07	(ug/m^3)$^{-1}$	1.4E-10	3.3E-06	(mg/m^3)	4.0E-02	(mg/m^3)	0.00008
				Trichloroethene (Mutagenic)	9.9E-05	mg/m^3	1.4E-07	(mg/m^3)	1.0E-06	(ug/m^3)$^{-1}$	1.4E-10	3.0E-07	(mg/m^3)	NA	(mg/m^3)	--
				Trichloroethene (Nonmutagenic	9.9E-05	mg/m^3	4.6E-08	(mg/m^3)	3.1E-06	(ug/m^3)$^{-1}$	1.4E-10	3.0E-07	(mg/m^3)	2.0E-03	(mg/m^3)	0.0001
				Vinyl Chloride	1.5E-04	mg/m^3	6.9E-08	(mg/m^3)	4.4E-06	(ug/m^3)$^{-1}$	3.1E-10	4.4E-07	(mg/m^3)	1.0E-01	(mg/m^3)	0.000004
				Arsenic	1.6E-08	mg/m^3	7.2E-12	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	3.1E-11	4.6E-11	(mg/m^3)	1.5E-05	(mg/m^3)	0.000003
				Chromium	5.7E-08	mg/m^3	8.0E-11	(mg/m^3)	8.4E-02	(ug/m^3)$^{-1}$	6.7E-09	1.7E-10	(mg/m^3)	1.0E-04	(mg/m^3)	0.000002
				Iron	5.7E-05	mg/m^3	2.7E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	1.7E-07	(mg/m^3)	NA	(mg/m^3)	--
				Vanadium	6.6E-08	mg/m^3	3.1E-11	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	1.9E-10	(mg/m^3)	1.0E-04	(mg/m^3)	0.000002
			Exp. Route Total								7.4E-09					0.0002
		Exposure Point Total									7.4E-09					0.0002
	Exposure Medium Total										7.4E-09					0.0002
Medium Total											8.7E-07					0.008

TABLE 7.4.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Sediment	Sediment	SWMU 11	Ingestion	2,3,7,8-TCDD Equivalents	9.05E-06	mg/kg	5.9E-14	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	7.7E-09	3.7E-13	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.0005
				Benzo(a)pyrene	0.122	mg/kg	2.4E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.7E-08	5.1E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.147	mg/kg	2.9E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.1E-09	6.1E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.018	mg/kg	3.5E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.6E-09	7.5E-10	(mg/kg/day)	NA	(mg/kg/day)	--
				Arsenic	20.8	mg/kg	8.1E-08	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	1.2E-07	5.2E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.002
				Chromium	92.6	mg/kg	1.8E-06	(mg/kg/day)	5.0E-01	$(mg/kg/day)^{-1}$	9.0E-07	3.8E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.001
				Iron	29600	mg/kg	1.9E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	1.2E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.002
				Thallium	0.61	mg/kg	4.0E-09	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	2.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Vanadium	35.9	mg/kg	2.3E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	1.5E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.0003
			Exp. Route Total								1.1E-06					0.006
			Dermal	2,3,7,8-TCDD Equivalents	9.05E-06	mg/kg	4.4E-15	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	5.7E-10	2.8E-14	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.00004
				Benzo(a)pyrene	0.122	mg/kg	7.7E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	5.6E-09	1.6E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.147	mg/kg	9.3E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	6.8E-10	2.0E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.018	mg/kg	1.1E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	8.3E-10	2.4E-10	(mg/kg/day)	NA	(mg/kg/day)	--
				Arsenic	20.8	mg/kg	1.0E-08	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	1.5E-08	6.4E-08	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.0002
				Chromium	92.6	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Iron	29600	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Thallium	0.61	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Vanadium	35.9	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								2.3E-08					0.0003
		Exposure Point Total									1.1E-06					0.006
	Exposure Medium Total										1.1E-06					0.006
Medium Total											1.1E-06					0.006
										Total of Receptor Risks Across All Media	2.0E-06				Total of Receptor Hazards Across All Media	0.02

Notes:

1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 7.5.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	SWMU 11	Ingestion	2,3,7,8-TCDD Equivalents	0.0000087	mg/kg	5.9E-14	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	7.7E-09	2.1E-12	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.003
				Benzo(a)anthracene	0.066	mg/kg	2.9E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.1E-09	1.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.071	mg/kg	3.1E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.3E-08	1.7E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.09	mg/kg	4.0E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.9E-09	2.1E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0821	mg/kg	3.6E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.6E-08	1.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.04	mg/kg	1.8E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.3E-09	9.5E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	15200	mg/kg	1.0E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	3.6E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.004
				Iron	22600	mg/kg	1.5E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	5.4E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.008
			Exp. Route Total								6.3E-08					0.01
			Dermal	2,3,7,8-TCDD Equivalents	0.0000087	mg/kg	4.7E-15	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	6.1E-10	1.6E-13	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.0002
				Benzo(a)anthracene	0.066	mg/kg	1.0E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	7.3E-10	5.4E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.071	mg/kg	1.1E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	7.8E-09	5.8E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.09	mg/kg	1.4E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	9.9E-10	7.3E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0821	mg/kg	1.2E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	9.1E-09	6.7E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.04	mg/kg	6.1E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	4.4E-10	3.3E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	15200	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Iron	22600	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
			Exp. Route Total								2.0E-08					0.0002
		Exposure Point Total									8.3E-08					0.01
	Exposure Medium Total										8.3E-08					0.01
	Air	SWMU 11	Inhalation	2,3,7,8-TCDD Equivalents	6.6E-15	mg/m^3	1.1E-18	(mg/m^3)	3.8E+01	$(ug/m^3)^{-1}$	4.3E-14	3.9E-17	(mg/m^3)	4.0E-08	(mg/m^3)	9.8E-10
				Benzo(a)anthracene	5.0E-11	mg/m^3	5.5E-14	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	6.1E-15	3.0E-13	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	5.4E-11	mg/m^3	5.9E-14	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	6.5E-14	3.2E-13	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	6.8E-11	mg/m^3	7.5E-14	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	8.3E-15	4.1E-13	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	6.2E-11	mg/m^3	6.9E-14	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	8.3E-14	3.7E-13	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	3.0E-11	mg/m^3	3.4E-14	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	3.7E-15	1.8E-13	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	1.2E-05	mg/m^3	2.0E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	6.9E-08	(mg/m^3)	5.0E-03	(mg/m^3)	0.00001
				Iron	1.7E-05	mg/m^3	2.9E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	1.0E-07	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								2.1E-13					0.00001
		Exposure Point Total									2.1E-13					0.00001
	Exposure Medium Total										2.1E-13					0.00001
Medium Total											8.3E-08					0.01
Surface Soil	Surface Soil	IA 6	Ingestion	Benzo(a)anthracene	0.107	mg/kg	4.7E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.4E-09	2.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.13	mg/kg	5.7E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	4.2E-08	3.1E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.17	mg/kg	7.5E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	5.5E-09	4.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0308	mg/kg	1.4E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	9.9E-09	7.3E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.0794	mg/kg	3.5E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.6E-09	1.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	14400	mg/kg	9.8E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	3.4E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.003
				Iron	30100	mg/kg	2.0E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	7.1E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.01
			Exp. Route Total								6.3E-08					0.01
			Dermal	Benzo(a)anthracene	0.107	mg/kg	1.6E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.2E-09	8.7E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.13	mg/kg	2.0E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.4E-08	1.1E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.17	mg/kg	2.6E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.9E-09	1.4E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0308	mg/kg	4.7E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.4E-09	2.5E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.0794	mg/kg	1.2E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	8.8E-10	6.5E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	14400	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Iron	30100	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
			Exp. Route Total								2.2E-08					--
		Exposure Point Total									8.5E-08					0.01
	Exposure Medium Total										8.5E-08					0.01

TABLE 7.5.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Air	IA 6	Inhalation	Benzo(a)anthracene	8.1E-11	mg/m^3	9.0E-14	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	9.9E-15	4.8E-13	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	9.9E-11	mg/m^3	1.1E-13	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	1.2E-13	5.9E-13	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.3E-10	mg/m^3	1.4E-13	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.6E-14	7.7E-13	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	2.3E-11	mg/m^3	2.6E-14	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	3.1E-14	1.4E-13	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	6.0E-11	mg/m^3	6.7E-14	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	7.3E-15	3.6E-13	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	1.1E-05	mg/m^3	1.9E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	6.5E-08	(mg/m^3)	5.0E-03	(mg/m^3)	0.00001
				Iron	2.3E-05	mg/m^3	3.9E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	1.4E-07	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								1.8E-13					0.00001
		Exposure Point Total									1.8E-13					0.00001
	Exposure Medium Total										1.8E-13					0.00001
Medium Total											8.5E-08					0.01
Subsurface Soil	Subsurface Soil	SWMU 11	Ingestion	Tetrachloroethene	2.87	mg/kg	1.9E-08	(mg/kg/day)	2.1E-03	(mg/kg/day)$^{-1}$	4.1E-11	6.8E-07	(mg/kg/day)	6.0E-03	(mg/kg/day)	0.0001
				Trichloroethene (Mutagenic)	0.238	mg/kg	1.0E-08	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	9.8E-11	5.7E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	0.238	mg/kg	1.6E-09	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	5.9E-11	5.7E-08	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.0001
				Vinyl Chloride	0.154	mg/kg	5.1E-07	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	3.7E-07	3.7E-08	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.00001
				Arsenic	20.4	mg/kg	8.3E-08	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.2E-07	2.9E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.010
				Chromium	74.9	mg/kg	3.3E-06	(mg/kg/day)	5.0E-01	(mg/kg/day)$^{-1}$	1.7E-06	1.8E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.006
				Iron	75600	mg/kg	5.1E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	1.8E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.03
				Vanadium	86.2	mg/kg	5.8E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	2.0E-05	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.004
			Exp. Route Total								2.1E-06					0.05
			Dermal	Tetrachloroethene	2.87	mg/kg	0.0E+00	(mg/kg/day)	2.1E-03	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	6.0E-03	(mg/kg/day)	--
				Trichloroethene (Mutagenic)	0.238	mg/kg	0.0E+00	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	0.238	mg/kg	0.0E+00	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	5.0E-04	(mg/kg/day)	--
				Vinyl Chloride	0.154	mg/kg	0.0E+00	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	3.0E-03	(mg/kg/day)	--
				Arsenic	20.4	mg/kg	1.1E-08	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.6E-08	3.8E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.001
				Chromium	74.9	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Iron	75600	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Vanadium	86.2	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								1.6E-08					0.001
		Exposure Point Total									2.2E-06					0.05
	Exposure Medium Total										2.2E-06					0.05
	Air	SWMU 11	Inhalation	Tetrachloroethene	1.1E-03	mg/m^3	1.9E-07	(mg/m^3)	2.6E-07	(ug/m^3)$^{-1}$	5.0E-11	6.7E-06	(mg/m^3)	4.0E-02	(mg/m^3)	0.0002
				Trichloroethene (Mutagenic)	9.9E-05	mg/m^3	1.1E-07	(mg/m^3)	1.0E-06	(ug/m^3)$^{-1}$	1.1E-10	5.9E-07	(mg/m^3)	NA	(mg/m^3)	--
				Trichloroethene (Nonmutagenic	9.9E-05	mg/m^3	1.7E-08	(mg/m^3)	3.1E-06	(ug/m^3)$^{-1}$	5.2E-11	5.9E-07	(mg/m^3)	2.0E-03	(mg/m^3)	0.0003
				Vinyl Chloride	1.5E-04	mg/m^3	1.5E-04	(mg/m^3)	4.4E-06	(ug/m^3)$^{-1}$	6.5E-07	8.8E-07	(mg/m^3)	1.0E-01	(mg/m^3)	0.000009
				Arsenic	1.6E-08	mg/m^3	2.6E-12	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	1.1E-11	9.2E-11	(mg/m^3)	1.5E-05	(mg/m^3)	0.000006
				Chromium	5.7E-08	mg/m^3	6.3E-11	(mg/m^3)	8.4E-02	(ug/m^3)$^{-1}$	5.3E-09	3.4E-10	(mg/m^3)	1.0E-04	(mg/m^3)	0.000003
				Iron	5.7E-05	mg/m^3	9.7E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	3.4E-07	(mg/m^3)	NA	(mg/m^3)	--
				Vanadium	6.6E-08	mg/m^3	1.1E-11	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	3.9E-10	(mg/m^3)	1.0E-04	(mg/m^3)	0.000004
			Exp. Route Total								6.6E-07					0.0005
		Exposure Point Total									6.6E-07					0.0005
	Exposure Medium Total										6.6E-07					0.0005
Medium Total											2.8E-06					0.05

TABLE 7.5.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Sediment	Sediment	SWMU 11	Ingestion	2,3,7,8-TCDD Equivalents	9.05E-06	mg/kg	6.1E-14	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	8.0E-09	2.1E-12	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.003
				Benzo(a)pyrene	0.122	mg/kg	5.4E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.9E-08	2.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.147	mg/kg	6.5E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	4.7E-09	3.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.018	mg/kg	7.9E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	5.8E-09	4.3E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Arsenic	20.8	mg/kg	8.5E-08	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	1.3E-07	3.0E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.010
				Chromium	92.6	mg/kg	4.1E-06	(mg/kg/day)	5.0E-01	$(mg/kg/day)^{-1}$	2.0E-06	2.2E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.007
				Iron	29600	mg/kg	2.0E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	7.0E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.01
				Thallium	0.61	mg/kg	4.1E-09	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	1.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Vanadium	35.9	mg/kg	2.4E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	8.5E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.002
			Exp. Route Total								2.2E-06					0.03
			Dermal	2,3,7,8-TCDD Equivalents	9.05E-06	mg/kg	4.9E-15	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	6.3E-10	1.7E-13	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.0002
				Benzo(a)pyrene	0.122	mg/kg	1.8E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.3E-08	9.9E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.147	mg/kg	2.2E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.6E-09	1.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.018	mg/kg	2.7E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.0E-09	1.5E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Arsenic	20.8	mg/kg	1.1E-08	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	1.7E-08	3.9E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.001
				Chromium	92.6	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Iron	29600	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Thallium	0.61	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Vanadium	35.9	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								3.4E-08					0.002
		Exposure Point Total									2.3E-06					0.03
	Exposure Medium Total										2.3E-06					0.03
Medium Total											2.3E-06					0.03
										Total of Receptor Risks Across All Media	5.3E-06				Total of Receptor Hazards Across All Media	0.1

Notes:

1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 7.6.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	SWMU 11	Ingestion	2,3,7,8-TCDD Equivalents	0.0000087	mg/kg	2.2E-14	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	2.9E-09	2.2E-13	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.0003
				Benzo(a)anthracene	0.066	mg/kg	2.6E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.9E-10	1.7E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.071	mg/kg	2.8E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.1E-09	1.8E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.09	mg/kg	3.6E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.6E-10	2.3E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0821	mg/kg	3.3E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.4E-09	2.1E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.04	mg/kg	1.6E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.2E-10	1.0E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	15200	mg/kg	3.9E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	3.9E-04	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.0004
				Iron	22600	mg/kg	5.7E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	5.7E-04	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.0008
			Exp. Route Total								7.9E-09					0.002
			Dermal	2,3,7,8-TCDD Equivalents	0.0000087	mg/kg	2.4E-15	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	3.1E-10	2.4E-14	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.00003
				Benzo(a)anthracene	0.066	mg/kg	1.2E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	9.1E-11	7.9E-10	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.071	mg/kg	1.3E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	9.8E-10	8.5E-10	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.09	mg/kg	1.7E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.2E-10	1.1E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0821	mg/kg	1.5E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.1E-09	9.9E-10	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.04	mg/kg	7.5E-11	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	5.5E-11	4.8E-10	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	15200	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Iron	22600	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
			Exp. Route Total								2.7E-09					0.00003
		Exposure Point Total									1.1E-08					0.002
	Exposure Medium Total										1.1E-08					0.002
	Air	SWMU 11	Inhalation	2,3,7,8-TCDD Equivalents	6.6E-15	mg/m^3	3.9E-18	(mg/m^3)	3.8E+01	$(ug/m^3)^{-1}$	1.5E-13	3.9E-17	(mg/m^3)	4.0E-08	(mg/m^3)	9.8E-10
				Benzo(a)anthracene	5.0E-11	mg/m^3	4.7E-14	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	5.1E-15	3.0E-13	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	5.4E-11	mg/m^3	5.0E-14	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	5.5E-14	3.2E-13	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	6.8E-11	mg/m^3	6.4E-14	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	7.0E-15	4.1E-13	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	6.2E-11	mg/m^3	5.8E-14	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	7.0E-14	3.7E-13	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	3.0E-11	mg/m^3	2.8E-14	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	3.1E-15	1.8E-13	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	1.2E-05	mg/m^3	6.9E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	6.9E-08	(mg/m^3)	5.0E-03	(mg/m^3)	0.00001
				Iron	1.7E-05	mg/m^3	1.0E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	1.0E-07	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								2.9E-13					0.00001
		Exposure Point Total									2.9E-13					0.00001
	Exposure Medium Total										2.9E-13					0.00001
Medium Total											1.1E-08					0.002
Surface Soil	Surface Soil	IA 6	Ingestion	Benzo(a)anthracene	0.107	mg/kg	4.3E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.1E-10	2.7E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.13	mg/kg	5.2E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.8E-09	3.3E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.17	mg/kg	6.8E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	5.0E-10	4.3E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0308	mg/kg	1.2E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	9.0E-10	7.8E-10	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.0794	mg/kg	3.2E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.3E-10	2.0E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	14400	mg/kg	3.7E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	3.7E-04	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.0004
				Iron	30100	mg/kg	7.7E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	7.7E-04	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.001
			Exp. Route Total								5.7E-09					0.001
			Dermal	Benzo(a)anthracene	0.107	mg/kg	2.0E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.5E-10	1.3E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.13	mg/kg	2.5E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.8E-09	1.6E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.17	mg/kg	3.2E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.3E-10	2.0E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0308	mg/kg	5.8E-11	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	4.2E-10	3.7E-10	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.0794	mg/kg	1.5E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.1E-10	9.5E-10	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	14400	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Iron	30100	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
			Exp. Route Total								2.7E-09					--
		Exposure Point Total									8.4E-09					0.001
	Exposure Medium Total										8.4E-09					0.001

TABLE 7.6.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Air	IA 6	Inhalation	Benzo(a)anthracene	8.1E-11	mg/m^3	7.6E-14	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	8.3E-15	4.8E-13	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	9.9E-11	mg/m^3	9.2E-14	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	1.0E-13	5.9E-13	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.3E-10	mg/m^3	1.2E-13	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.3E-14	7.7E-13	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	2.3E-11	mg/m^3	2.2E-14	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	2.6E-14	1.4E-13	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	6.0E-11	mg/m^3	5.6E-14	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	6.2E-15	3.6E-13	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	1.1E-05	mg/m^3	6.5E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	6.5E-08	(mg/m^3)	5.0E-03	(mg/m^3)	0.00001
				Iron	2.3E-05	mg/m^3	1.4E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	1.4E-07	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								1.6E-13					0.00001
		Exposure Point Total									1.6E-13					0.00001
	Exposure Medium Total										1.6E-13					0.00001
Medium Total											8.4E-09					0.001
Subsurface Soil	Subsurface Soil	SWMU 11	Ingestion	Tetrachloroethene	2.87	mg/kg	7.3E-09	(mg/kg/day)	2.1E-03	(mg/kg/day)$^{-1}$	1.5E-11	7.3E-08	(mg/kg/day)	6.0E-03	(mg/kg/day)	0.00001
				Trichloroethene (Mutagenic)	0.238	mg/kg	9.5E-10	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	8.8E-12	6.1E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	0.238	mg/kg	6.1E-10	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	2.2E-11	6.1E-09	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.00001
				Vinyl Chloride	0.154	mg/kg	3.9E-10	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	2.8E-10	3.9E-09	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.000001
				Arsenic	20.4	mg/kg	3.1E-08	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	4.7E-08	3.1E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.001
				Chromium	74.9	mg/kg	3.0E-07	(mg/kg/day)	5.0E-01	(mg/kg/day)$^{-1}$	1.5E-07	1.9E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.0006
				Iron	75600	mg/kg	1.9E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	1.9E-03	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.003
				Vanadium	86.2	mg/kg	2.2E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	2.2E-06	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.0004
			Exp. Route Total								2.0E-07					0.005
			Dermal	Tetrachloroethene	2.87	mg/kg	0.0E+00	(mg/kg/day)	2.1E-03	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	6.0E-03	(mg/kg/day)	--
				Trichloroethene (Mutagenic)	0.238	mg/kg	0.0E+00	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	0.238	mg/kg	0.0E+00	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	5.0E-04	(mg/kg/day)	--
				Vinyl Chloride	0.154	mg/kg	0.0E+00	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	3.0E-03	(mg/kg/day)	--
				Arsenic	20.4	mg/kg	5.6E-09	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	8.5E-09	5.6E-08	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.0002
				Chromium	74.9	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Iron	75600	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Vanadium	86.2	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								8.5E-09					0.0002
		Exposure Point Total									2.1E-07					0.005
	Exposure Medium Total										2.1E-07					0.005
	Air	SWMU 11	Inhalation	Tetrachloroethene	1.1E-03	mg/m^3	6.7E-07	(mg/m^3)	2.6E-07	(ug/m^3)$^{-1}$	1.7E-10	6.7E-06	(mg/m^3)	4.0E-02	(mg/m^3)	0.0002
				Trichloroethene (Mutagenic)	9.9E-05	mg/m^3	9.3E-08	(mg/m^3)	1.0E-06	(ug/m^3)$^{-1}$	9.3E-11	5.9E-07	(mg/m^3)	NA	(mg/m^3)	--
				Trichloroethene (Nonmutagenic	9.9E-05	mg/m^3	5.9E-08	(mg/m^3)	3.1E-06	(ug/m^3)$^{-1}$	1.8E-10	5.9E-07	(mg/m^3)	2.0E-03	(mg/m^3)	0.0003
				Vinyl Chloride	1.5E-04	mg/m^3	8.8E-08	(mg/m^3)	4.4E-06	(ug/m^3)$^{-1}$	3.9E-10	8.8E-07	(mg/m^3)	1.0E-01	(mg/m^3)	0.000009
				Arsenic	1.6E-08	mg/m^3	9.2E-12	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	4.0E-11	9.2E-11	(mg/m^3)	1.5E-05	(mg/m^3)	0.000006
				Chromium	5.7E-08	mg/m^3	5.3E-11	(mg/m^3)	8.4E-02	(ug/m^3)$^{-1}$	4.5E-09	3.4E-10	(mg/m^3)	1.0E-04	(mg/m^3)	0.000003
				Iron	5.7E-05	mg/m^3	3.4E-08	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	3.4E-07	(mg/m^3)	NA	(mg/m^3)	--
				Vanadium	6.6E-08	mg/m^3	3.9E-11	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	3.9E-10	(mg/m^3)	1.0E-04	(mg/m^3)	0.000004
			Exp. Route Total								5.3E-09					0.0005
		Exposure Point Total									5.3E-09					0.0005
	Exposure Medium Total										5.3E-09					0.0005
Medium Total											2.1E-07					0.006

TABLE 7.6.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Sediment	Sediment	SWMU 11	Ingestion	2,3,7,8-TCDD Equivalents	9.05E-06	mg/kg	2.3E-14	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	3.0E-09	2.3E-13	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.0003
				Benzo(a)pyrene	0.122	mg/kg	4.9E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.6E-09	3.1E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.147	mg/kg	5.9E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	4.3E-10	3.7E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.018	mg/kg	7.2E-11	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	5.3E-10	4.6E-10	(mg/kg/day)	NA	(mg/kg/day)	--
				Arsenic	20.8	mg/kg	3.2E-08	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	4.8E-08	3.2E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.001
				Chromium	92.6	mg/kg	3.7E-07	(mg/kg/day)	5.0E-01	$(mg/kg/day)^{-1}$	1.9E-07	2.4E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.0008
				Iron	29600	mg/kg	7.5E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	7.5E-04	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.001
				Thallium	0.61	mg/kg	1.6E-09	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	1.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Vanadium	35.9	mg/kg	9.1E-08	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	9.1E-07	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.0002
			Exp. Route Total								2.4E-07					0.003
			Dermal	2,3,7,8-TCDD Equivalents	9.05E-06	mg/kg	2.5E-15	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	3.3E-10	2.5E-14	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.00004
				Benzo(a)pyrene	0.122	mg/kg	2.3E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.7E-09	1.5E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.147	mg/kg	2.8E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.0E-10	1.8E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.018	mg/kg	3.4E-11	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.5E-10	2.2E-10	(mg/kg/day)	NA	(mg/kg/day)	--
				Arsenic	20.8	mg/kg	5.8E-09	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	8.6E-09	5.8E-08	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.0002
				Chromium	92.6	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Iron	29600	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Thallium	0.61	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Vanadium	35.9	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								1.1E-08					0.0002
		Exposure Point Total									2.5E-07					0.004
	Exposure Medium Total										2.5E-07					0.004
Medium Total											2.5E-07					0.004
										Total of Receptor Risks Across All Media	4.8E-07				Total of Receptor Hazards Across All Media	0.01

Notes:

1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 7.7.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	SWMU 11	Ingestion	2,3,7,8-TCDD Equivalents	0.0000087	mg/kg	1.1E-12	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	1.4E-07	3.7E-11	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.05
				Benzo(a)anthracene	0.066	mg/kg	5.2E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.8E-08	2.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.071	mg/kg	5.6E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	4.1E-07	3.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.09	mg/kg	7.1E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	5.2E-08	3.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0821	mg/kg	6.5E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	4.8E-07	3.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.04	mg/kg	3.2E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.3E-08	1.7E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	15200	mg/kg	1.9E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	6.5E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.06
				Iron	22600	mg/kg	2.8E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	9.7E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.1
			Exp. Route Total								1.1E-06					0.3
			Dermal	2,3,7,8-TCDD Equivalents	0.0000087	mg/kg	3.6E-14	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	4.6E-09	1.2E-12	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.002
				Benzo(a)anthracene	0.066	mg/kg	7.6E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	5.6E-09	4.1E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.071	mg/kg	8.2E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	6.0E-08	4.4E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.09	mg/kg	1.0E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	7.6E-09	5.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0821	mg/kg	9.5E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	6.9E-08	5.1E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.04	mg/kg	4.6E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.4E-09	2.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	15200	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Iron	22600	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
			Exp. Route Total								1.5E-07					0.002
		Exposure Point Total									1.3E-06					0.3
	Exposure Medium Total										1.3E-06					0.3
	Air	SWMU 11	Inhalation	2,3,7,8-TCDD Equivalents	6.6E-15	mg/m^3	1.2E-16	(mg/m^3)	3.8E+01	$(ug/m^3)^{-1}$	4.6E-12	4.2E-15	(mg/m^3)	4.0E-08	(mg/m^3)	1.1E-7
				Benzo(a)anthracene	5.0E-11	mg/m^3	6.0E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	6.6E-13	3.2E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	5.4E-11	mg/m^3	6.4E-12	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	7.1E-12	3.5E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	6.8E-11	mg/m^3	8.1E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	9.0E-13	4.4E-11	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	6.2E-11	mg/m^3	7.4E-12	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	8.9E-12	4.0E-11	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	3.0E-11	mg/m^3	3.6E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	4.0E-13	1.9E-11	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	1.2E-05	mg/m^3	2.1E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	7.4E-06	(mg/m^3)	5.0E-03	(mg/m^3)	0.001
				Iron	1.7E-05	mg/m^3	3.1E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	1.1E-05	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								2.3E-11					0.001
		Exposure Point Total									2.3E-11					0.001
	Exposure Medium Total										2.3E-11					0.001
Medium Total											1.3E-06					0.3
Surface Soil	Surface Soil	IA 6	Ingestion	Benzo(a)anthracene	0.107	mg/kg	8.5E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	6.2E-08	4.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.13	mg/kg	1.0E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	7.5E-07	5.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.17	mg/kg	1.3E-07	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	9.9E-08	7.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0308	mg/kg	2.4E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.8E-07	1.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.0794	mg/kg	6.3E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	4.6E-08	3.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	14400	mg/kg	1.8E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	6.2E-02	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.06
				Iron	30100	mg/kg	3.7E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	1.3E-01	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.2
			Exp. Route Total								1.1E-06					0.2
			Dermal	Benzo(a)anthracene	0.107	mg/kg	1.2E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	9.0E-09	6.7E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.13	mg/kg	1.5E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.1E-07	8.1E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.17	mg/kg	2.0E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.4E-08	1.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0308	mg/kg	3.6E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.6E-08	1.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.0794	mg/kg	9.2E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	6.7E-09	4.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	14400	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Iron	30100	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
			Exp. Route Total								1.7E-07					--
		Exposure Point Total									1.3E-06					0.2
	Exposure Medium Total										1.3E-06					0.2

TABLE 7.7.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Air	IA 6	Inhalation	Benzo(a)anthracene	8.1E-11	mg/m^3	9.7E-12	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.1E-12	5.2E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	9.9E-11	mg/m^3	1.2E-11	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	1.3E-11	6.3E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.3E-10	mg/m^3	1.5E-11	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.7E-12	8.3E-11	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	2.3E-11	mg/m^3	2.8E-12	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	3.3E-12	1.5E-11	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	6.0E-11	mg/m^3	7.2E-12	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	7.9E-13	3.9E-11	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	1.1E-05	mg/m^3	2.0E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	7.0E-06	(mg/m^3)	5.0E-03	(mg/m^3)	0.001
				Iron	2.3E-05	mg/m^3	4.2E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	1.5E-05	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								2.0E-11					0.001
		Exposure Point Total									2.0E-11					0.001
	Exposure Medium Total										2.0E-11					0.001
Medium Total											1.3E-06					0.2
Subsurface Soil	Subsurface Soil	SWMU 11	Ingestion	Tetrachloroethene	2.87	mg/kg	3.5E-07	(mg/kg/day)	2.1E-03	(mg/kg/day)$^{-1}$	7.4E-10	1.2E-05	(mg/kg/day)	6.0E-03	(mg/kg/day)	0.002
				Trichloroethene (Mutagenic)	0.238	mg/kg	1.9E-07	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	1.8E-09	1.0E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	0.238	mg/kg	2.9E-08	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	1.1E-09	1.0E-06	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.002
				Vinyl Chloride	0.154	mg/kg	1.0E-06	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	7.5E-07	6.6E-07	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.0002
				Arsenic	20.4	mg/kg	1.5E-06	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	2.2E-06	5.2E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.2
				Chromium	74.9	mg/kg	5.9E-05	(mg/kg/day)	5.0E-01	(mg/kg/day)$^{-1}$	3.0E-05	3.2E-04	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.1
				Iron	75600	mg/kg	9.2E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	3.2E-01	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.5
				Vanadium	86.2	mg/kg	1.1E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	3.7E-04	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.07
			Exp. Route Total								3.3E-05					0.8
			Dermal	Tetrachloroethene	2.87	mg/kg	0.0E+00	(mg/kg/day)	2.1E-03	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	6.0E-03	(mg/kg/day)	--
				Trichloroethene (Mutagenic)	0.238	mg/kg	0.0E+00	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	0.238	mg/kg	0.0E+00	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	5.0E-04	(mg/kg/day)	--
				Vinyl Chloride	0.154	mg/kg	0.0E+00	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	3.0E-03	(mg/kg/day)	--
				Arsenic	20.4	mg/kg	8.4E-08	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	1.3E-07	2.9E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.010
				Chromium	74.9	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Iron	75600	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Vanadium	86.2	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								1.3E-07					0.010
		Exposure Point Total									3.3E-05					0.8
	Exposure Medium Total										3.3E-05					0.8
	Air	SWMU 11	Inhalation	Tetrachloroethene	1.1E-03	mg/m^3	2.1E-05	(mg/m^3)	2.6E-07	(ug/m^3)$^{-1}$	5.4E-09	7.2E-04	(mg/m^3)	4.0E-02	(mg/m^3)	0.02
				Trichloroethene (Mutagenic)	9.9E-05	mg/m^3	1.2E-05	(mg/m^3)	1.0E-06	(ug/m^3)$^{-1}$	1.2E-08	6.4E-05	(mg/m^3)	NA	(mg/m^3)	--
				Trichloroethene (Nonmutagenic	9.9E-05	mg/m^3	1.8E-06	(mg/m^3)	3.1E-06	(ug/m^3)$^{-1}$	5.6E-09	6.4E-05	(mg/m^3)	2.0E-03	(mg/m^3)	0.03
				Vinyl Chloride	1.5E-04	mg/m^3	1.5E-04	(mg/m^3)	4.4E-06	(ug/m^3)$^{-1}$	6.7E-07	9.5E-05	(mg/m^3)	1.0E-01	(mg/m^3)	0.0010
				Arsenic	1.6E-08	mg/m^3	2.8E-10	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	1.2E-09	9.9E-09	(mg/m^3)	1.5E-05	(mg/m^3)	0.0007
				Chromium	5.7E-08	mg/m^3	6.8E-09	(mg/m^3)	8.4E-02	(ug/m^3)$^{-1}$	5.7E-07	3.6E-08	(mg/m^3)	1.0E-04	(mg/m^3)	0.0004
				Iron	5.7E-05	mg/m^3	1.1E-06	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	3.7E-05	(mg/m^3)	NA	(mg/m^3)	--
				Vanadium	6.6E-08	mg/m^3	1.2E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	4.2E-08	(mg/m^3)	1.0E-04	(mg/m^3)	0.0004
			Exp. Route Total								1.3E-06					0.05
		Exposure Point Total									1.3E-06					0.05
	Exposure Medium Total										1.3E-06					0.05
Medium Total											3.4E-05					0.9

TABLE 7.7.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	SWMU 11	Ingestion	Benzene	3.23	ug/L	2.9E-06	(mg/kg/day)	5.5E-02	$(mg/kg/day)^{-1}$	1.6E-07	1.0E-04	(mg/kg/day)	4.0E-03	(mg/kg/day)	0.03
				Chloroform	1.29	ug/L	1.2E-06	(mg/kg/day)	3.1E-02	$(mg/kg/day)^{-1}$	3.6E-08	4.1E-05	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.004
				cis-1,2-Dichloroethene	27.6	ug/L	2.5E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	8.7E-04	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.4
				Tetrachloroethene	25.5	ug/L	2.3E-05	(mg/kg/day)	2.1E-03	$(mg/kg/day)^{-1}$	4.8E-08	8.1E-04	(mg/kg/day)	6.0E-03	(mg/kg/day)	0.1
				Trichloroethene (Mutagenic)	115	ug/L	6.8E-04	(mg/kg/day)	9.3E-03	$(mg/kg/day)^{-1}$	6.3E-06	3.6E-03	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	115	ug/L	1.0E-04	(mg/kg/day)	3.7E-02	$(mg/kg/day)^{-1}$	3.8E-06	3.6E-03	(mg/kg/day)	5.0E-04	(mg/kg/day)	7.3
				Vinyl Chloride	0.503	ug/L	2.5E-05	(mg/kg/day)	7.2E-01	$(mg/kg/day)^{-1}$	1.8E-05	1.6E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.005
			Exp. Route Total								2.9E-05					7.9
			Dermal	Benzene	3.23	ug/L	3.3E-07	(mg/kg/day)	5.5E-02	$(mg/kg/day)^{-1}$	1.8E-08	1.2E-05	(mg/kg/day)	4.0E-03	(mg/kg/day)	0.003
				Chloroform	1.29	ug/L	7.9E-08	(mg/kg/day)	3.1E-02	$(mg/kg/day)^{-1}$	2.5E-09	2.8E-06	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.0003
				cis-1,2-Dichloroethene	27.6	ug/L	2.3E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	8.1E-05	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.04
				Tetrachloroethene	25.5	ug/L	1.0E-05	(mg/kg/day)	2.1E-03	$(mg/kg/day)^{-1}$	2.2E-08	3.6E-04	(mg/kg/day)	6.0E-03	(mg/kg/day)	0.06
				Trichloroethene (Mutagenic)	115	ug/L	8.5E-05	(mg/kg/day)	9.3E-03	$(mg/kg/day)^{-1}$	7.9E-07	4.6E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	115	ug/L	1.3E-05	(mg/kg/day)	3.7E-02	$(mg/kg/day)^{-1}$	4.8E-07	4.6E-04	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.9
				Vinyl Chloride	0.503	ug/L	9.8E-07	(mg/kg/day)	7.2E-01	$(mg/kg/day)^{-1}$	7.0E-07	6.2E-07	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.0002
			Exp. Route Total								2.0E-06					1.0
		Exposure Point Total									3.1E-05					8.9
	Exposure Medium Total										3.1E-05					8.9
	Air	SWMU 11	Inhalation	Benzene	6.1E-04	mg/m^3	4.7E-07	(mg/m^3)	7.8E-06	$(ug/m^3)^{-1}$	3.6E-09	1.6E-05	(mg/m^3)	3.0E-02	(mg/m^3)	0.0005
				Chloroform	2.0E-04	mg/m^3	1.5E-07	(mg/m^3)	2.3E-05	$(ug/m^3)^{-1}$	3.5E-09	5.3E-06	(mg/m^3)	9.8E-02	(mg/m^3)	0.00005
				cis-1,2-Dichloroethene	4.7E-03	mg/m^3	3.6E-06	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	1.2E-04	(mg/m^3)	NA	(mg/m^3)	--
				Tetrachloroethene	3.5E-03	mg/m^3	2.7E-06	(mg/m^3)	2.6E-07	$(ug/m^3)^{-1}$	7.0E-10	9.4E-05	(mg/m^3)	4.0E-02	(mg/m^3)	0.002
				Trichloroethene (Mutagenic)	1.7E-02	mg/m^3	8.7E-05	(mg/m^3)	1.0E-06	$(ug/m^3)^{-1}$	8.7E-08	4.7E-04	(mg/m^3)	NA	(mg/m^3)	--
				Trichloroethene (Nonmutagenic	1.7E-02	mg/m^3	1.3E-05	(mg/m^3)	3.1E-06	$(ug/m^3)^{-1}$	4.1E-08	4.7E-04	(mg/m^3)	2.0E-03	(mg/m^3)	0.2
				Vinyl Chloride	1.1E-04	mg/m^3	1.1E-04	(mg/m^3)	4.4E-06	$(ug/m^3)^{-1}$	4.8E-07	2.9E-06	(mg/m^3)	1.0E-01	(mg/m^3)	0.00003
			Exp. Route Total								6.2E-07					0.2
		Exposure Point Total									6.2E-07					0.2
	Exposure Medium Total										6.2E-07					0.2
Medium Total											3.1E-05					9.1
Vapor Intrusion	Air	SWMU 11	Inhalation	Benzene	6.4E-06	mg/m^3	4.1E-07	(mg/m^3)	7.8E-06	$(ug/m^3)^{-1}$	3.2E-09	4.1E-06	(mg/m^3)	3.0E-02	(mg/m^3)	0.0001
				Chloroform	2.3E-06	mg/m^3	1.5E-07	(mg/m^3)	2.3E-05	$(ug/m^3)^{-1}$	3.4E-09	1.5E-06	(mg/m^3)	9.8E-02	(mg/m^3)	0.00002
				cis-1,2-Dichloroethene	4.6E-05	mg/m^3	2.9E-06	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	2.9E-05	(mg/m^3)	NA	(mg/m^3)	--
				Tetrachloroethene	9.2E-05	mg/m^3	5.9E-06	(mg/m^3)	2.6E-07	$(ug/m^3)^{-1}$	1.5E-09	5.9E-05	(mg/m^3)	4.0E-02	(mg/m^3)	0.001
				Trichloroethene (Mutagenic)	3.1E-04	mg/m^3	9.9E-05	(mg/m^3)	1.0E-06	$(ug/m^3)^{-1}$	9.9E-08	2.0E-04	(mg/m^3)	NA	(mg/m^3)	--
				Trichloroethene (Nonmutagenic	3.1E-04	mg/m^3	2.0E-05	(mg/m^3)	3.1E-06	$(ug/m^3)^{-1}$	6.1E-08	2.0E-04	(mg/m^3)	2.0E-03	(mg/m^3)	0.10
				Vinyl Chloride	4.9E-06	mg/m^3	5.0E-06	(mg/m^3)	4.4E-06	$(ug/m^3)^{-1}$	2.2E-08	3.1E-06	(mg/m^3)	1.0E-01	(mg/m^3)	0.00003
			Exp. Route Total								1.9E-07					0.1
		Exposure Point Total									1.9E-07					0.1
	Exposure Medium Total										1.9E-07					0.1
Medium Total											1.9E-07					0.1
										Total of Receptor Risks Across All Media	6.8E-05			Total of Receptor Hazards Across All Media		11

Notes:

1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 7.8.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	SWMU 11	Ingestion	2,3,7,8-TCDD Equivalents	0.0000087	mg/kg	4.0E-13	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	5.2E-08	4.0E-12	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.006
				Benzo(a)anthracene	0.066	mg/kg	4.7E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.5E-09	3.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.071	mg/kg	5.1E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.7E-08	3.3E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.09	mg/kg	6.5E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	4.7E-09	4.1E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0821	mg/kg	5.9E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	4.3E-08	3.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.04	mg/kg	2.9E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.1E-09	1.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	15200	mg/kg	7.0E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	7.0E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.007
				Iron	22600	mg/kg	1.0E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	1.0E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.01
			Exp. Route Total								1.4E-07					0.03
			Dermal	2,3,7,8-TCDD Equivalents	0.0000087	mg/kg	1.4E-14	(mg/kg/day)	1.3E+05	$(mg/kg/day)^{-1}$	1.8E-09	1.4E-13	(mg/kg/day)	7.0E-10	(mg/kg/day)	0.0002
				Benzo(a)anthracene	0.066	mg/kg	7.0E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	5.1E-10	4.5E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.071	mg/kg	7.6E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	5.5E-09	4.8E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.09	mg/kg	9.6E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	7.0E-10	6.1E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0821	mg/kg	8.8E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	6.4E-09	5.6E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.04	mg/kg	4.3E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.1E-10	2.7E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	15200	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Iron	22600	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
			Exp. Route Total								1.5E-08					0.0002
		Exposure Point Total									1.6E-07					0.03
	Exposure Medium Total										1.6E-07					0.03
	Air	SWMU 11	Inhalation	2,3,7,8-TCDD Equivalents	6.6E-15	mg/m^3	4.2E-16	(mg/m^3)	3.8E+01	$(ug/m^3)^{-1}$	1.6E-11	4.2E-15	(mg/m^3)	4.0E-08	(mg/m^3)	1.1E-7
				Benzo(a)anthracene	5.0E-11	mg/m^3	5.1E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	5.6E-13	3.2E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	5.4E-11	mg/m^3	5.4E-12	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	6.0E-12	3.5E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	6.8E-11	mg/m^3	6.9E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	7.6E-13	4.4E-11	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	6.2E-11	mg/m^3	6.3E-12	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	7.5E-12	4.0E-11	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	3.0E-11	mg/m^3	3.1E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	3.4E-13	1.9E-11	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	1.2E-05	mg/m^3	7.4E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	7.4E-06	(mg/m^3)	5.0E-03	(mg/m^3)	0.001
				Iron	1.7E-05	mg/m^3	1.1E-06	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	1.1E-05	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								3.1E-11					0.001
		Exposure Point Total									3.1E-11					0.001
	Exposure Medium Total										3.1E-11					0.001
Medium Total											1.6E-07					0.03
Surface Soil	Surface Soil	IA 6	Ingestion	Benzo(a)anthracene	0.107	mg/kg	7.7E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	5.6E-09	4.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.13	mg/kg	9.4E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	6.8E-08	6.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.17	mg/kg	1.2E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	8.9E-09	7.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0308	mg/kg	2.2E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.6E-08	1.4E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.0794	mg/kg	5.7E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	4.2E-09	3.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	14400	mg/kg	6.6E-04	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	6.6E-03	(mg/kg/day)	1.0E+00	(mg/kg/day)	0.007
				Iron	30100	mg/kg	1.4E-03	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	1.4E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.02
			Exp. Route Total								1.0E-07					0.03
			Dermal	Benzo(a)anthracene	0.107	mg/kg	1.1E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	8.3E-10	7.3E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.13	mg/kg	1.4E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.0E-08	8.8E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.17	mg/kg	1.8E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.3E-09	1.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.0308	mg/kg	3.3E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.4E-09	2.1E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.0794	mg/kg	8.5E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	6.2E-10	5.4E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Aluminum	14400	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	1.0E+00	(mg/kg/day)	--
				Iron	30100	mg/kg	0.0E+00	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
			Exp. Route Total								1.5E-08					--
		Exposure Point Total									1.2E-07					0.03
	Exposure Medium Total										1.2E-07					0.03

TABLE 7.8.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Air	IA 6	Inhalation	Benzo(a)anthracene	8.1E-11	mg/m^3	8.2E-12	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	9.0E-13	5.2E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	9.9E-11	mg/m^3	1.0E-11	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	1.1E-11	6.3E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.3E-10	mg/m^3	1.3E-11	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.4E-12	8.3E-11	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	2.3E-11	mg/m^3	2.4E-12	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	2.8E-12	1.5E-11	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	6.0E-11	mg/m^3	6.1E-12	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	6.7E-13	3.9E-11	(mg/m^3)	NA	(mg/m^3)	--
				Aluminum	1.1E-05	mg/m^3	7.0E-07	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	7.0E-06	(mg/m^3)	5.0E-03	(mg/m^3)	0.001
				Iron	2.3E-05	mg/m^3	1.5E-06	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	1.5E-05	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								1.7E-11					0.001
		Exposure Point Total									1.7E-11					0.001
	Exposure Medium Total										1.7E-11					0.001
Medium Total											1.2E-07					0.03
Subsurface Soil	Subsurface Soil	SWMU 11	Ingestion	Tetrachloroethene	2.87	mg/kg	1.3E-07	(mg/kg/day)	2.1E-03	(mg/kg/day)$^{-1}$	2.8E-10	1.3E-06	(mg/kg/day)	6.0E-03	(mg/kg/day)	0.0002
				Trichloroethene (Mutagenic)	0.238	mg/kg	1.7E-08	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	1.6E-10	1.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	0.238	mg/kg	1.1E-08	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	4.0E-10	1.1E-07	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.0002
				Vinyl Chloride	0.154	mg/kg	7.1E-09	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	5.1E-09	7.1E-08	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.00002
				Arsenic	20.4	mg/kg	5.6E-07	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	8.4E-07	5.6E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.02
				Chromium	74.9	mg/kg	5.4E-06	(mg/kg/day)	5.0E-01	(mg/kg/day)$^{-1}$	2.7E-06	3.4E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.01
				Iron	75600	mg/kg	3.5E-03	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	3.5E-02	(mg/kg/day)	7.0E-01	(mg/kg/day)	0.05
				Vanadium	86.2	mg/kg	3.9E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	3.9E-05	(mg/kg/day)	5.0E-03	(mg/kg/day)	0.008
			Exp. Route Total								3.5E-06					0.09
			Dermal	Tetrachloroethene	2.87	mg/kg	0.0E+00	(mg/kg/day)	2.1E-03	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	6.0E-03	(mg/kg/day)	--
				Trichloroethene (Mutagenic)	0.238	mg/kg	0.0E+00	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	0.238	mg/kg	0.0E+00	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	5.0E-04	(mg/kg/day)	--
				Vinyl Chloride	0.154	mg/kg	0.0E+00	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	3.0E-03	(mg/kg/day)	--
				Arsenic	20.4	mg/kg	3.2E-08	(mg/kg/day)	1.5E+00	(mg/kg/day)$^{-1}$	4.8E-08	3.2E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.001
				Chromium	74.9	mg/kg	0.0E+00	(mg/kg/day)	2.0E+01	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	7.5E-05	(mg/kg/day)	--
				Iron	75600	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	7.0E-01	(mg/kg/day)	--
				Vanadium	86.2	mg/kg	0.0E+00	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	0.0E+00	(mg/kg/day)	1.3E-04	(mg/kg/day)	--
			Exp. Route Total								4.8E-08					0.001
		Exposure Point Total									3.6E-06					0.09
	Exposure Medium Total										3.6E-06					0.09
	Air	SWMU 11	Inhalation	Tetrachloroethene	1.1E-03	mg/m^3	7.2E-05	(mg/m^3)	2.6E-07	(ug/m^3)$^{-1}$	1.9E-08	7.2E-04	(mg/m^3)	4.0E-02	(mg/m^3)	0.02
				Trichloroethene (Mutagenic)	9.9E-05	mg/m^3	1.0E-05	(mg/m^3)	1.0E-06	(ug/m^3)$^{-1}$	1.0E-08	6.4E-05	(mg/m^3)	NA	(mg/m^3)	--
				Trichloroethene (Nonmutagenic	9.9E-05	mg/m^3	6.4E-06	(mg/m^3)	3.1E-06	(ug/m^3)$^{-1}$	2.0E-08	6.4E-05	(mg/m^3)	2.0E-03	(mg/m^3)	0.03
				Vinyl Chloride	1.5E-04	mg/m^3	9.5E-06	(mg/m^3)	4.4E-06	(ug/m^3)$^{-1}$	4.2E-08	9.5E-05	(mg/m^3)	1.0E-01	(mg/m^3)	0.0010
				Arsenic	1.6E-08	mg/m^3	9.9E-10	(mg/m^3)	4.3E-03	(ug/m^3)$^{-1}$	4.3E-09	9.9E-09	(mg/m^3)	1.5E-05	(mg/m^3)	0.0007
				Chromium	5.7E-08	mg/m^3	5.7E-09	(mg/m^3)	8.4E-02	(ug/m^3)$^{-1}$	4.8E-07	3.6E-08	(mg/m^3)	1.0E-04	(mg/m^3)	0.0004
				Iron	5.7E-05	mg/m^3	3.7E-06	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	3.7E-05	(mg/m^3)	NA	(mg/m^3)	--
				Vanadium	6.6E-08	mg/m^3	4.2E-09	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	4.2E-08	(mg/m^3)	1.0E-04	(mg/m^3)	0.0004
			Exp. Route Total								5.8E-07					0.05
		Exposure Point Total									5.8E-07					0.05
	Exposure Medium Total										5.8E-07					0.05
Medium Total											4.2E-06					0.1

TABLE 7.8.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	SWMU 11	Ingestion	Benzene	3.23	ug/L	4.1E-06	(mg/kg/day)	5.5E-02	$(mg/kg/day)^{-1}$	2.3E-07	4.1E-05	(mg/kg/day)	4.0E-03	(mg/kg/day)	0.01
				Chloroform	1.29	ug/L	1.7E-06	(mg/kg/day)	3.1E-02	$(mg/kg/day)^{-1}$	5.1E-08	1.7E-05	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.002
				cis-1,2-Dichloroethene	27.6	ug/L	3.5E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	3.5E-04	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.2
				Tetrachloroethene	25.5	ug/L	3.3E-05	(mg/kg/day)	2.1E-03	$(mg/kg/day)^{-1}$	6.9E-08	3.3E-04	(mg/kg/day)	6.0E-03	(mg/kg/day)	0.05
				Trichloroethene (Mutagenic)	115	ug/L	2.3E-04	(mg/kg/day)	9.3E-03	$(mg/kg/day)^{-1}$	2.2E-06	1.5E-03	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	115	ug/L	1.5E-04	(mg/kg/day)	3.7E-02	$(mg/kg/day)^{-1}$	5.4E-06	1.5E-03	(mg/kg/day)	5.0E-04	(mg/kg/day)	2.9
				Vinyl Chloride	0.503	ug/L	6.4E-07	(mg/kg/day)	7.2E-01	$(mg/kg/day)^{-1}$	4.6E-07	6.4E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.002
			Exp. Route Total								8.4E-06					3.2
			Dermal	Benzene	3.23	ug/L	5.9E-07	(mg/kg/day)	5.5E-02	$(mg/kg/day)^{-1}$	3.3E-08	5.9E-06	(mg/kg/day)	4.0E-03	(mg/kg/day)	0.001
				Chloroform	1.29	ug/L	1.4E-07	(mg/kg/day)	3.1E-02	$(mg/kg/day)^{-1}$	4.4E-09	1.4E-06	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.0001
				cis-1,2-Dichloroethene	27.6	ug/L	4.1E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	4.1E-05	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.02
				Tetrachloroethene	25.5	ug/L	1.8E-05	(mg/kg/day)	2.1E-03	$(mg/kg/day)^{-1}$	3.9E-08	1.8E-04	(mg/kg/day)	6.0E-03	(mg/kg/day)	0.03
				Trichloroethene (Mutagenic)	115	ug/L	3.7E-05	(mg/kg/day)	9.3E-03	$(mg/kg/day)^{-1}$	3.4E-07	2.3E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	115	ug/L	2.3E-05	(mg/kg/day)	3.7E-02	$(mg/kg/day)^{-1}$	8.5E-07	2.3E-04	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.5
				Vinyl Chloride	0.503	ug/L	3.1E-08	(mg/kg/day)	7.2E-01	$(mg/kg/day)^{-1}$	2.3E-08	3.1E-07	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.0001
			Exp. Route Total								1.3E-06					0.5
		Exposure Point Total									9.7E-06					3.7
	Exposure Medium Total										9.7E-06					3.7
	Air	SWMU 11	Inhalation	Benzene	6.1E-04	mg/m^3	1.6E-06	(mg/m^3)	7.8E-06	$(ug/m^3)^{-1}$	1.3E-08	1.6E-05	(mg/m^3)	3.0E-02	(mg/m^3)	0.0005
				Chloroform	2.0E-04	mg/m^3	5.3E-07	(mg/m^3)	2.3E-05	$(ug/m^3)^{-1}$	1.2E-08	5.3E-06	(mg/m^3)	9.8E-02	(mg/m^3)	0.00005
				cis-1,2-Dichloroethene	4.7E-03	mg/m^3	1.2E-05	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	1.2E-04	(mg/m^3)	NA	(mg/m^3)	--
				Tetrachloroethene	3.5E-03	mg/m^3	9.4E-06	(mg/m^3)	2.6E-07	$(ug/m^3)^{-1}$	2.4E-09	9.4E-05	(mg/m^3)	4.0E-02	(mg/m^3)	0.002
				Trichloroethene (Mutagenic)	1.7E-02	mg/m^3	7.3E-05	(mg/m^3)	1.0E-06	$(ug/m^3)^{-1}$	7.3E-08	4.7E-04	(mg/m^3)	NA	(mg/m^3)	--
				Trichloroethene (Nonmutagenic	1.7E-02	mg/m^3	4.7E-05	(mg/m^3)	3.1E-06	$(ug/m^3)^{-1}$	1.4E-07	4.7E-04	(mg/m^3)	2.0E-03	(mg/m^3)	0.2
				Vinyl Chloride	1.1E-04	mg/m^3	2.9E-07	(mg/m^3)	4.4E-06	$(ug/m^3)^{-1}$	1.3E-09	2.9E-06	(mg/m^3)	1.0E-01	(mg/m^3)	0.00003
			Exp. Route Total								2.5E-07					0.2
		Exposure Point Total									2.5E-07					0.2
	Exposure Medium Total										2.5E-07					0.2
Medium Total											9.9E-06					3.9
Air	Air	SWMU 11	Inhalation	Benzene	6.4E-06	mg/m^3	4.1E-07	(mg/m^3)	7.8E-06	$(ug/m^3)^{-1}$	3.2E-09	4.1E-06	(mg/m^3)	3.0E-02	(mg/m^3)	0.0001
				Chloroform	2.3E-06	mg/m^3	1.5E-07	(mg/m^3)	2.3E-05	$(ug/m^3)^{-1}$	3.4E-09	1.5E-06	(mg/m^3)	9.8E-02	(mg/m^3)	0.00002
				cis-1,2-Dichloroethene	4.6E-05	mg/m^3	2.9E-06	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	2.9E-05	(mg/m^3)	NA	(mg/m^3)	--
				Tetrachloroethene	9.2E-05	mg/m^3	5.9E-06	(mg/m^3)	2.6E-07	$(ug/m^3)^{-1}$	1.5E-09	5.9E-05	(mg/m^3)	4.0E-02	(mg/m^3)	0.001
				Trichloroethene (Mutagenic)	3.1E-04	mg/m^3	3.1E-05	(mg/m^3)	1.0E-06	$(ug/m^3)^{-1}$	3.1E-08	2.0E-04	(mg/m^3)	NA	(mg/m^3)	--
				Trichloroethene (Nonmutagenic	3.1E-04	mg/m^3	2.0E-05	(mg/m^3)	3.1E-06	$(ug/m^3)^{-1}$	6.1E-08	2.0E-04	(mg/m^3)	2.0E-03	(mg/m^3)	0.10
				Vinyl Chloride	4.9E-06	mg/m^3	3.1E-07	(mg/m^3)	4.4E-06	$(ug/m^3)^{-1}$	1.4E-09	3.1E-06	(mg/m^3)	1.0E-01	(mg/m^3)	0.00003
			Exp. Route Total								1.0E-07					0.1
		Exposure Point Total									1.0E-07					0.1
	Exposure Medium Total										1.0E-07					0.1
Medium Total											1.0E-07					0.1
										Total of Receptor Risks Across All Media	1.4E-05				Total of Receptor Hazards Across All Media	4.2

Notes:

1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

RAGS Part D Table 9

Summary of Receptor Risks and Hazards for COPCs

LIST OF TABLES
RAGS PART D TABLE 9 - SOUTH WATERFRONT
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

Table No.	
	Reasonable Maximum Exposures
9.1.RME	Maintenance Workers
9.2.RME	Construction Workers
9.3.RME	Industrial Workers
9.4.RME	Adolescent Trespassers
9.5.RME	Child Recreational Users
9.6.RME	Adult Recreational Users
9.9.RME	Lifelong Recreational Users
9.8.RME	Hypothetical Child Residents
9.9.RME	Hypothetical Adult Residents
9.10.RME	Hypothetical Lifelong Residents
	Central Tendency Exposures
9.1.CTE	Maintenance Workers
9.2.CTE	Construction Workers
9.3.CTE	Industrial Workers
9.4.CTE	Adolescent Trespassers
9.5.CTE	Child Recreational Users
9.6.CTE	Adult Recreational Users
9.9.CTE	Lifelong Recreational Users
9.8.CTE	Hypothetical Child Residents
9.9.CTE	Hypothetical Adult Residents
9.10.CTE	Hypothetical Lifelong Residents

TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Receptor Population: Maintenance Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	SWMU 11	2,3,7,8-TCDD Equivalents	4E-08	--	8E-09	--	5E-08	Reproductive	0.001	--	0.0002	0.001
			Benzo(a)anthracene	2E-09	--	1E-09	--	3E-09	NA	--	--	--	--
			Benzo(a)pyrene	2E-08	--	1E-08	--	3E-08	NA	--	--	--	--
			Benzo(b)fluoranthene	2E-09	--	2E-09	--	4E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	2E-08	--	2E-08	--	4E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	1E-09	--	8E-10	--	2E-09	NA	--	--	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.001	--	--	0.001
			Iron	- -	--	- -	--	- -	GS	0.003	--	--	0.003
			Chemical Total	8E-08	--	4E-08	--	1E-07		0.006	--	0.0002	0.006
		Exposure Point Total						1E-07					0.006
	Exposure Medium Total							1E-07					0.006
	Air	SWMU 11	2,3,7,8-TCDD Equivalents	--	2E-12	--	--	2E-12	Reproductive, Respir	--	4E-9	--	4E-9
			Benzo(a)anthracene	--	4E-14	--	--	4E-14	NA	--	--	--	--
			Benzo(a)pyrene	--	5E-13	--	--	5E-13	NA	--	--	--	--
			Benzo(b)fluoranthene	--	6E-14	--	--	6E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	6E-13	--	--	6E-13	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	3E-14	--	--	3E-14	NA	--	--	--	--
			Aluminum	--	- -	--	--	- -	CNS	--	0.00005	--	0.00005
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	3E-12	--	--	3E-12		- -	0.00005	- -	0.00005
		Exposure Point Total						3E-12					0.00005
	Exposure Medium Total							3E-12					0.00005
Medium Total								1E-07					0.006
Surface Soil	Surface Soil	IA 6	Benzo(a)anthracene	3E-09	--	2E-09	--	5E-09	NA	--	--	--	--
			Benzo(a)pyrene	3E-08	--	3E-08	--	6E-08	NA	--	--	--	--
			Benzo(b)fluoranthene	4E-09	--	4E-09	--	8E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	8E-09	--	6E-09	--	1E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	2E-09	--	2E-09	--	4E-09	NA	--	--	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.001	--	--	0.001
			Iron	- -	--	- -	--	- -	GS	0.004	--	--	0.004
			Chemical Total	5E-08	--	4E-08	--	9E-08		0.005	--	--	0.005
		Exposure Point Total						9E-08					0.005
	Exposure Medium Total							9E-08					0.005
	Air	IA 6	Benzo(a)anthracene	--	7E-14	--	--	7E-14	NA	--	--	--	--
			Benzo(a)pyrene	--	9E-13	--	--	9E-13	NA	--	--	--	--
			Benzo(b)fluoranthene	--	1E-13	--	--	1E-13	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	5E-14	--	--	5E-14	NA	--	--	--	--
			Aluminum	--	- -	--	--	- -	CNS	--	0.00005	--	0.00005
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	1E-12	--	--	1E-12		- -	0.00005	- -	0.00005
		Exposure Point Total						1E-12					0.00005
	Exposure Medium Total							1E-12					0.00005
Medium Total								9E-08					0.005

TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Receptor Population: Maintenance Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	SWMU 11	Tetrachloroethene	2E-10	--	- -	--	2E-10	Neurotoxicity	0.00004	--	--	0.00004
			Trichloroethene (Mutagenic)	7E-11	--	- -	--	7E-11	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	3E-10	--	- -	--	3E-10	ne System, Developm	0.00004	--	--	0.00004
			Vinyl Chloride	4E-09	--	- -	--	4E-09	Liver	0.000005	--	--	0.000005
			Arsenic	6E-07	--	2E-07	--	8E-07	Skin, CVS	0.004	--	0.001	0.005
			Chromium	1E-06	--	- -	--	1E-06	None Specified	0.002	--	--	0.002
			Iron	- -	--	- -	--	- -	GS	0.01	--	--	0.01
			Vanadium	- -	--	- -	--	- -	Kidney	0.002	--	--	0.002
			Chemical Total	2E-06	--	2E-07	--	2E-06		0.02	--	0.001	0.02
		Exposure Point Total						2E-06					0.02
	Exposure Medium Total							2E-06					0.02
	Air	SWMU 11	Tetrachloroethene	--	2E-09	--	--	2E-09	Neurotoxicity	--	0.0006	--	0.0006
			Trichloroethene (Mutagenic)	--	8E-10	--	--	8E-10	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	--	2E-09	--	--	2E-09	Liver, Kidney	--	0.001	--	0.001
			Vinyl Chloride	--	5E-09	--	--	5E-09	Liver	--	0.00003	--	0.00003
			Arsenic	--	5E-10	--	--	5E-10	NA	--	0.00002	--	0.00002
			Chromium	--	4E-08	--	--	4E-08	Respiratory	--	0.00001	--	0.00001
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Vanadium	--	- -	--	--	- -	NA	--	0.00001	--	0.00001
			Chemical Total	--	5E-08	--	--	5E-08		- -	0.002	- -	0.002
		Exposure Point Total						5E-08					0.002
	Exposure Medium Total							5E-08					0.002
Medium Total								2E-06					0.02
Receptor Total							Receptor Risk Total	2E-06				Receptor HI Total	0.03

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 9.2.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	SWMU 11	2,3,7,8-TCDD Equivalents	3E-08	--	3E-09	--	3E-08	Immune	0.0008	--	0.00008	0.0009
			Benzo(a)anthracene	1E-09	--	5E-10	--	2E-09	NA	--	--	--	--
			Benzo(a)pyrene	1E-08	--	6E-09	--	2E-08	NA	--	--	--	--
			Benzo(b)fluoranthene	2E-09	--	7E-10	--	3E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	2E-08	--	6E-09	--	2E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	8E-10	--	3E-10	--	1E-09	NA	--	--	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.03	--	--	0.03
			Iron	- -	--	- -	--	- -	GS	0.06	--	--	0.06
			Chemical Total	7E-08	--	2E-08	--	8E-08		0.09	--	0.00008	0.09
		Exposure Point Total						8E-08					0.09
	Exposure Medium Total							8E-08					0.09
	Air	SWMU 11	2,3,7,8-TCDD Equivalents	--	5E-10	--	--	5E-10	Reproductive, Respir	--	0.00002	--	0.00002
			Benzo(a)anthracene	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Benzo(a)pyrene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Benzo(b)fluoranthene	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	6E-12	--	--	6E-12	NA	--	--	--	--
			Aluminum	--	- -	--	--	- -	CNS	--	0.3	--	0.3
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	8E-10	--	--	8E-10		- -	0.3	- -	0.3
		Exposure Point Total						8E-10					0.3
	Exposure Medium Total							8E-10					0.3
Medium Total								8E-08					0.4
Surface Soil	Surface Soil	IA 6	Benzo(a)anthracene	2E-09	--	8E-10	--	3E-09	NA	--	--	--	--
			Benzo(a)pyrene	3E-08	--	1E-08	--	4E-08	NA	--	--	--	--
			Benzo(b)fluoranthene	3E-09	--	1E-09	--	5E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	6E-09	--	2E-09	--	9E-09	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	2E-09	--	6E-10	--	2E-09	NA	--	--	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.03	--	--	0.03
			Iron	- -	--	- -	--	- -	GS	0.08	--	--	0.08
			Chemical Total	4E-08	--	2E-08	--	6E-08		0.1	--	--	0.1
		Exposure Point Total						6E-08					0.1
	Exposure Medium Total							6E-08					0.1
	Air	IA 6	Benzo(a)anthracene	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Benzo(a)pyrene	--	2E-10	--	--	2E-10	NA	--	--	--	--
			Benzo(b)fluoranthene	--	3E-11	--	--	3E-11	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	5E-11	--	--	5E-11	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Aluminum	--	- -	--	--	- -	CNS	--	0.3	--	0.3
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	3E-10	--	--	3E-10		- -	0.3	- -	0.3
		Exposure Point Total						3E-10					0.3
	Exposure Medium Total							3E-10					0.3
Medium Total								6E-08					0.4

TABLE 9.2.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	SWMU 11	Tetrachloroethene	2E-10	--	- -	--	2E-10	Neurotoxicity	0.00006	--	--	0.00006
			Trichloroethene (Mutagenic)	6E-11	--	- -	--	6E-11	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	2E-10	--	- -	--	2E-10	Liver, Kidney	0.0009	--	--	0.0009
			Vinyl Chloride	3E-09	--	- -	--	3E-09	Liver	0.0010	--	--	0.0010
			Arsenic	5E-07	--	8E-08	--	6E-07	Skin, CVS	0.08	--	0.01	0.09
			Chromium	1E-06	--	- -	--	1E-06	None Specified	0.03	--	--	0.03
			Iron	- -	--	- -	--	- -	GS	0.2	--	--	0.2
			Vanadium	- -	--	- -	--	- -	Kidney	0.02	--	--	0.02
			Chemical Total	2E-06	--	8E-08	--	2E-06		0.3	--	0.01	0.3
		Exposure Point Total						2E-06					0.3
	Exposure Medium Total							2E-06					0.3
	Air	SWMU 11	Tetrachloroethene	--	3E-09	--	--	3E-09	Neurotoxicity	--	0.02	--	0.02
			Trichloroethene (Mutagenic)	--	9E-10	--	--	9E-10	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	--	3E-09	--	--	3E-09	Liver, Kidney	--	0.03	--	0.03
			Vinyl Chloride	--	6E-09	--	--	6E-09	Liver	--	0.001	--	0.001
			Arsenic	--	1E-07	--	--	1E-07	NA	--	0.1	--	0.1
			Chromium	--	9E-06	--	--	9E-06	Respiratory	--	0.03	--	0.03
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Vanadium	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	9E-06	--	--	9E-06		- -	0.2	- -	0.2
		Exposure Point Total						9E-06					0.2
	Exposure Medium Total							9E-06					0.2
Medium Total								1E-05					0.6
Groundwater	Groundwater	SWMU 11	Benzene	- -	--	2E-09	--	2E-09	Blood	--	--	0.0002	0.0002
			Chloroform	- -	--	2E-10	--	2E-10	Liver	--	--	0.000005	0.000005
			cis-1,2-Dichloroethene	- -	--	- -	--	- -	Kidney	--	--	0.0008	0.0008
			Tetrachloroethene	- -	--	2E-09	--	2E-09	Neurotoxicity	--	--	0.0006	0.0006
			Trichloroethene (Mutagenic)	- -	--	1E-08	--	1E-08	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	- -	--	4E-08	--	4E-08	Liver, Kidney	--	--	0.2	0.2
			Vinyl Chloride	- -	--	1E-09	--	1E-09	Liver	--	--	0.0004	0.0004
			Chemical Total	- -	--	6E-08	--	6E-08		--	--	0.2	0.2
		Exposure Point Total						6E-08					0.2
	Exposure Medium Total							6E-08					0.2
	Air	SWMU 11	Benzene	--	5E-10	--	--	5E-10	Blood	--	0.00006	--	0.00006
			Chloroform	--	5E-10	--	--	5E-10	Liver	--	0.000006	--	0.000006
			cis-1,2-Dichloroethene	--	- -	--	--	- -	NA	--	--	--	--
			Tetrachloroethene	--	9E-11	--	--	9E-11	Neurotoxicity	--	0.0006	--	0.0006
			Trichloroethene (Mutagenic)	--	2E-09	--	--	2E-09	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	--	6E-09	--	--	6E-09	Liver, Kidney	--	0.06	--	0.06
			Vinyl Chloride	--	5E-11	--	--	5E-11	Liver	--	0.00001	--	0.00001
			Chemical Total	--	9E-09	--	--	9E-09		- -	0.06	- -	0.06
		Exposure Point Total						9E-09					0.06
	Exposure Medium Total							9E-09					0.06
Medium Total								7E-08					0.2
Receptor Total							Receptor Risk Total	1E-05				Receptor HI Total	2

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

Total Blood HI	0.0003
Total CNS HI	0.7
Total CVS HI	0.09
Total GS HI	0.4
Total Immune HI	0.0009
Total Kidney HI	0.3
Total Liver HI	0.3
Total Respiratory HI	0.03
Total None Specified HI	0.03
Total Skin HI	0.09
Total Neurotoxicity HI	0.02
Total Reproductive HI	0.00002

TABLE 9.3.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	SWMU 11	2,3,7,8-TCDD Equivalents	4E-07	--	8E-08	--	5E-07	Reproductive	0.01	--	0.002	0.01
			Benzo(a)anthracene	2E-08	--	1E-08	--	3E-08	NA	--	--	--	--
			Benzo(a)pyrene	2E-07	--	2E-07	--	3E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	2E-08	--	2E-08	--	4E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	2E-07	--	2E-07	--	4E-07	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	1E-08	--	9E-09	--	2E-08	NA	--	--	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.01	--	--	0.01
			Iron	- -	--	- -	--	- -	GS	0.03	--	--	0.03
			Chemical Total	8E-07	--	5E-07	--	1E-06		0.06	--	0.002	0.06
		Exposure Point Total						1E-06					0.06
	Exposure Medium Total							1E-06					0.06
	Air	SWMU 11	2,3,7,8-TCDD Equivalents	--	2E-11	--	--	2E-11	Reproductive, Respir	--	4E-8	--	4E-8
			Benzo(a)anthracene	--	4E-13	--	--	4E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	5E-12	--	--	5E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	6E-13	--	--	6E-13	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	6E-12	--	--	6E-12	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Aluminum	--	- -	--	--	- -	CNS	--	0.0005	--	0.0005
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	3E-11	--	--	3E-11		- -	0.0005	- -	0.0005
		Exposure Point Total						3E-11					0.0005
	Exposure Medium Total							3E-11					0.0005
Medium Total								1E-06					0.06
Surface Soil	Surface Soil	IA 6	Benzo(a)anthracene	3E-08	--	2E-08	--	5E-08	NA	--	--	--	--
			Benzo(a)pyrene	3E-07	--	3E-07	--	6E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	4E-08	--	4E-08	--	8E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	8E-08	--	7E-08	--	1E-07	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	2E-08	--	2E-08	--	4E-08	NA	--	--	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.01	--	--	0.01
			Iron	- -	--	- -	--	- -	GS	0.04	--	--	0.04
			Chemical Total	5E-07	--	4E-07	--	9E-07		0.06	--	--	0.06
		Exposure Point Total						9E-07					0.06
	Exposure Medium Total							9E-07					0.06
	Air	IA 6	Benzo(a)anthracene	--	7E-13	--	--	7E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	9E-12	--	--	9E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	1E-12	--	--	1E-12	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	5E-13	--	--	5E-13	NA	--	--	--	--
			Aluminum	--	- -	--	--	- -	CNS	--	0.0005	--	0.0005
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	1E-11	--	--	1E-11		- -	0.0005	- -	0.0005
		Exposure Point Total						1E-11					0.0005
	Exposure Medium Total							1E-11					0.0005
Medium Total								9E-07					0.06

TABLE 9.3.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	SWMU 11	Tetrachloroethene	2E-09	--	- -	--	2E-09	Neurotoxicity	0.0005	--	--	0.0005
			Trichloroethene (Mutagenic)	8E-10	--	- -	--	8E-10	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	3E-09	--	- -	--	3E-09	ne System, Developm	0.0005	--	--	0.0005
			Vinyl Chloride	4E-08	--	- -	--	4E-08	Liver	0.00005	--	--	0.00005
			Arsenic	6E-06	--	2E-06	--	9E-06	Skin, CVS	0.04	--	0.01	0.05
			Chromium	1E-05	--	- -	--	1E-05	None Specified	0.02	--	--	0.02
			Iron	- -	--	- -	--	- -	GS	0.1	--	--	0.1
			Vanadium	- -	--	- -	--	- -	Kidney	0.02	--	--	0.02
			Chemical Total	2E-05	--	2E-06	--	2E-05		0.2	--	0.01	0.2
		Exposure Point Total						2E-05					0.2
	Exposure Medium Total							2E-05					0.2
	Air	SWMU 11	Tetrachloroethene	--	2E-08	--	--	2E-08	Neurotoxicity	--	0.006	--	0.006
			Trichloroethene (Mutagenic)	--	8E-09	--	--	8E-09	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	--	3E-08	--	--	3E-08	Liver, Kidney	--	0.01	--	0.01
			Vinyl Chloride	--	5E-08	--	--	5E-08	Liver	--	0.0003	--	0.0003
			Arsenic	--	5E-09	--	--	5E-09	NA	--	0.0002	--	0.0002
			Chromium	--	4E-07	--	--	4E-07	Respiratory	--	0.0001	--	0.0001
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Vanadium	--	- -	--	--	- -	NA	--	0.0001	--	0.0001
			Chemical Total	--	5E-07	--	--	5E-07		- -	0.02	- -	0.02
		Exposure Point Total						5E-07					0.02
	Exposure Medium Total							5E-07					0.02
Medium Total								2E-05					0.2
Receptor Total							Receptor Risk Total	2E-05				Receptor HI Total	0.3

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 9.4.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	SWMU 11	2,3,7,8-TCDD Equivalents	3E-08	--	6E-09	--	4E-08	Reproductive	0.002	--	0.0004	0.002
			Benzo(a)anthracene	4E-09	--	3E-09	--	7E-09	NA	--	--	--	--
			Benzo(a)pyrene	4E-08	--	3E-08	--	7E-08	NA	--	--	--	--
			Benzo(b)fluoranthene	5E-09	--	4E-09	--	1E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	5E-08	--	4E-08	--	9E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	2E-09	--	2E-09	--	4E-09	NA	--	--	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.003	--	--	0.003
			Iron	- -	--	- -	--	- -	GS	0.005	--	--	0.005
			Chemical Total	1E-07	--	9E-08	--	2E-07		0.010	--	0.0004	0.01
		Exposure Point Total						2E-07					0.01
	Exposure Medium Total							2E-07					0.01
	Air	SWMU 11	2,3,7,8-TCDD Equivalents	--	5E-13	--	--	5E-13	Liver, Reproductive, Respiratory	--	2E-9	--	2E-9
			Benzo(a)anthracene	--	3E-14	--	--	3E-14	NA	--	--	--	--
			Benzo(a)pyrene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Benzo(b)fluoranthene	--	4E-14	--	--	4E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	4E-13	--	--	4E-13	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	2E-14	--	--	2E-14	NA	--	--	--	--
			Aluminum	--	- -	--	--	- -	CNS	--	0.00003	--	0.00003
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	1E-12	--	--	1E-12		- -	0.00003	- -	0.00003
		Exposure Point Total						1E-12					0.00003
	Exposure Medium Total							1E-12					0.00003
Medium Total								2E-07					0.01
Surface Soil	Surface Soil	IA 6	Benzo(a)anthracene	6E-09	--	5E-09	--	1E-08	NA	--	--	--	--
			Benzo(a)pyrene	7E-08	--	6E-08	--	1E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	1E-08	--	8E-09	--	2E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	2E-08	--	1E-08	--	3E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	5E-09	--	4E-09	--	8E-09	NA	--	--	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.002	--	--	0.002
			Iron	- -	--	- -	--	- -	GS	0.007	--	--	0.007
			Chemical Total	1E-07	--	1E-07	--	2E-07		0.010	--	--	0.010
		Exposure Point Total						2E-07					0.010
	Exposure Medium Total							2E-07					0.010
	Air	IA 6	Benzo(a)anthracene	--	5E-14	--	--	5E-14	NA	--	--	--	--
			Benzo(a)pyrene	--	6E-13	--	--	6E-13	NA	--	--	--	--
			Benzo(b)fluoranthene	--	8E-14	--	--	8E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	4E-14	--	--	4E-14	NA	--	--	--	--
			Aluminum	--	- -	--	--	- -	CNS	--	0.00003	--	0.00003
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	9E-13	--	--	9E-13		- -	0.00003	- -	0.00003
		Exposure Point Total						9E-13					0.00003
	Exposure Medium Total							9E-13					0.00003
Medium Total								2E-07					0.010

TABLE 9.4.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	SWMU 11	Tetrachloroethene	2E-10	--	- -	--	2E-10	Neurotoxicity	0.00008	--	--	0.00008
			Trichloroethene (Mutagenic)	2E-10	--	- -	--	2E-10	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	2E-10	--	- -	--	2E-10	Immune System, Developmental	0.00008	--	--	0.00008
			Vinyl Chloride	3E-09	--	- -	--	3E-09	Liver	0.000009	--	--	0.000009
			Arsenic	5E-07	--	2E-07	--	6E-07	Skin, CVS	0.007	--	0.002	0.009
			Chromium	3E-06	--	- -	--	3E-06	None Specified	0.004	--	--	0.004
			Iron	- -	--	- -	--	- -	GS	0.02	--	--	0.02
			Vanadium	- -	--	- -	--	- -	Kidney	0.003	--	--	0.003
			Chemical Total	3E-06	--	2E-07	--	4E-06		0.03	--	0.002	0.03
		Exposure Point Total						4E-06					0.03
	Exposure Medium Total							4E-06					0.03
	Air	SWMU 11	Tetrachloroethene	--	5E-10	--	--	5E-10	Neurotoxicity	--	0.0003	--	0.0003
			Trichloroethene (Mutagenic)	--	6E-10	--	--	6E-10	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	--	6E-10	--	--	6E-10	Liver, Kidney	--	0.0006	--	0.0006
			Vinyl Chloride	--	1E-09	--	--	1E-09	Liver	--	0.00002	--	0.00002
			Arsenic	--	1E-10	--	--	1E-10	NA	--	0.00001	--	0.00001
			Chromium	--	3E-08	--	--	3E-08	Respiratory	--	0.000007	--	0.000007
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Vanadium	--	- -	--	--	- -	NA	--	0.000008	--	0.000008
			Chemical Total	--	3E-08	--	--	3E-08		- -	0.0010	- -	0.0010
		Exposure Point Total						3E-08					0.0010
	Exposure Medium Total							3E-08					0.0010
Medium Total								4E-06					0.03
Sediment	Sediment	SWMU 11	2,3,7,8-TCDD Equivalents	3E-08	--	6E-09	--	4E-08	Reproductive	0.002	--	0.0004	0.003
			Benzo(a)pyrene	7E-08	--	6E-08	--	1E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	8E-09	--	7E-09	--	2E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-08	--	9E-09	--	2E-08	NA	--	--	--	--
			Arsenic	5E-07	--	2E-07	--	6E-07	Skin, CVS	0.007	--	0.002	0.009
			Chromium	4E-06	--	- -	--	4E-06	None Specified	0.005	--	--	0.005
			Iron	- -	--	- -	--	- -	GS	0.007	--	--	0.007
			Thallium	- -	--	- -	--	- -	Skin	--	--	--	--
			Vanadium	- -	--	- -	--	- -	Kidney	0.001	--	--	0.001
			Chemical Total	4E-06	--	2E-07	--	4E-06		0.02	--	0.003	0.03
		Exposure Point Total						4E-06					0.03
	Exposure Medium Total							4E-06					0.03
Medium Total								4E-06					0.03
Receptor Total							Receptor Risk Total	8E-06				Receptor HI Total	0.08

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	SWMU 11	2,3,7,8-TCDD Equivalents	9E-08	--	2E-08	--	1E-07	Reproductive	0.01	--	0.002	0.01
			Benzo(a)anthracene	2E-08	--	2E-08	--	4E-08	NA	--	--	--	--
			Benzo(a)pyrene	2E-07	--	2E-07	--	4E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	3E-08	--	2E-08	--	5E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	3E-07	--	2E-07	--	5E-07	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	1E-08	--	1E-08	--	2E-08	NA	--	--	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.01	--	--	0.01
			Iron	- -	--	- -	--	- -	GS	0.03	--	--	0.03
			Chemical Total	6E-07	--	5E-07	--	1E-06		0.06	--	0.002	0.06
		Exposure Point Total						1E-06					0.06
	Exposure Medium Total							1E-06					0.06
	Air	SWMU 11	2,3,7,8-TCDD Equivalents	--	5E-13	--	--	5E-13	Liver, Reproductive, Respiratory	--	4E-9	--	4E-9
			Benzo(a)anthracene	--	6E-14	--	--	6E-14	NA	--	--	--	--
			Benzo(a)pyrene	--	6E-13	--	--	6E-13	NA	--	--	--	--
			Benzo(b)fluoranthene	--	8E-14	--	--	8E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	8E-13	--	--	8E-13	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	4E-14	--	--	4E-14	NA	--	--	--	--
			Aluminum	--	- -	--	--	- -	CNS	--	0.00005	--	0.00005
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	2E-12	--	--	2E-12		- -	0.00005	- -	0.00005
		Exposure Point Total						2E-12					0.00005
	Exposure Medium Total							2E-12					0.00005
Medium Total								1E-06					0.06
Surface Soil	Surface Soil	IA 6	Benzo(a)anthracene	3E-08	--	3E-08	--	6E-08	NA	--	--	--	--
			Benzo(a)pyrene	4E-07	--	4E-07	--	8E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	5E-08	--	5E-08	--	1E-07	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-07	--	8E-08	--	2E-07	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	3E-08	--	2E-08	--	5E-08	NA	--	--	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.01	--	--	0.01
			Iron	- -	--	- -	--	- -	GS	0.04	--	--	0.04
			Chemical Total	6E-07	--	5E-07	--	1E-06		0.05	--	--	0.05
		Exposure Point Total						1E-06					0.05
	Exposure Medium Total							1E-06					0.05
	Air	IA 6	Benzo(a)anthracene	--	1E-13	--	--	1E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	1E-12	--	--	1E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	7E-14	--	--	7E-14	NA	--	--	--	--
			Aluminum	--	- -	--	--	- -	CNS	--	0.00005	--	0.00005
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	2E-12	--	--	2E-12		- -	0.00005	- -	0.00005
		Exposure Point Total						2E-12					0.00005
	Exposure Medium Total							2E-12					0.00005
Medium Total								1E-06					0.05

TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	SWMU 11	Tetrachloroethene	5E-10	--	- -	--	5E-10	Neurotoxicity	0.0005	--	--	0.0005
			Trichloroethene (Mutagenic)	1E-09	--	- -	--	1E-09	NA	--	--	--	--
			Trichloroethene (Nonmutagenic)	7E-10	--	- -	--	7E-10	Immune System, Developmental	0.0005	--	--	0.0005
			Vinyl Chloride	7E-07	--	- -	--	7E-07	Liver	0.00005	--	--	0.00005
			Arsenic	1E-06	--	5E-07	--	2E-06	Skin, CVS	0.04	--	0.01	0.05
			Chromium	2E-05	--	- -	--	2E-05	None Specified	0.02	--	--	0.02
			Iron	- -	--	- -	--	- -	GS	0.1	--	--	0.1
			Vanadium	- -	--	- -	--	- -	Kidney	0.02	--	--	0.02
			Chemical Total	2E-05	--	5E-07	--	2E-05		0.2	--	0.01	0.2
		Exposure Point Total						2E-05					0.2
	Exposure Medium Total							2E-05					0.2
	Air	SWMU 11	Tetrachloroethene	--	6E-10	--	--	6E-10	Neurotoxicity	--	0.0007	--	0.0007
			Trichloroethene (Mutagenic)	--	1E-09	--	--	1E-09	NA	--	--	--	--
			Trichloroethene (Nonmutagenic)	--	6E-10	--	--	6E-10	Liver, Kidney	--	0.001	--	0.001
			Vinyl Chloride	--	7E-07	--	--	7E-07	Liver	--	0.00004	--	0.00004
			Arsenic	--	1E-10	--	--	1E-10	NA	--	0.00002	--	0.00002
			Chromium	--	5E-08	--	--	5E-08	Respiratory	--	0.00001	--	0.00001
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Vanadium	--	- -	--	--	- -	NA	--	0.00002	--	0.00002
			Chemical Total	--	7E-07	--	--	7E-07		- -	0.002	- -	0.002
		Exposure Point Total						7E-07					0.002
	Exposure Medium Total							7E-07					0.002
Medium Total								2E-05					0.2
Sediment	Sediment	SWMU 11	2,3,7,8-TCDD Equivalents	1E-07	--	2E-08	--	1E-07	Reproductive	0.01	--	0.002	0.01
			Benzo(a)pyrene	4E-07	--	3E-07	--	7E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	5E-08	--	4E-08	--	9E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	6E-08	--	5E-08	--	1E-07	NA	--	--	--	--
			Arsenic	2E-06	--	5E-07	--	2E-06	Skin, CVS	0.04	--	0.01	0.05
			Chromium	2E-05	--	- -	--	2E-05	None Specified	0.03	--	--	0.03
			Iron	- -	--	- -	--	- -	GS	0.04	--	--	0.04
			Thallium	- -	--	- -	--	- -	Skin	--	--	--	--
			Vanadium	- -	--	- -	--	- -	Kidney	0.007	--	--	0.007
			Chemical Total	2E-05	--	9E-07	--	2E-05		0.1	--	0.02	0.1
		Exposure Point Total						2E-05					0.1
	Exposure Medium Total							2E-05					0.1
Medium Total								2E-05					0.1
Receptor Total							Receptor Risk Total	5E-05				Receptor HI Total	0.5

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	SWMU 11	2,3,7,8-TCDD Equivalents	4E-08	--	2E-08	--	5E-08	Reproductive	0.001	--	0.0005	0.002
			Benzo(a)anthracene	3E-09	--	5E-09	--	8E-09	NA	--	--	--	--
			Benzo(a)pyrene	3E-08	--	5E-08	--	9E-08	NA	--	--	--	--
			Benzo(b)fluoranthene	4E-09	--	7E-09	--	1E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	4E-08	--	6E-08	--	1E-07	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	2E-09	--	3E-09	--	5E-09	NA	--	--	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.002	--	--	0.002
			Iron	- -	--	- -	--	- -	GS	0.003	--	--	0.003
			Chemical Total	1E-07	--	1E-07	--	3E-07		0.006	--	0.0005	0.007
		Exposure Point Total						3E-07					0.007
	Exposure Medium Total							3E-07					0.007
	Air	SWMU 11	2,3,7,8-TCDD Equivalents	--	2E-12	--	--	2E-12	Liver, Reproductive, Respiratory	--	4E-9	--	4E-9
			Benzo(a)anthracene	--	8E-14	--	--	8E-14	NA	--	--	--	--
			Benzo(a)pyrene	--	9E-13	--	--	9E-13	NA	--	--	--	--
			Benzo(b)fluoranthene	--	1E-13	--	--	1E-13	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	1E-12	--	--	1E-12	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	5E-14	--	--	5E-14	NA	--	--	--	--
			Aluminum	--	- -	--	--	- -	CNS	--	0.00005	--	0.00005
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	4E-12	--	--	4E-12		- -	0.00005	- -	0.00005
		Exposure Point Total						4E-12					0.00005
	Exposure Medium Total							4E-12					0.00005
Medium Total								3E-07					0.007
Surface Soil	Surface Soil	IA 6	Benzo(a)anthracene	5E-09	--	8E-09	--	1E-08	NA	--	--	--	--
			Benzo(a)pyrene	6E-08	--	1E-07	--	2E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	8E-09	--	1E-08	--	2E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-08	--	2E-08	--	4E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	4E-09	--	6E-09	--	1E-08	NA	--	--	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.001	--	--	0.001
			Iron	- -	--	- -	--	- -	GS	0.004	--	--	0.004
			Chemical Total	9E-08	--	2E-07	--	2E-07		0.006	--	--	0.006
		Exposure Point Total						2E-07					0.006
	Exposure Medium Total							2E-07					0.006
	Air	IA 6	Benzo(a)anthracene	--	1E-13	--	--	1E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	4E-13	--	--	4E-13	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	1E-13	--	--	1E-13	NA	--	--	--	--
			Aluminum	--	- -	--	--	- -	CNS	--	0.00005	--	0.00005
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	2E-12	--	--	2E-12		- -	0.00005	- -	0.00005
		Exposure Point Total						2E-12					0.00005
	Exposure Medium Total							2E-12					0.00005
Medium Total								2E-07					0.006

TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	SWMU 11	Tetrachloroethene	2E-10	--	- -	--	2E-10	Neurotoxicity	0.00005	--	--	0.00005
			Trichloroethene (Mutagenic)	1E-10	--	- -	--	1E-10	NA	--	--	--	--
			Trichloroethene (Nonmutagenic)	3E-10	--	- -	--	3E-10	Immune System, Developmental	0.00005	--	--	0.00005
			Vinyl Chloride	4E-09	--	- -	--	4E-09	Liver	0.000005	--	--	0.000005
			Arsenic	6E-07	--	4E-07	--	1E-06	Skin, CVS	0.004	--	0.003	0.007
			Chromium	2E-06	--	- -	--	2E-06	None Specified	0.003	--	--	0.003
			Iron	- -	--	- -	--	- -	GS	0.01	--	--	0.01
			Vanadium	- -	--	- -	--	- -	Kidney	0.002	--	--	0.002
			Chemical Total	3E-06	--	4E-07	--	3E-06		0.02	--	0.003	0.02
		Exposure Point Total						3E-06					0.02
	Exposure Medium Total							3E-06					0.02
	Air	SWMU 11	Tetrachloroethene	--	2E-09	--	--	2E-09	Neurotoxicity	--	0.0007	--	0.0007
			Trichloroethene (Mutagenic)	--	1E-09	--	--	1E-09	NA	--	--	--	--
			Trichloroethene (Nonmutagenic)	--	3E-09	--	--	3E-09	Liver, Kidney	--	0.001	--	0.001
			Vinyl Chloride	--	5E-09	--	--	5E-09	Liver	--	0.00004	--	0.00004
			Arsenic	--	5E-10	--	--	5E-10	NA	--	0.00002	--	0.00002
			Chromium	--	7E-08	--	--	7E-08	Respiratory	--	0.00001	--	0.00001
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Vanadium	--	- -	--	--	- -	NA	--	0.00002	--	0.00002
			Chemical Total	--	8E-08	--	--	8E-08		- -	0.002	- -	0.002
		Exposure Point Total						8E-08					0.002
	Exposure Medium Total							8E-08					0.002
Medium Total								4E-06					0.02
Sediment	Sediment	SWMU 11	2,3,7,8-TCDD Equivalents	4E-08	--	2E-08	--	6E-08	Reproductive	0.001	--	0.0005	0.002
			Benzo(a)pyrene	6E-08	--	9E-08	--	2E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	7E-09	--	1E-08	--	2E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	8E-09	--	1E-08	--	2E-08	NA	--	--	--	--
			Arsenic	7E-07	--	4E-07	--	1E-06	Skin, CVS	0.004	--	0.003	0.007
			Chromium	3E-06	--	- -	--	3E-06	None Specified	0.003	--	--	0.003
			Iron	- -	--	- -	--	- -	GS	0.004	--	--	0.004
			Thallium	- -	--	- -	--	- -	Skin	--	--	--	--
			Vanadium	- -	--	- -	--	- -	Kidney	0.0007	--	--	0.0007
			Chemical Total	4E-06	--	5E-07	--	4E-06		0.01	--	0.003	0.02
		Exposure Point Total						4E-06					0.02
	Exposure Medium Total							4E-06					0.02
Medium Total								4E-06					0.02
Receptor Total							Receptor Risk Total	8E-06				Receptor HI Total	0.05

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 9.7.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	SWMU 11	2,3,7,8-TCDD Equivalents	1E-07	--	3E-08	--	2E-07					
			Benzo(a)anthracene	2E-08	--	2E-08	--	5E-08					
			Benzo(a)pyrene	3E-07	--	2E-07	--	5E-07					
			Benzo(b)fluoranthene	3E-08	--	3E-08	--	6E-08					
			Dibenzo(a,h)anthracene	3E-07	--	3E-07	--	6E-07					
			Indeno(1,2,3-cd)pyrene	1E-08	--	1E-08	--	3E-08					
			Aluminum	- -	--	- -	--	- -					
			Iron	- -	--	- -	--	- -					
			Chemical Total	8E-07	--	6E-07	--	1E-06					
		Exposure Point Total						1E-06					
	Exposure Medium Total							1E-06					
	Air	SWMU 11	2,3,7,8-TCDD Equivalents	--	3E-12	--	--	3E-12					
			Benzo(a)anthracene	--	1E-13	--	--	1E-13					
			Benzo(a)pyrene	--	2E-12	--	--	2E-12					
			Benzo(b)fluoranthene	--	2E-13	--	--	2E-13					
			Dibenzo(a,h)anthracene	--	2E-12	--	--	2E-12					
			Indeno(1,2,3-cd)pyrene	--	9E-14	--	--	9E-14					
			Aluminum	--	- -	--	--	- -					
			Iron	--	- -	--	--	- -					
			Chemical Total	--	6E-12	--	--	6E-12					
		Exposure Point Total						6E-12					
	Exposure Medium Total							6E-12					
Medium Total								1E-06					
Surface Soil	Surface Soil	IA 6	Benzo(a)anthracene	4E-08	--	4E-08	--	8E-08					
			Benzo(a)pyrene	5E-07	--	5E-07	--	9E-07					
			Benzo(b)fluoranthene	6E-08	--	6E-08	--	1E-07					
			Dibenzo(a,h)anthracene	1E-07	--	1E-07	--	2E-07					
			Indeno(1,2,3-cd)pyrene	3E-08	--	3E-08	--	6E-08					
			Aluminum	- -	--	- -	--	- -					
			Iron	- -	--	- -	--	- -					
			Chemical Total	7E-07	--	7E-07	--	1E-06					
		Exposure Point Total						1E-06					
	Exposure Medium Total							1E-06					
	Air	IA 6	Benzo(a)anthracene	--	2E-13	--	--	2E-13					
			Benzo(a)pyrene	--	3E-12	--	--	3E-12					
			Benzo(b)fluoranthene	--	4E-13	--	--	4E-13					
			Dibenzo(a,h)anthracene	--	7E-13	--	--	7E-13					
			Indeno(1,2,3-cd)pyrene	--	2E-13	--	--	2E-13					
			Aluminum	--	- -	--	--	- -					
			Iron	--	- -	--	--	- -					
			Chemical Total	--	4E-12	--	--	4E-12					
		Exposure Point Total						4E-12					
	Exposure Medium Total							4E-12					
Medium Total								1E-06					

TABLE 9.7.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	SWMU 11	Tetrachloroethene	7E-10	--	- -	--	7E-10					
			Trichloroethene (Mutagenic)	1E-09	--	- -	--	1E-09					
			Trichloroethene (Nonmutagenic	1E-09	--	- -	--	1E-09					
			Vinyl Chloride	8E-07	--	- -	--	8E-07					
			Arsenic	2E-06	--	9E-07	--	3E-06					
			Chromium	2E-05	--	- -	--	2E-05					
			Iron	- -	--	- -	--	- -					
			Vanadium	- -	--	- -	--	- -					
			Chemical Total	2E-05	--	9E-07	--	2E-05					
		Exposure Point Total						2E-05					
	Exposure Medium Total							2E-05					
	Air	SWMU 11	Tetrachloroethene	--	3E-09	--	--	3E-09					
			Trichloroethene (Mutagenic)	--	3E-09	--	--	3E-09					
			Trichloroethene (Nonmutagenic	--	3E-09	--	--	3E-09					
			Vinyl Chloride	--	7E-07	--	--	7E-07					
			Arsenic	--	7E-10	--	--	7E-10					
			Chromium	--	1E-07	--	--	1E-07					
			Iron	--	- -	--	--	- -					
			Vanadium	--	- -	--	--	- -					
			Chemical Total	--	8E-07	--	--	8E-07					
		Exposure Point Total						8E-07					
	Exposure Medium Total							8E-07					
Medium Total								2E-05					
Sediment	Sediment	SWMU 11	2,3,7,8-TCDD Equivalents	1E-07	--	3E-08	--	2E-07					
			Benzo(a)pyrene	4E-07	--	4E-07	--	9E-07					
			Benzo(b)fluoranthene	5E-08	--	5E-08	--	1E-07					
			Dibenzo(a,h)anthracene	7E-08	--	6E-08	--	1E-07					
			Arsenic	2E-06	--	9E-07	--	3E-06					
			Chromium	2E-05	--	- -	--	2E-05					
			Iron	- -	--	- -	--	- -					
			Thallium	- -	--	- -	--	- -					
			Vanadium	- -	--	- -	--	- -					
			Chemical Total	3E-05	--	1E-06	--	3E-05					
		Exposure Point Total						3E-05					
	Exposure Medium Total							3E-05					
Medium Total								3E-05					
Receptor Total							Receptor Risk Total	5E-05					

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	SWMU 11	2,3,7,8-TCDD Equivalents	1E-06	--	1E-07	--	1E-06	Reproductive	0.2	--	0.01	0.2
			Benzo(a)anthracene	3E-07	--	1E-07	--	4E-07	NA	--	--	--	--
			Benzo(a)pyrene	3E-06	--	1E-06	--	4E-06	NA	--	--	--	--
			Benzo(b)fluoranthene	4E-07	--	1E-07	--	5E-07	NA	--	--	--	--
			Dibenzo(a,h)anthracene	4E-06	--	1E-06	--	5E-06	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	2E-07	--	6E-08	--	2E-07	NA	--	--	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.2	--	--	0.2
			Iron	- -	--	- -	--	- -	GS	0.4	--	--	0.4
			Chemical Total	9E-06	--	3E-06	--	1E-05		0.8	--	0.01	0.8
		Exposure Point Total						1E-05					0.8
	Exposure Medium Total							1E-05					0.8
	Air	SWMU 11	2,3,7,8-TCDD Equivalents	--	2E-11	--	--	2E-11	Liver, Reproductive, Respiratory	--	0.0000002	--	0.0000002
			Benzo(a)anthracene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Benzo(a)pyrene	--	3E-11	--	--	3E-11	NA	--	--	--	--
			Benzo(b)fluoranthene	--	3E-12	--	--	3E-12	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	3E-11	--	--	3E-11	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	1E-12	--	--	1E-12	NA	--	--	--	--
			Aluminum	--	- -	--	--	- -	CNS	--	0.002	--	0.002
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	9E-11	--	--	9E-11		- -	0.002	- -	0.002
		Exposure Point Total						9E-11					0.002
	Exposure Medium Total							9E-11					0.002
Medium Total								1E-05					0.8
Surface Soil	Surface Soil	IA 6	Benzo(a)anthracene	5E-07	--	2E-07	--	6E-07	NA	--	--	--	--
			Benzo(a)pyrene	6E-06	--	2E-06	--	8E-06	NA	--	--	--	--
			Benzo(b)fluoranthene	7E-07	--	3E-07	--	1E-06	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-06	--	5E-07	--	2E-06	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	3E-07	--	1E-07	--	5E-07	NA	--	--	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.2	--	--	0.2
			Iron	- -	--	- -	--	- -	GS	0.5	--	--	0.5
			Chemical Total	8E-06	--	3E-06	--	1E-05		0.7	--	--	0.7
		Exposure Point Total						1E-05					0.7
	Exposure Medium Total							1E-05					0.7
	Air	IA 6	Benzo(a)anthracene	--	4E-12	--	--	4E-12	NA	--	--	--	--
			Benzo(a)pyrene	--	5E-11	--	--	5E-11	NA	--	--	--	--
			Benzo(b)fluoranthene	--	6E-12	--	--	6E-12	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	3E-12	--	--	3E-12	NA	--	--	--	--
			Aluminum	--	- -	--	--	- -	CNS	--	0.002	--	0.002
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	7E-11	--	--	7E-11		- -	0.002	- -	0.002
		Exposure Point Total						7E-11					0.002
	Exposure Medium Total							7E-11					0.002
Medium Total								1E-05					0.7

TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	SWMU 11	Tetrachloroethene	7E-09	--	- -	--	7E-09	Neurotoxicity	0.006	--	--	0.006
			Trichloroethene (Mutagenic)	1E-08	--	- -	--	1E-08	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	1E-08	--	- -	--	1E-08	Immune System, Developmental	0.006	--	--	0.006
			Vinyl Chloride	2E-06	--	- -	--	2E-06	Liver	0.0007	--	--	0.0007
			Arsenic	2E-05	--	3E-06	--	2E-05	Skin, CVS	0.5	--	0.07	0.6
			Chromium	2E-04	--	- -	--	2E-04	None Specified	0.3	--	--	0.3
			Iron	- -	--	- -	--	- -	GS	1	--	--	1
			Vanadium	- -	--	- -	--	- -	Kidney	0.2	--	--	0.2
			Chemical Total	2E-04	--	3E-06	--	2E-04		2	--	0.07	3
		Exposure Point Total						2E-04					3
	Exposure Medium Total							2E-04					3
	Air	SWMU 11	Tetrachloroethene	--	2E-08	--	--	2E-08	Neurotoxicity	--	0.03	--	0.03
			Trichloroethene (Mutagenic)	--	4E-08	--	--	4E-08	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	--	3E-08	--	--	3E-08	Liver, Kidney	--	0.05	--	0.05
			Vinyl Chloride	--	7E-07	--	--	7E-07	Liver	--	0.001	--	0.001
			Arsenic	--	5E-09	--	--	5E-09	NA	--	0.0010	--	0.0010
			Chromium	--	2E-06	--	--	2E-06	Respiratory	--	0.0005	--	0.0005
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Vanadium	--	- -	--	--	- -	NA	--	0.0006	--	0.0006
			Chemical Total	--	3E-06	--	--	3E-06		- -	0.08	- -	0.08
		Exposure Point Total						3E-06					0.08
	Exposure Medium Total							3E-06					0.08
Medium Total								2E-04					3
Groundwater	Groundwater	SWMU 11	Benzene	1E-06	--	1E-07	--	1E-06	Blood	0.05	--	0.008	0.06
			Chloroform	2E-07	--	2E-08	--	2E-07	Liver	0.008	--	0.0007	0.009
			cis-1,2-Dichloroethene	- -	--	- -	--	- -	Kidney	0.9	--	0.1	1.0
			Tetrachloroethene	3E-07	--	2E-07	--	5E-07	Neurotoxicity	0.3	--	0.2	0.4
			Trichloroethene (Mutagenic)	3E-05	--	5E-06	--	4E-05	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	2E-05	--	4E-06	--	3E-05	Immune System, Developmental	15	--	2	17
			Vinyl Chloride	3E-05	--	1E-06	--	3E-05	Liver	0.01	--	0.0006	0.01
			Chemical Total	8E-05	--	1E-05	--	9E-05		16	--	3	19
		Exposure Point Total						9E-05					19
	Exposure Medium Total							9E-05					19
	Air	SWMU 11	Benzene	--	2E-07	--	--	2E-07	Blood	--	0.008	--	0.008
			Chloroform	--	2E-07	--	--	2E-07	Liver	--	0.0008	--	0.0008
			cis-1,2-Dichloroethene	--	- -	--	--	- -	NA	--	--	--	--
			Tetrachloroethene	--	3E-08	--	--	3E-08	Neurotoxicity	--	0.04	--	0.04
			Trichloroethene (Mutagenic)	--	3E-06	--	--	3E-06	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	--	2E-06	--	--	2E-06	Liver, Kidney	--	4	--	4
			Vinyl Chloride	--	5E-06	--	--	5E-06	Liver	--	0.0004	--	0.0004
			Chemical Total	--	1E-05	--	--	1E-05		- -	4	- -	4
		Exposure Point Total						1E-05					4
	Exposure Medium Total							1E-05					4
Medium Total								1E-04					22

TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Vapor Intrusion	Air	SWMU 11	Benzene	--	2E-08	--	--	2E-08	Blood	--	0.0002	--	0.0002
			Chloroform	--	2E-08	--	--	2E-08	Liver	--	0.00002	--	0.00002
			cis-1,2-Dichloroethene	--	- -	--	--	- -	NA	--	--	--	--
			Tetrachloroethene	--	8E-09	--	--	8E-09	Neurotoxicity	--	0.002	--	0.002
			Trichloroethene (Mutagenic)	--	6E-07	--	--	6E-07	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	--	3E-07	--	--	3E-07	Liver, Kidney	--	0.1	--	0.1
			Vinyl Chloride	--	2E-08	--	--	2E-08	Liver	--	0.00005	--	0.00005
			Chemical Total	--	1E-06	--	--	1E-06		- -	0.2	- -	0.2
		Exposure Point Total						1E-06					0.2
	Exposure Medium Total							1E-06					0.2
Medium Total								1E-06					0.2
Receptor Total							Receptor Risk Total	4E-04				Receptor HI Total	26

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

Total Blood HI	0.07
Total CNS HI	0.4
Total CVS HI	0.6
Total Developmental HI	17
Total GS HI	2
Total Kidney HI	5
Total Liver HI	4
Total Respiratory HI	0.0005
Total None Specified HI	0.3
Total Skin HI	0.6
Total Neurotoxicity HI	0.5
Total Reproductive HI	0.2

TABLE 9.9.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	SWMU 11	2,3,7,8-TCDD Equivalents	5E-07	--	6E-08	--	6E-07	Reproductive	0.02	--	0.002	0.02
			Benzo(a)anthracene	4E-08	--	2E-08	--	6E-08	NA	--	--	--	--
			Benzo(a)pyrene	4E-07	--	2E-07	--	7E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	6E-08	--	3E-08	--	9E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	5E-07	--	3E-07	--	8E-07	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	3E-08	--	1E-08	--	4E-08	NA	--	--	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.02	--	--	0.02
			Iron	- -	--	- -	--	- -	GS	0.04	--	--	0.04
			Chemical Total	2E-06	--	6E-07	--	2E-06		0.08	--	0.002	0.08
		Exposure Point Total						2E-06					0.08
	Exposure Medium Total							2E-06					0.08
	Air	SWMU 11	2,3,7,8-TCDD Equivalents	--	8E-11	--	--	8E-11	Liver, Reproductive, Respiratory	--	0.0000002	--	0.0000002
			Benzo(a)anthracene	--	3E-12	--	--	3E-12	NA	--	--	--	--
			Benzo(a)pyrene	--	4E-11	--	--	4E-11	NA	--	--	--	--
			Benzo(b)fluoranthene	--	5E-12	--	--	5E-12	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	5E-11	--	--	5E-11	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Aluminum	--	- -	--	--	- -	CNS	--	0.002	--	0.002
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	2E-10	--	--	2E-10		- -	0.002	- -	0.002
		Exposure Point Total						2E-10					0.002
	Exposure Medium Total							2E-10					0.002
Medium Total								2E-06					0.09
Surface Soil	Surface Soil	IA 6	Benzo(a)anthracene	7E-08	--	3E-08	--	1E-07	NA	--	--	--	--
			Benzo(a)pyrene	8E-07	--	4E-07	--	1E-06	NA	--	--	--	--
			Benzo(b)fluoranthene	1E-07	--	6E-08	--	2E-07	NA	--	--	--	--
			Dibenzo(a,h)anthracene	2E-07	--	1E-07	--	3E-07	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	5E-08	--	3E-08	--	8E-08	NA	--	--	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.02	--	--	0.02
			Iron	- -	--	- -	--	- -	GS	0.06	--	--	0.06
			Chemical Total	1E-06	--	6E-07	--	2E-06		0.08	--	--	0.08
		Exposure Point Total						2E-06					0.08
	Exposure Medium Total							2E-06					0.08
	Air	IA 6	Benzo(a)anthracene	--	5E-12	--	--	5E-12	NA	--	--	--	--
			Benzo(a)pyrene	--	7E-11	--	--	7E-11	NA	--	--	--	--
			Benzo(b)fluoranthene	--	9E-12	--	--	9E-12	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	4E-12	--	--	4E-12	NA	--	--	--	--
			Aluminum	--	- -	--	--	- -	CNS	--	0.002	--	0.002
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	1E-10	--	--	1E-10		- -	0.002	- -	0.002
		Exposure Point Total						1E-10					0.002
	Exposure Medium Total							1E-10					0.002
Medium Total								2E-06					0.08

TABLE 9.9.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	SWMU 11	Tetrachloroethene	3E-09	--	- -	--	3E-09	Neurotoxicity	0.0007	--	--	0.0007
			Trichloroethene (Mutagenic)	2E-09	--	- -	--	2E-09	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	4E-09	--	- -	--	4E-09	Immune System, Developmental	0.0007	--	--	0.0007
			Vinyl Chloride	5E-08	--	- -	--	5E-08	Liver	0.00007	--	--	0.00007
			Arsenic	9E-06	--	2E-06	--	1E-05	Skin, CVS	0.06	--	0.01	0.07
			Chromium	3E-05	--	- -	--	3E-05	None Specified	0.03	--	--	0.03
			Iron	- -	--	- -	--	- -	GS	0.1	--	--	0.1
			Vanadium	- -	--	- -	--	- -	Kidney	0.02	--	--	0.02
			Chemical Total	4E-05	--	2E-06	--	4E-05		0.3	--	0.01	0.3
		Exposure Point Total						4E-05					0.3
	Exposure Medium Total							4E-05					0.3
	Air	SWMU 11	Tetrachloroethene	--	1E-07	--	--	1E-07	Neurotoxicity	--	0.03	--	0.03
			Trichloroethene (Mutagenic)	--	6E-08	--	--	6E-08	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	--	1E-07	--	--	1E-07	Liver, Kidney	--	0.05	--	0.05
			Vinyl Chloride	--	2E-07	--	--	2E-07	Liver	--	0.001	--	0.001
			Arsenic	--	2E-08	--	--	2E-08	NA	--	0.0010	--	0.0010
			Chromium	--	3E-06	--	--	3E-06	Respiratory	--	0.0005	--	0.0005
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Vanadium	--	- -	--	--	- -	NA	--	0.0006	--	0.0006
			Chemical Total	--	3E-06	--	--	3E-06		- -	0.08	- -	0.08
		Exposure Point Total						3E-06					0.08
	Exposure Medium Total							3E-06					0.08
Medium Total								5E-05					0.4
Groundwater	Groundwater	SWMU 11	Benzene	2E-06	--	3E-07	--	2E-06	Blood	0.02	--	0.003	0.03
			Chloroform	4E-07	--	3E-08	--	4E-07	Liver	0.004	--	0.0003	0.004
			cis-1,2-Dichloroethene	- -	--	- -	--	- -	Kidney	0.4	--	0.05	0.4
			Tetrachloroethene	5E-07	--	3E-07	--	8E-07	Neurotoxicity	0.1	--	0.07	0.2
			Trichloroethene (Mutagenic)	2E-05	--	3E-06	--	2E-05	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	4E-05	--	7E-06	--	5E-05	Immune System, Developmental	6	--	1	7
			Vinyl Chloride	3E-06	--	2E-07	--	4E-06	Liver	0.005	--	0.0002	0.005
			Chemical Total	6E-05	--	1E-05	--	7E-05		7	--	1	8
		Exposure Point Total						7E-05					8
	Exposure Medium Total							7E-05					8
	Air	SWMU 11	Benzene	--	7E-07	--	--	7E-07	Blood	--	0.008	--	0.008
			Chloroform	--	6E-07	--	--	6E-07	Liver	--	0.0008	--	0.0008
			cis-1,2-Dichloroethene	--	- -	--	--	- -	NA	--	--	--	--
			Tetrachloroethene	--	1E-07	--	--	1E-07	Neurotoxicity	--	0.04	--	0.04
			Trichloroethene (Mutagenic)	--	5E-06	--	--	5E-06	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	--	8E-06	--	--	8E-06	Liver, Kidney	--	4	--	4
			Vinyl Chloride	--	7E-08	--	--	7E-08	Liver	--	0.0004	--	0.0004
			Chemical Total	--	1E-05	--	--	1E-05		- -	4	- -	4
		Exposure Point Total						1E-05					4
	Exposure Medium Total							1E-05					4
Medium Total								9E-05					12

TABLE 9.9.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Air	Air	SWMU 11	Benzene	--	2E-08	--	--	2E-08	Blood	--	0.0002	--	0.0002
			Chloroform	--	2E-08	--	--	2E-08	Liver	--	0.00002	--	0.00002
			cis-1,2-Dichloroethene	--	- -	--	--	- -	NA	--	--	--	--
			Tetrachloroethene	--	8E-09	--	--	8E-09	Neurotoxicity	--	0.002	--	0.002
			Trichloroethene (Mutagenic)	--	2E-07	--	--	2E-07	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	--	3E-07	--	--	3E-07	Liver, Kidney	--	0.1	--	0.1
			Vinyl Chloride	--	7E-09	--	--	7E-09	Liver	--	0.00005	--	0.00005
			Chemical Total	--	5E-07	--	--	5E-07		- -	0.2	- -	0.2
		Exposure Point Total						5E-07					0.2
	Exposure Medium Total							5E-07					0.2
Medium Total								5E-07					0.2
Receptor Total							Receptor Risk Total	1E-04				Receptor HI Total	12

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

Total Blood HI	0.03
Total CNS HI	0.04
Total CVS HI	0.07
Total Developmental HI	7
Total GS HI	0.3
Total Kidney HI	4
Total Liver HI	4
Total Respiratory HI	0.0005
Total None Specified HI	0.03
Total Skin HI	0.07
Total Neurotoxicity HI	0.3
Total Reproductive HI	0.02

TABLE 9.10.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	SWMU 11	2,3,7,8-TCDD Equivalents	2E-06	--	2E-07	--	2E-06					
			Benzo(a)anthracene	3E-07	--	1E-07	--	4E-07					
			Benzo(a)pyrene	3E-06	--	1E-06	--	5E-06					
			Benzo(b)fluoranthene	4E-07	--	2E-07	--	6E-07					
			Dibenzo(a,h)anthracene	4E-06	--	2E-06	--	6E-06					
			Indeno(1,2,3-cd)pyrene	2E-07	--	8E-08	--	3E-07					
			Aluminum	- -	--	- -	--	- -					
			Iron	- -	--	- -	--	- -					
			Chemical Total	1E-05	--	3E-06	--	1E-05					
		Exposure Point Total						1E-05					
	Exposure Medium Total							1E-05					
	Air	SWMU 11	2,3,7,8-TCDD Equivalents	--	1E-10	--	--	1E-10					
			Benzo(a)anthracene	--	6E-12	--	--	6E-12					
			Benzo(a)pyrene	--	6E-11	--	--	6E-11					
			Benzo(b)fluoranthene	--	8E-12	--	--	8E-12					
			Dibenzo(a,h)anthracene	--	8E-11	--	--	8E-11					
			Indeno(1,2,3-cd)pyrene	--	3E-12	--	--	3E-12					
			Aluminum	--	- -	--	--	- -					
			Iron	--	- -	--	--	- -					
			Chemical Total	--	3E-10	--	--	3E-10					
		Exposure Point Total						3E-10					
	Exposure Medium Total							3E-10					
Medium Total								1E-05					
Surface Soil	Surface Soil	IA 6	Benzo(a)anthracene	5E-07	--	2E-07	--	7E-07					
			Benzo(a)pyrene	6E-06	--	2E-06	--	9E-06					
			Benzo(b)fluoranthene	8E-07	--	3E-07	--	1E-06					
			Dibenzo(a,h)anthracene	2E-06	--	6E-07	--	2E-06					
			Indeno(1,2,3-cd)pyrene	4E-07	--	1E-07	--	5E-07					
			Aluminum	- -	--	- -	--	- -					
			Iron	- -	--	- -	--	- -					
			Chemical Total	1E-05	--	4E-06	--	1E-05					
		Exposure Point Total						1E-05					
	Exposure Medium Total							1E-05					
	Air	IA 6	Benzo(a)anthracene	--	9E-12	--	--	9E-12					
			Benzo(a)pyrene	--	1E-10	--	--	1E-10					
			Benzo(b)fluoranthene	--	1E-11	--	--	1E-11					
			Dibenzo(a,h)anthracene	--	3E-11	--	--	3E-11					
			Indeno(1,2,3-cd)pyrene	--	7E-12	--	--	7E-12					
			Aluminum	--	- -	--	--	- -					
			Iron	--	- -	--	--	- -					
			Chemical Total	--	2E-10	--	--	2E-10					
		Exposure Point Total						2E-10					
	Exposure Medium Total							2E-10					
Medium Total								1E-05					

TABLE 9.10.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	SWMU 11	Tetrachloroethene	9E-09	--	- -	--	9E-09					
			Trichloroethene (Mutagenic)	1E-08	--	- -	--	1E-08					
			Trichloroethene (Nonmutagenic	1E-08	--	- -	--	1E-08					
			Vinyl Chloride	2E-06	--	- -	--	2E-06					
			Arsenic	3E-05	--	5E-06	--	3E-05					
			Chromium	3E-04	--	- -	--	3E-04					
			Iron	- -	--	- -	--	- -					
			Vanadium	- -	--	- -	--	- -					
			Chemical Total	3E-04	--	5E-06	--	3E-04					
		Exposure Point Total						3E-04					
	Exposure Medium Total							3E-04					
	Air	SWMU 11	Tetrachloroethene	--	1E-07	--	--	1E-07					
			Trichloroethene (Mutagenic)	--	1E-07	--	--	1E-07					
			Trichloroethene (Nonmutagenic	--	1E-07	--	--	1E-07					
			Vinyl Chloride	--	9E-07	--	--	9E-07					
			Arsenic	--	3E-08	--	--	3E-08					
			Chromium	--	5E-06	--	--	5E-06					
			Iron	--	- -	--	--	- -					
			Vanadium	--	- -	--	--	- -					
			Chemical Total	--	6E-06	--	--	6E-06					
		Exposure Point Total						6E-06					
	Exposure Medium Total							6E-06					
Medium Total								3E-04					
Groundwater	Groundwater	SWMU 11	Benzene	3E-06	--	4E-07	--	3E-06					
			Chloroform	6E-07	--	5E-08	--	6E-07					
			cis-1,2-Dichloroethene	- -	--	- -	--	- -					
			Tetrachloroethene	8E-07	--	5E-07	--	1E-06					
			Trichloroethene (Mutagenic)	5E-05	--	8E-06	--	6E-05					
			Trichloroethene (Nonmutagenic	6E-05	--	1E-05	--	7E-05					
			Vinyl Chloride	3E-05	--	2E-06	--	3E-05					
			Chemical Total	1E-04	--	2E-05	--	2E-04					
		Exposure Point Total						2E-04					
	Exposure Medium Total							2E-04					
	Air	SWMU 11	Benzene	--	8E-07	--	--	8E-07					
			Chloroform	--	8E-07	--	--	8E-07					
			cis-1,2-Dichloroethene	--	- -	--	--	- -					
			Tetrachloroethene	--	2E-07	--	--	2E-07					
			Trichloroethene (Mutagenic)	--	8E-06	--	--	8E-06					
			Trichloroethene (Nonmutagenic	--	1E-05	--	--	1E-05					
			Vinyl Chloride	--	5E-06	--	--	5E-06					
			Chemical Total	--	2E-05	--	--	2E-05					
		Exposure Point Total						2E-05					
	Exposure Medium Total							2E-05					
Medium Total								2E-04					
Air	Air	SWMU 11	Benzene	--	3E-08	--	--	3E-08					
			Chloroform	--	3E-08	--	--	3E-08					
			cis-1,2-Dichloroethene	--	- -	--	--	- -					
			Tetrachloroethene	--	2E-08	--	--	2E-08					
			Trichloroethene (Mutagenic)	--	8E-07	--	--	8E-07					
			Trichloroethene (Nonmutagenic	--	6E-07	--	--	6E-07					
			Vinyl Chloride	--	3E-08	--	--	3E-08					
			Chemical Total	--	2E-06	--	--	2E-06					
		Exposure Point Total						2E-06					
	Exposure Medium Total							2E-06					
Medium Total								2E-06					
Receptor Total							Receptor Risk Total	5E-04					

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 9.1.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Receptor Population: Maintenance Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	SWMU 11	2,3,7,8-TCDD Equivalents	3E-09	--	1E-10	--	4E-09	Reproductive	0.0003	--	0.00001	0.0003
			Benzo(a)anthracene	1E-10	--	2E-11	--	2E-10	NA	--	--	--	--
			Benzo(a)pyrene	2E-09	--	3E-10	--	2E-09	NA	--	--	--	--
			Benzo(b)fluoranthene	2E-10	--	3E-11	--	2E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	2E-09	--	3E-10	--	2E-09	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	9E-11	--	2E-11	--	1E-10	NA	--	--	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.0004	--	--	0.0004
			Iron	- -	--	- -	--	- -	GS	0.0008	--	--	0.0008
			Chemical Total	7E-09	--	8E-10	--	8E-09		0.001	--	0.00001	0.001
		Exposure Point Total						8E-09					0.001
	Exposure Medium Total							8E-09					0.001
	Air	SWMU 11	2,3,7,8-TCDD Equivalents	--	4E-13	--	--	4E-13	Reproductive, Respir	--	2E-9	--	2E-9
			Benzo(a)anthracene	--	8E-15	--	--	8E-15	NA	--	--	--	--
			Benzo(a)pyrene	--	8E-14	--	--	8E-14	NA	--	--	--	--
			Benzo(b)fluoranthene	--	1E-14	--	--	1E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	1E-13	--	--	1E-13	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	5E-15	--	--	5E-15	NA	--	--	--	--
			Aluminum	--	- -	--	--	- -	CNS	--	0.00003	--	0.00003
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	6E-13	--	--	6E-13		- -	0.00003	- -	0.00003
		Exposure Point Total						6E-13					0.00003
	Exposure Medium Total							6E-13					0.00003
Medium Total								8E-09					0.001
Surface Soil	Surface Soil	IA 6	Benzo(a)anthracene	2E-10	--	4E-11	--	3E-10	NA	--	--	--	--
			Benzo(a)pyrene	3E-09	--	5E-10	--	3E-09	NA	--	--	--	--
			Benzo(b)fluoranthene	4E-10	--	6E-11	--	4E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	7E-10	--	1E-10	--	8E-10	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	2E-10	--	3E-11	--	2E-10	NA	--	--	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.0003	--	--	0.0003
			Iron	- -	--	- -	--	- -	GS	0.001	--	--	0.001
			Chemical Total	4E-09	--	7E-10	--	5E-09		0.001	--	--	0.001
		Exposure Point Total						5E-09					0.001
	Exposure Medium Total							5E-09					0.001
	Air	IA 6	Benzo(a)anthracene	--	1E-14	--	--	1E-14	NA	--	--	--	--
			Benzo(a)pyrene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Benzo(b)fluoranthene	--	2E-14	--	--	2E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	4E-14	--	--	4E-14	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	9E-15	--	--	9E-15	NA	--	--	--	--
			Aluminum	--	- -	--	--	- -	CNS	--	0.00002	--	0.00002
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	2E-13	--	--	2E-13		- -	0.00002	- -	0.00002
		Exposure Point Total						2E-13					0.00002
	Exposure Medium Total							2E-13					0.00002
Medium Total								5E-09					0.001

TABLE 9.1.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Receptor Population: Maintenance Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	SWMU 11	Tetrachloroethene	2E-11	--	- -	--	2E-11	Neurotoxicity	0.00001	--	--	0.00001
			Trichloroethene (Mutagenic)	7E-12	--	- -	--	7E-12	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	3E-11	--	- -	--	3E-11	ne System, Developm	0.00001	--	--	0.00001
			Vinyl Chloride	3E-10	--	- -	--	3E-10	Liver	0.000001	--	--	0.000001
			Arsenic	6E-08	--	4E-09	--	6E-08	Skin, CVS	0.0010	--	0.00006	0.001
			Chromium	1E-07	--	- -	--	1E-07	None Specified	0.0006	--	--	0.0006
			Iron	- -	--	- -	--	- -	GS	0.003	--	--	0.003
			Vanadium	- -	--	- -	--	- -	Kidney	0.0004	--	--	0.0004
			Chemical Total	2E-07	--	4E-09	--	2E-07		0.005	--	0.00006	0.005
		Exposure Point Total						2E-07					0.005
	Exposure Medium Total							2E-07					0.005
	Air	SWMU 11	Tetrachloroethene	--	4E-10	--	--	4E-10	Neurotoxicity	--	0.0003	--	0.0003
			Trichloroethene (Mutagenic)	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	--	4E-10	--	--	4E-10	Liver, Kidney	--	0.0005	--	0.0005
			Vinyl Chloride	--	9E-10	--	--	9E-10	Liver	--	0.00002	--	0.00002
			Arsenic	--	9E-11	--	--	9E-11	NA	--	0.00001	--	0.00001
			Chromium	--	7E-09	--	--	7E-09	Respiratory	--	0.000006	--	0.000006
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Vanadium	--	- -	--	--	- -	NA	--	0.000007	--	0.000007
			Chemical Total	--	9E-09	--	--	9E-09		- -	0.0009	- -	0.0009
		Exposure Point Total						9E-09					0.0009
	Exposure Medium Total							9E-09					0.0009
Medium Total								2E-07					0.005
Receptor Total							Receptor Risk Total	2E-07				Receptor HI Total	0.008

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 9.2.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	SWMU 11	2,3,7,8-TCDD Equivalents	8E-09	--	5E-10	--	8E-09	Immune	0.0002	--	0.00001	0.0002
			Benzo(a)anthracene	3E-10	--	9E-11	--	4E-10	NA	--	--	--	--
			Benzo(a)pyrene	4E-09	--	9E-10	--	5E-09	NA	--	--	--	--
			Benzo(b)fluoranthene	5E-10	--	1E-10	--	6E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	4E-09	--	1E-09	--	5E-09	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	2E-10	--	5E-11	--	3E-10	NA	--	--	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.007	--	--	0.007
			Iron	- -	--	- -	--	- -	GS	0.02	--	--	0.02
			Chemical Total	2E-08	--	3E-09	--	2E-08		0.02	--	0.00001	0.02
		Exposure Point Total						2E-08					0.02
	Exposure Medium Total							2E-08					0.02
	Air	SWMU 11	2,3,7,8-TCDD Equivalents	--	2E-10	--	--	2E-10	Reproductive, Respir	--	0.00001	--	0.00001
			Benzo(a)anthracene	--	5E-12	--	--	5E-12	NA	--	--	--	--
			Benzo(a)pyrene	--	6E-11	--	--	6E-11	NA	--	--	--	--
			Benzo(b)fluoranthene	--	7E-12	--	--	7E-12	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	7E-11	--	--	7E-11	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	3E-12	--	--	3E-12	NA	--	--	--	--
			Aluminum	--	- -	--	--	- -	CNS	--	0.2	--	0.2
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	4E-10	--	--	4E-10		- -	0.2	- -	0.2
		Exposure Point Total						4E-10					0.2
	Exposure Medium Total							4E-10					0.2
Medium Total								2E-08					0.2
Surface Soil	Surface Soil	IA 6	Benzo(a)anthracene	5E-10	--	1E-10	--	7E-10	NA	--	--	--	--
			Benzo(a)pyrene	7E-09	--	2E-09	--	8E-09	NA	--	--	--	--
			Benzo(b)fluoranthene	9E-10	--	2E-10	--	1E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	2E-09	--	4E-10	--	2E-09	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	4E-10	--	1E-10	--	5E-10	NA	--	--	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.007	--	--	0.007
			Iron	- -	--	- -	--	- -	GS	0.02	--	--	0.02
			Chemical Total	1E-08	--	3E-09	--	1E-08		0.03	--	--	0.03
		Exposure Point Total						1E-08					0.03
	Exposure Medium Total							1E-08					0.03
	Air	IA 6	Benzo(a)anthracene	--	9E-12	--	--	9E-12	NA	--	--	--	--
			Benzo(a)pyrene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Benzo(b)fluoranthene	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	3E-11	--	--	3E-11	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	6E-12	--	--	6E-12	NA	--	--	--	--
			Aluminum	--	- -	--	--	- -	CNS	--	0.1	--	0.1
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	2E-10	--	--	2E-10		- -	0.1	- -	0.1
		Exposure Point Total						2E-10					0.1
	Exposure Medium Total							2E-10					0.1
Medium Total								1E-08					0.2

TABLE 9.2.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	SWMU 11	Tetrachloroethene	4E-11	--	- -	--	4E-11	Neurotoxicity	0.00001	--	--	0.00001
			Trichloroethene (Mutagenic)	2E-11	--	- -	--	2E-11	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	6E-11	--	- -	--	6E-11	Liver, Kidney	0.0002	--	--	0.0002
			Vinyl Chloride	8E-10	--	- -	--	8E-10	Liver	0.0002	--	--	0.0002
			Arsenic	1E-07	--	1E-08	--	1E-07	Skin, CVS	0.02	--	0.002	0.02
			Chromium	3E-07	--	- -	--	3E-07	None Specified	0.007	--	--	0.007
			Iron	- -	--	- -	--	- -	GS	0.05	--	--	0.05
			Vanadium	- -	--	- -	--	- -	Kidney	0.004	--	--	0.004
			Chemical Total	4E-07	--	1E-08	--	4E-07		0.08	--	0.002	0.09
		Exposure Point Total						4E-07					0.09
	Exposure Medium Total							4E-07					0.09
	Air	SWMU 11	Tetrachloroethene	--	1E-09	--	--	1E-09	Neurotoxicity	--	0.009	--	0.009
			Trichloroethene (Mutagenic)	--	5E-10	--	--	5E-10	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	--	1E-09	--	--	1E-09	Liver, Kidney	--	0.02	--	0.02
			Vinyl Chloride	--	3E-09	--	--	3E-09	Liver	--	0.0006	--	0.0006
			Arsenic	--	6E-08	--	--	6E-08	NA	--	0.07	--	0.07
			Chromium	--	5E-06	--	--	5E-06	Respiratory	--	0.01	--	0.01
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Vanadium	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	5E-06	--	--	5E-06		- -	0.1	- -	0.1
		Exposure Point Total						5E-06					0.1
	Exposure Medium Total							5E-06					0.1
Medium Total								5E-06					0.2
Groundwater	Groundwater	SWMU 11	Benzene	- -	--	9E-10	--	9E-10	Blood	--	--	0.0001	0.0001
			Chloroform	- -	--	1E-10	--	1E-10	Liver	--	--	0.000003	0.000003
			cis-1,2-Dichloroethene	- -	--	- -	--	- -	Kidney	--	--	0.0004	0.0004
			Tetrachloroethene	- -	--	9E-10	--	9E-10	Neurotoxicity	--	--	0.0003	0.0003
			Trichloroethene (Mutagenic)	- -	--	5E-09	--	5E-09	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	- -	--	2E-08	--	2E-08	Liver, Kidney	--	--	0.08	0.08
			Vinyl Chloride	- -	--	7E-10	--	7E-10	Liver	--	--	0.0002	0.0002
			Chemical Total	- -	--	3E-08	--	3E-08		--	--	0.08	0.08
		Exposure Point Total						3E-08					0.08
	Exposure Medium Total							3E-08					0.08
	Air	SWMU 11	Benzene	--	3E-10	--	--	3E-10	Blood	--	0.00003	--	0.00003
			Chloroform	--	2E-10	--	--	2E-10	Liver	--	0.000003	--	0.000003
			cis-1,2-Dichloroethene	--	- -	--	--	- -	NA	--	--	--	--
			Tetrachloroethene	--	5E-11	--	--	5E-11	Neurotoxicity	--	0.0003	--	0.0003
			Trichloroethene (Mutagenic)	--	9E-10	--	--	9E-10	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	--	3E-09	--	--	3E-09	Liver, Kidney	--	0.03	--	0.03
			Vinyl Chloride	--	3E-11	--	--	3E-11	Liver	--	0.000005	--	0.000005
			Chemical Total	--	4E-09	--	--	4E-09		- -	0.03	- -	0.03
		Exposure Point Total						4E-09					0.03
	Exposure Medium Total							4E-09					0.03
Medium Total								3E-08					0.1
Receptor Total							Receptor Risk Total	5E-06				Receptor HI Total	0.7

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 9.3.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	SWMU 11	2,3,7,8-TCDD Equivalents	6E-08	--	2E-09	--	6E-08	Reproductive	0.005	--	0.0002	0.006
			Benzo(a)anthracene	3E-09	--	5E-10	--	3E-09	NA	--	--	--	--
			Benzo(a)pyrene	3E-08	--	5E-09	--	3E-08	NA	--	--	--	--
			Benzo(b)fluoranthene	4E-09	--	6E-10	--	4E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	3E-08	--	6E-09	--	4E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	2E-09	--	3E-10	--	2E-09	NA	--	--	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.007	--	--	0.007
			Iron	- -	--	- -	--	- -	GS	0.01	--	--	0.01
			Chemical Total	1E-07	--	1E-08	--	1E-07		0.03	--	0.0002	0.03
		Exposure Point Total						1E-07					0.03
	Exposure Medium Total							1E-07					0.03
	Air	SWMU 11	2,3,7,8-TCDD Equivalents	--	6E-12	--	--	6E-12	Reproductive, Respir	--	3E-8	--	3E-8
			Benzo(a)anthracene	--	1E-13	--	--	1E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	9E-14	--	--	9E-14	NA	--	--	--	--
			Aluminum	--	- -	--	--	- -	CNS	--	0.0005	--	0.0005
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	1E-11	--	--	1E-11		- -	0.0005	- -	0.0005
		Exposure Point Total						1E-11					0.0005
	Exposure Medium Total							1E-11					0.0005
Medium Total								1E-07					0.03
Surface Soil	Surface Soil	IA 6	Benzo(a)anthracene	4E-09	--	7E-10	--	5E-09	NA	--	--	--	--
			Benzo(a)pyrene	5E-08	--	9E-09	--	6E-08	NA	--	--	--	--
			Benzo(b)fluoranthene	7E-09	--	1E-09	--	8E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-08	--	2E-09	--	1E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	3E-09	--	5E-10	--	4E-09	NA	--	--	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.006	--	--	0.006
			Iron	- -	--	- -	--	- -	GS	0.02	--	--	0.02
			Chemical Total	8E-08	--	1E-08	--	9E-08		0.02	--	--	0.02
		Exposure Point Total						9E-08					0.02
	Exposure Medium Total							9E-08					0.02
	Air	IA 6	Benzo(a)anthracene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	3E-12	--	--	3E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	4E-13	--	--	4E-13	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	7E-13	--	--	7E-13	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Aluminum	--	- -	--	--	- -	CNS	--	0.0004	--	0.0004
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	4E-12	--	--	4E-12		- -	0.0004	- -	0.0004
		Exposure Point Total						4E-12					0.0004
	Exposure Medium Total							4E-12					0.0004
Medium Total								9E-08					0.03

TABLE 9.3.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	SWMU 11	Tetrachloroethene	3E-10	--	- -	--	3E-10	Neurotoxicity	0.0002	--	--	0.0002
			Trichloroethene (Mutagenic)	1E-10	--	- -	--	1E-10	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	5E-10	--	- -	--	5E-10	ne System, Developm	0.0002	--	--	0.0002
			Vinyl Chloride	6E-09	--	- -	--	6E-09	Liver	0.00002	--	--	0.00002
			Arsenic	1E-06	--	7E-08	--	1E-06	Skin, CVS	0.02	--	0.001	0.02
			Chromium	2E-06	--	- -	--	2E-06	None Specified	0.01	--	--	0.01
			Iron	- -	--	- -	--	- -	GS	0.05	--	--	0.05
			Vanadium	- -	--	- -	--	- -	Kidney	0.007	--	--	0.007
			Chemical Total	3E-06	--	7E-08	--	3E-06		0.08	--	0.001	0.08
		Exposure Point Total						3E-06					0.08
	Exposure Medium Total							3E-06					0.08
	Air	SWMU 11	Tetrachloroethene	--	8E-09	--	--	8E-09	Neurotoxicity	--	0.006	--	0.006
			Trichloroethene (Mutagenic)	--	3E-09	--	--	3E-09	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	--	8E-09	--	--	8E-09	Liver, Kidney	--	0.010	--	0.010
			Vinyl Chloride	--	2E-08	--	--	2E-08	Liver	--	0.0003	--	0.0003
			Arsenic	--	2E-09	--	--	2E-09	NA	--	0.0002	--	0.0002
			Chromium	--	1E-07	--	--	1E-07	Respiratory	--	0.0001	--	0.0001
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Vanadium	--	- -	--	--	- -	NA	--	0.0001	--	0.0001
			Chemical Total	--	2E-07	--	--	2E-07		- -	0.02	- -	0.02
		Exposure Point Total						2E-07					0.02
	Exposure Medium Total							2E-07					0.02
Medium Total								3E-06					0.10
Receptor Total							Receptor Risk Total	4E-06				Receptor HI Total	0.2

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 9.4.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	SWMU 11	2,3,7,8-TCDD Equivalents	7E-09	--	5E-10	--	8E-09	Reproductive	0.0005	--	0.00004	0.0006
			Benzo(a)anthracene	9E-10	--	3E-10	--	1E-09	NA	--	--	--	--
			Benzo(a)pyrene	1E-08	--	3E-09	--	1E-08	NA	--	--	--	--
			Benzo(b)fluoranthene	1E-09	--	4E-10	--	2E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-08	--	4E-09	--	2E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	6E-10	--	2E-10	--	8E-10	NA	--	--	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.0006	--	--	0.0006
			Iron	- -	--	- -	--	- -	GS	0.001	--	--	0.001
			Chemical Total	3E-08	--	8E-09	--	4E-08		0.002	--	0.00004	0.003
		Exposure Point Total						4E-08					0.003
	Exposure Medium Total							4E-08					0.003
	Air	SWMU 11	2,3,7,8-TCDD Equivalents	--	1E-13	--	--	1E-13	Liver, Reproductive, Respiratory	--	5E-10	--	5E-10
			Benzo(a)anthracene	--	8E-15	--	--	8E-15	NA	--	--	--	--
			Benzo(a)pyrene	--	8E-14	--	--	8E-14	NA	--	--	--	--
			Benzo(b)fluoranthene	--	1E-14	--	--	1E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	1E-13	--	--	1E-13	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	5E-15	--	--	5E-15	NA	--	--	--	--
			Aluminum	--	- -	--	--	- -	CNS	--	0.000007	--	0.000007
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	3E-13	--	--	3E-13		- -	0.000007	- -	0.000007
		Exposure Point Total						3E-13					0.000007
	Exposure Medium Total							3E-13					0.000007
Medium Total								4E-08					0.003
Surface Soil	Surface Soil	IA 6	Benzo(a)anthracene	2E-09	--	5E-10	--	2E-09	NA	--	--	--	--
			Benzo(a)pyrene	2E-08	--	6E-09	--	2E-08	NA	--	--	--	--
			Benzo(b)fluoranthene	2E-09	--	8E-10	--	3E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	4E-09	--	1E-09	--	6E-09	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	1E-09	--	4E-10	--	1E-09	NA	--	--	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.0006	--	--	0.0006
			Iron	- -	--	- -	--	- -	GS	0.002	--	--	0.002
			Chemical Total	3E-08	--	9E-09	--	4E-08		0.002	--	--	0.002
		Exposure Point Total						4E-08					0.002
	Exposure Medium Total							4E-08					0.002
	Air	IA 6	Benzo(a)anthracene	--	1E-14	--	--	1E-14	NA	--	--	--	--
			Benzo(a)pyrene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Benzo(b)fluoranthene	--	2E-14	--	--	2E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	4E-14	--	--	4E-14	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	9E-15	--	--	9E-15	NA	--	--	--	--
			Aluminum	--	- -	--	--	- -	CNS	--	0.000006	--	0.000006
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	2E-13	--	--	2E-13		- -	0.000006	- -	0.000006
		Exposure Point Total						2E-13					0.000006
	Exposure Medium Total							2E-13					0.000006
Medium Total								4E-08					0.002

TABLE 9.4.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Current/Future
Receptor Population: Trespassers
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	SWMU 11	Tetrachloroethene	4E-11	--	- -	--	4E-11	Neurotoxicity	0.00002	--	--	0.00002
			Trichloroethene (Mutagenic)	4E-11	--	- -	--	4E-11	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	6E-11	--	- -	--	6E-11	Immune System, Developmental	0.00002	--	--	0.00002
			Vinyl Chloride	7E-10	--	- -	--	7E-10	Liver	0.000002	--	--	0.000002
			Arsenic	1E-07	--	1E-08	--	1E-07	Skin, CVS	0.002	--	0.0002	0.002
			Chromium	7E-07	--	- -	--	7E-07	None Specified	0.001	--	--	0.001
			Iron	- -	--	- -	--	- -	GS	0.004	--	--	0.004
			Vanadium	- -	--	- -	--	- -	Kidney	0.0007	--	--	0.0007
			Chemical Total	9E-07	--	1E-08	--	9E-07		0.008	--	0.0002	0.008
		Exposure Point Total						9E-07					0.008
	Exposure Medium Total							9E-07					0.008
	Air	SWMU 11	Tetrachloroethene	--	1E-10	--	--	1E-10	Neurotoxicity	--	0.00008	--	0.00008
			Trichloroethene (Mutagenic)	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	--	1E-10	--	--	1E-10	Liver, Kidney	--	0.0001	--	0.0001
			Vinyl Chloride	--	3E-10	--	--	3E-10	Liver	--	0.000004	--	0.000004
			Arsenic	--	3E-11	--	--	3E-11	NA	--	0.000003	--	0.000003
			Chromium	--	7E-09	--	--	7E-09	Respiratory	--	0.000002	--	0.000002
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Vanadium	--	- -	--	--	- -	NA	--	0.000002	--	0.000002
			Chemical Total	--	7E-09	--	--	7E-09		- -	0.0002	- -	0.0002
		Exposure Point Total						7E-09					0.0002
	Exposure Medium Total							7E-09					0.0002
Medium Total								9E-07					0.008
Sediment	Sediment	SWMU 11	2,3,7,8-TCDD Equivalents	8E-09	--	6E-10	--	8E-09	Reproductive	0.0005	--	0.00004	0.0006
			Benzo(a)pyrene	2E-08	--	6E-09	--	2E-08	NA	--	--	--	--
			Benzo(b)fluoranthene	2E-09	--	7E-10	--	3E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	3E-09	--	8E-10	--	3E-09	NA	--	--	--	--
			Arsenic	1E-07	--	2E-08	--	1E-07	Skin, CVS	0.002	--	0.0002	0.002
			Chromium	9E-07	--	- -	--	9E-07	None Specified	0.001	--	--	0.001
			Iron	- -	--	- -	--	- -	GS	0.002	--	--	0.002
			Thallium	- -	--	- -	--	- -	Skin	--	--	--	--
			Vanadium	- -	--	- -	--	- -	Kidney	0.0003	--	--	0.0003
			Chemical Total	1E-06	--	2E-08	--	1E-06		0.006	--	0.0003	0.006
		Exposure Point Total						1E-06					0.006
	Exposure Medium Total							1E-06					0.006
Medium Total								1E-06					0.006
Receptor Total							Receptor Risk Total	2E-06				Receptor HI Total	0.02

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 9.5.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	SWMU 11	2,3,7,8-TCDD Equivalents	8E-09	--	6E-10	--	8E-09	Reproductive	0.003	--	0.0002	0.003
			Benzo(a)anthracene	2E-09	--	7E-10	--	3E-09	NA	--	--	--	--
			Benzo(a)pyrene	2E-08	--	8E-09	--	3E-08	NA	--	--	--	--
			Benzo(b)fluoranthene	3E-09	--	1E-09	--	4E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	3E-08	--	9E-09	--	4E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	1E-09	--	4E-10	--	2E-09	NA	--	--	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.004	--	--	0.004
			Iron	- -	--	- -	--	- -	GS	0.008	--	--	0.008
			Chemical Total	6E-08	--	2E-08	--	8E-08		0.01	--	0.0002	0.01
		Exposure Point Total						8E-08					0.01
	Exposure Medium Total							8E-08					0.01
	Air	SWMU 11	2,3,7,8-TCDD Equivalents	--	4E-14	--	--	4E-14	Liver, Reproductive, Respiratory	--	1E-9	--	1E-9
			Benzo(a)anthracene	--	6E-15	--	--	6E-15	NA	--	--	--	--
			Benzo(a)pyrene	--	7E-14	--	--	7E-14	NA	--	--	--	--
			Benzo(b)fluoranthene	--	8E-15	--	--	8E-15	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	8E-14	--	--	8E-14	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	4E-15	--	--	4E-15	NA	--	--	--	--
			Aluminum	--	- -	--	--	- -	CNS	--	0.00001	--	0.00001
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	2E-13	--	--	2E-13		- -	0.00001	- -	0.00001
		Exposure Point Total						2E-13					0.00001
	Exposure Medium Total							2E-13					0.00001
Medium Total								8E-08					0.01
Surface Soil	Surface Soil	IA 6	Benzo(a)anthracene	3E-09	--	1E-09	--	5E-09	NA	--	--	--	--
			Benzo(a)pyrene	4E-08	--	1E-08	--	6E-08	NA	--	--	--	--
			Benzo(b)fluoranthene	5E-09	--	2E-09	--	7E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-08	--	3E-09	--	1E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	3E-09	--	9E-10	--	3E-09	NA	--	--	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.003	--	--	0.003
			Iron	- -	--	- -	--	- -	GS	0.01	--	--	0.01
			Chemical Total	6E-08	--	2E-08	--	8E-08		0.01	--	--	0.01
		Exposure Point Total						8E-08					0.01
	Exposure Medium Total							8E-08					0.01
	Air	IA 6	Benzo(a)anthracene	--	1E-14	--	--	1E-14	NA	--	--	--	--
			Benzo(a)pyrene	--	1E-13	--	--	1E-13	NA	--	--	--	--
			Benzo(b)fluoranthene	--	2E-14	--	--	2E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	3E-14	--	--	3E-14	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	7E-15	--	--	7E-15	NA	--	--	--	--
			Aluminum	--	- -	--	--	- -	CNS	--	0.00001	--	0.00001
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	2E-13	--	--	2E-13		- -	0.00001	- -	0.00001
		Exposure Point Total						2E-13					0.00001
	Exposure Medium Total							2E-13					0.00001
Medium Total								8E-08					0.01

TABLE 9.5.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	SWMU 11	Tetrachloroethene	4E-11	--	- -	--	4E-11	Neurotoxicity	0.0001	--	--	0.0001
			Trichloroethene (Mutagenic)	1E-10	--	- -	--	1E-10	NA	--	--	--	--
			Trichloroethene (Nonmutagenic)	6E-11	--	- -	--	6E-11	Immune System, Developmental	0.0001	--	--	0.0001
			Vinyl Chloride	4E-07	--	- -	--	4E-07	Liver	0.00001	--	--	0.00001
			Arsenic	1E-07	--	2E-08	--	1E-07	Skin, CVS	0.010	--	0.001	0.01
			Chromium	2E-06	--	- -	--	2E-06	None Specified	0.006	--	--	0.006
			Iron	- -	--	- -	--	- -	GS	0.03	--	--	0.03
			Vanadium	- -	--	- -	--	- -	Kidney	0.004	--	--	0.004
			Chemical Total	2E-06	--	2E-08	--	2E-06		0.05	--	0.001	0.05
		Exposure Point Total						2E-06					0.05
	Exposure Medium Total							2E-06					0.05
	Air	SWMU 11	Tetrachloroethene	--	5E-11	--	--	5E-11	Neurotoxicity	--	0.0002	--	0.0002
			Trichloroethene (Mutagenic)	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Trichloroethene (Nonmutagenic)	--	5E-11	--	--	5E-11	Liver, Kidney	--	0.0003	--	0.0003
			Vinyl Chloride	--	7E-07	--	--	7E-07	Liver	--	0.000009	--	0.000009
			Arsenic	--	1E-11	--	--	1E-11	NA	--	0.000006	--	0.000006
			Chromium	--	5E-09	--	--	5E-09	Respiratory	--	0.000003	--	0.000003
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Vanadium	--	- -	--	--	- -	NA	--	0.000004	--	0.000004
			Chemical Total	--	7E-07	--	--	7E-07		- -	0.0005	- -	0.0005
		Exposure Point Total						7E-07					0.0005
	Exposure Medium Total							7E-07					0.0005
Medium Total								3E-06					0.05
Sediment	Sediment	SWMU 11	2,3,7,8-TCDD Equivalents	8E-09	--	6E-10	--	9E-09	Reproductive	0.003	--	0.0002	0.003
			Benzo(a)pyrene	4E-08	--	1E-08	--	5E-08	NA	--	--	--	--
			Benzo(b)fluoranthene	5E-09	--	2E-09	--	6E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	6E-09	--	2E-09	--	8E-09	NA	--	--	--	--
			Arsenic	1E-07	--	2E-08	--	1E-07	Skin, CVS	0.010	--	0.001	0.01
			Chromium	2E-06	--	- -	--	2E-06	None Specified	0.007	--	--	0.007
			Iron	- -	--	- -	--	- -	GS	0.01	--	--	0.01
			Thallium	- -	--	- -	--	- -	Skin	--	--	--	--
			Vanadium	- -	--	- -	--	- -	Kidney	0.002	--	--	0.002
			Chemical Total	2E-06	--	3E-08	--	2E-06		0.03	--	0.002	0.03
		Exposure Point Total						2E-06					0.03
	Exposure Medium Total							2E-06					0.03
Medium Total								2E-06					0.03
Receptor Total							Receptor Risk Total	5E-06				Receptor HI Total	0.1

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 9.6.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	SWMU 11	2,3,7,8-TCDD Equivalents	3E-09	--	3E-10	--	3E-09	Reproductive	0.0003	--	0.00003	0.0004
			Benzo(a)anthracene	2E-10	--	9E-11	--	3E-10	NA	--	--	--	--
			Benzo(a)pyrene	2E-09	--	1E-09	--	3E-09	NA	--	--	--	--
			Benzo(b)fluoranthene	3E-10	--	1E-10	--	4E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	2E-09	--	1E-09	--	4E-09	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	1E-10	--	6E-11	--	2E-10	NA	--	--	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.0004	--	--	0.0004
			Iron	- -	--	- -	--	- -	GS	0.0008	--	--	0.0008
			Chemical Total	8E-09	--	3E-09	--	1E-08		0.002	--	0.00003	0.002
		Exposure Point Total						1E-08					0.002
	Exposure Medium Total							1E-08					0.002
	Air	SWMU 11	2,3,7,8-TCDD Equivalents	--	1E-13	--	--	1E-13	Liver, Reproductive, Respiratory	--	1E-9	--	1E-9
			Benzo(a)anthracene	--	5E-15	--	--	5E-15	NA	--	--	--	--
			Benzo(a)pyrene	--	6E-14	--	--	6E-14	NA	--	--	--	--
			Benzo(b)fluoranthene	--	7E-15	--	--	7E-15	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	7E-14	--	--	7E-14	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	3E-15	--	--	3E-15	NA	--	--	--	--
			Aluminum	--	- -	--	--	- -	CNS	--	0.00001	--	0.00001
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	3E-13	--	--	3E-13		- -	0.00001	- -	0.00001
		Exposure Point Total						3E-13					0.00001
	Exposure Medium Total							3E-13					0.00001
Medium Total								1E-08					0.002
Surface Soil	Surface Soil	IA 6	Benzo(a)anthracene	3E-10	--	1E-10	--	5E-10	NA	--	--	--	--
			Benzo(a)pyrene	4E-09	--	2E-09	--	6E-09	NA	--	--	--	--
			Benzo(b)fluoranthene	5E-10	--	2E-10	--	7E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	9E-10	--	4E-10	--	1E-09	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	2E-10	--	1E-10	--	3E-10	NA	--	--	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.0004	--	--	0.0004
			Iron	- -	--	- -	--	- -	GS	0.001	--	--	0.001
			Chemical Total	6E-09	--	3E-09	--	8E-09		0.001	--	--	0.001
		Exposure Point Total						8E-09					0.001
	Exposure Medium Total							8E-09					0.001
	Air	IA 6	Benzo(a)anthracene	--	8E-15	--	--	8E-15	NA	--	--	--	--
			Benzo(a)pyrene	--	1E-13	--	--	1E-13	NA	--	--	--	--
			Benzo(b)fluoranthene	--	1E-14	--	--	1E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	3E-14	--	--	3E-14	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	6E-15	--	--	6E-15	NA	--	--	--	--
			Aluminum	--	- -	--	--	- -	CNS	--	0.00001	--	0.00001
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	2E-13	--	--	2E-13		- -	0.00001	- -	0.00001
		Exposure Point Total						2E-13					0.00001
	Exposure Medium Total							2E-13					0.00001
Medium Total								8E-09					0.001

TABLE 9.6.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	SWMU 11	Tetrachloroethene	2E-11	--	- -	--	2E-11	Neurotoxicity	0.00001	--	--	0.00001
			Trichloroethene (Mutagenic)	9E-12	--	- -	--	9E-12	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	2E-11	--	- -	--	2E-11	Immune System, Developmental	0.00001	--	--	0.00001
			Vinyl Chloride	3E-10	--	- -	--	3E-10	Liver	0.000001	--	--	0.000001
			Arsenic	5E-08	--	8E-09	--	6E-08	Skin, CVS	0.001	--	0.0002	0.001
			Chromium	1E-07	--	- -	--	1E-07	None Specified	0.0006	--	--	0.0006
			Iron	- -	--	- -	--	- -	GS	0.003	--	--	0.003
			Vanadium	- -	--	- -	--	- -	Kidney	0.0004	--	--	0.0004
			Chemical Total	2E-07	--	8E-09	--	2E-07		0.005	--	0.0002	0.005
		Exposure Point Total						2E-07					0.005
	Exposure Medium Total							2E-07					0.005
	Air	SWMU 11	Tetrachloroethene	--	2E-10	--	--	2E-10	Neurotoxicity	--	0.0002	--	0.0002
			Trichloroethene (Mutagenic)	--	9E-11	--	--	9E-11	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	--	2E-10	--	--	2E-10	Liver, Kidney	--	0.0003	--	0.0003
			Vinyl Chloride	--	4E-10	--	--	4E-10	Liver	--	0.000009	--	0.000009
			Arsenic	--	4E-11	--	--	4E-11	NA	--	0.000006	--	0.000006
			Chromium	--	4E-09	--	--	4E-09	Respiratory	--	0.000003	--	0.000003
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Vanadium	--	- -	--	--	- -	NA	--	0.000004	--	0.000004
			Chemical Total	--	5E-09	--	--	5E-09		- -	0.0005	- -	0.0005
		Exposure Point Total						5E-09					0.0005
	Exposure Medium Total							5E-09					0.0005
Medium Total								2E-07					0.006
Sediment	Sediment	SWMU 11	2,3,7,8-TCDD Equivalents	3E-09	--	3E-10	--	3E-09	Reproductive	0.0003	--	0.00004	0.0004
			Benzo(a)pyrene	4E-09	--	2E-09	--	5E-09	NA	--	--	--	--
			Benzo(b)fluoranthene	4E-10	--	2E-10	--	6E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	5E-10	--	2E-10	--	8E-10	NA	--	--	--	--
			Arsenic	5E-08	--	9E-09	--	6E-08	Skin, CVS	0.001	--	0.0002	0.001
			Chromium	2E-07	--	- -	--	2E-07	None Specified	0.0008	--	--	0.0008
			Iron	- -	--	- -	--	- -	GS	0.001	--	--	0.001
			Thallium	- -	--	- -	--	- -	Skin	--	--	--	--
			Vanadium	- -	--	- -	--	- -	Kidney	0.0002	--	--	0.0002
			Chemical Total	2E-07	--	1E-08	--	3E-07		0.003	--	0.0002	0.004
		Exposure Point Total						3E-07					0.004
	Exposure Medium Total							3E-07					0.004
Medium Total								3E-07					0.004
Receptor Total							Receptor Risk Total	5E-07				Receptor HI Total	0.01

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 9.7.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	SWMU 11	2,3,7,8-TCDD Equivalents	1E-08	--	9E-10	--	1E-08					
			Benzo(a)anthracene	2E-09	--	8E-10	--	3E-09					
			Benzo(a)pyrene	2E-08	--	9E-09	--	3E-08					
			Benzo(b)fluoranthene	3E-09	--	1E-09	--	4E-09					
			Dibenzo(a,h)anthracene	3E-08	--	1E-08	--	4E-08					
			Indeno(1,2,3-cd)pyrene	1E-09	--	5E-10	--	2E-09					
			Aluminum	- -	--	- -	--	- -					
			Iron	- -	--	- -	--	- -					
			Chemical Total	7E-08	--	2E-08	--	9E-08					
		Exposure Point Total						9E-08					
	Exposure Medium Total							9E-08					
	Air	SWMU 11	2,3,7,8-TCDD Equivalents	--	2E-13	--	--	2E-13					
			Benzo(a)anthracene	--	1E-14	--	--	1E-14					
			Benzo(a)pyrene	--	1E-13	--	--	1E-13					
			Benzo(b)fluoranthene	--	2E-14	--	--	2E-14					
			Dibenzo(a,h)anthracene	--	2E-13	--	--	2E-13					
			Indeno(1,2,3-cd)pyrene	--	7E-15	--	--	7E-15					
			Aluminum	--	- -	--	--	- -					
			Iron	--	- -	--	--	- -					
			Chemical Total	--	5E-13	--	--	5E-13					
		Exposure Point Total						5E-13					
	Exposure Medium Total							5E-13					
Medium Total								9E-08					
Surface Soil	Surface Soil	IA 6	Benzo(a)anthracene	4E-09	--	1E-09	--	5E-09					
			Benzo(a)pyrene	5E-08	--	2E-08	--	6E-08					
			Benzo(b)fluoranthene	6E-09	--	2E-09	--	8E-09					
			Dibenzo(a,h)anthracene	1E-08	--	4E-09	--	1E-08					
			Indeno(1,2,3-cd)pyrene	3E-09	--	1E-09	--	4E-09					
			Aluminum	- -	--	- -	--	- -					
			Iron	- -	--	- -	--	- -					
			Chemical Total	7E-08	--	2E-08	--	9E-08					
		Exposure Point Total						9E-08					
	Exposure Medium Total							9E-08					
	Air	IA 6	Benzo(a)anthracene	--	2E-14	--	--	2E-14					
			Benzo(a)pyrene	--	2E-13	--	--	2E-13					
			Benzo(b)fluoranthene	--	3E-14	--	--	3E-14					
			Dibenzo(a,h)anthracene	--	6E-14	--	--	6E-14					
			Indeno(1,2,3-cd)pyrene	--	1E-14	--	--	1E-14					
			Aluminum	--	- -	--	--	- -					
			Iron	--	- -	--	--	- -					
			Chemical Total	--	3E-13	--	--	3E-13					
		Exposure Point Total						3E-13					
	Exposure Medium Total							3E-13					
Medium Total								9E-08					

TABLE 9.7.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	SWMU 11	Tetrachloroethene	6E-11	--	- -	--	6E-11					
			Trichloroethene (Mutagenic)	1E-10	--	- -	--	1E-10					
			Trichloroethene (Nonmutagenic	8E-11	--	- -	--	8E-11					
			Vinyl Chloride	4E-07	--	- -	--	4E-07					
			Arsenic	2E-07	--	2E-08	--	2E-07					
			Chromium	2E-06	--	- -	--	2E-06					
			Iron	- -	--	- -	--	- -					
			Vanadium	- -	--	- -	--	- -					
			Chemical Total	2E-06	--	2E-08	--	2E-06					
		Exposure Point Total						2E-06					
	Exposure Medium Total							2E-06					
	Air	SWMU 11	Tetrachloroethene	--	2E-10	--	--	2E-10					
			Trichloroethene (Mutagenic)	--	2E-10	--	--	2E-10					
			Trichloroethene (Nonmutagenic	--	2E-10	--	--	2E-10					
			Vinyl Chloride	--	7E-07	--	--	7E-07					
			Arsenic	--	5E-11	--	--	5E-11					
			Chromium	--	1E-08	--	--	1E-08					
			Iron	--	- -	--	--	- -					
			Vanadium	--	- -	--	--	- -					
			Chemical Total	--	7E-07	--	--	7E-07					
		Exposure Point Total						7E-07					
	Exposure Medium Total							7E-07					
Medium Total								3E-06					
Sediment	Sediment	SWMU 11	2,3,7,8-TCDD Equivalents	1E-08	--	1E-09	--	1E-08					
			Benzo(a)pyrene	4E-08	--	2E-08	--	6E-08					
			Benzo(b)fluoranthene	5E-09	--	2E-09	--	7E-09					
			Dibenzo(a,h)anthracene	6E-09	--	2E-09	--	9E-09					
			Arsenic	2E-07	--	3E-08	--	2E-07					
			Chromium	2E-06	--	- -	--	2E-06					
			Iron	- -	--	- -	--	- -					
			Thallium	- -	--	- -	--	- -					
			Vanadium	- -	--	- -	--	- -					
			Chemical Total	2E-06	--	5E-08	--	3E-06					
		Exposure Point Total						3E-06					
	Exposure Medium Total							3E-06					
Medium Total								3E-06					
Receptor Total							Receptor Risk Total	6E-06					

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 9.8.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	SWMU 11	2,3,7,8-TCDD Equivalents	1E-07	--	5E-09	--	1E-07	Reproductive	0.05	--	0.002	0.05
			Benzo(a)anthracene	4E-08	--	6E-09	--	4E-08	NA	--	--	--	--
			Benzo(a)pyrene	4E-07	--	6E-08	--	5E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	5E-08	--	8E-09	--	6E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	5E-07	--	7E-08	--	5E-07	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	2E-08	--	3E-09	--	3E-08	NA	--	--	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.06	--	--	0.06
			Iron	- -	--	- -	--	- -	GS	0.1	--	--	0.1
			Chemical Total	1E-06	--	2E-07	--	1E-06		0.3	--	0.002	0.3
		Exposure Point Total						1E-06					0.3
	Exposure Medium Total							1E-06					0.3
	Air	SWMU 11	2,3,7,8-TCDD Equivalents	--	5E-12	--	--	5E-12	Liver, Reproductive, Respiratory	--	0.0000001	--	0.0000001
			Benzo(a)anthracene	--	7E-13	--	--	7E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	7E-12	--	--	7E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	9E-13	--	--	9E-13	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	9E-12	--	--	9E-12	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	4E-13	--	--	4E-13	NA	--	--	--	--
			Aluminum	--	- -	--	--	- -	CNS	--	0.001	--	0.001
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	2E-11	--	--	2E-11		- -	0.001	- -	0.001
		Exposure Point Total						2E-11					0.001
	Exposure Medium Total							2E-11					0.001
Medium Total								1E-06					0.3
Surface Soil	Surface Soil	IA 6	Benzo(a)anthracene	6E-08	--	9E-09	--	7E-08	NA	--	--	--	--
			Benzo(a)pyrene	8E-07	--	1E-07	--	9E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	1E-07	--	1E-08	--	1E-07	NA	--	--	--	--
			Dibenzo(a,h)anthracene	2E-07	--	3E-08	--	2E-07	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	5E-08	--	7E-09	--	5E-08	NA	--	--	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.06	--	--	0.06
			Iron	- -	--	- -	--	- -	GS	0.2	--	--	0.2
			Chemical Total	1E-06	--	2E-07	--	1E-06		0.2	--	--	0.2
		Exposure Point Total						1E-06					0.2
	Exposure Medium Total							1E-06					0.2
	Air	IA 6	Benzo(a)anthracene	--	1E-12	--	--	1E-12	NA	--	--	--	--
			Benzo(a)pyrene	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Benzo(b)fluoranthene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	3E-12	--	--	3E-12	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	8E-13	--	--	8E-13	NA	--	--	--	--
			Aluminum	--	- -	--	--	- -	CNS	--	0.001	--	0.001
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	2E-11	--	--	2E-11		- -	0.001	- -	0.001
		Exposure Point Total						2E-11					0.001
	Exposure Medium Total							2E-11					0.001
Medium Total								1E-06					0.2

TABLE 9.8.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	SWMU 11	Tetrachloroethene	7E-10	--	- -	--	7E-10	Neurotoxicity	0.002	--	--	0.002
			Trichloroethene (Mutagenic)	2E-09	--	- -	--	2E-09	NA	--	--	--	--
			Trichloroethene (Nonmutagenic)	1E-09	--	- -	--	1E-09	Immune System, Developmental	0.002	--	--	0.002
			Vinyl Chloride	8E-07	--	- -	--	8E-07	Liver	0.0002	--	--	0.0002
			Arsenic	2E-06	--	1E-07	--	2E-06	Skin, CVS	0.2	--	0.010	0.2
			Chromium	3E-05	--	- -	--	3E-05	None Specified	0.1	--	--	0.1
			Iron	- -	--	- -	--	- -	GS	0.5	--	--	0.5
			Vanadium	- -	--	- -	--	- -	Kidney	0.07	--	--	0.07
			Chemical Total	3E-05	--	1E-07	--	3E-05		0.8	--	0.010	0.8
		Exposure Point Total						3E-05					0.8
	Exposure Medium Total							3E-05					0.8
	Air	SWMU 11	Tetrachloroethene	--	5E-09	--	--	5E-09	Neurotoxicity	--	0.02	--	0.02
			Trichloroethene (Mutagenic)	--	1E-08	--	--	1E-08	NA	--	--	--	--
			Trichloroethene (Nonmutagenic)	--	6E-09	--	--	6E-09	Liver, Kidney	--	0.03	--	0.03
			Vinyl Chloride	--	7E-07	--	--	7E-07	Liver	--	0.0010	--	0.0010
			Arsenic	--	1E-09	--	--	1E-09	NA	--	0.0007	--	0.0007
			Chromium	--	6E-07	--	--	6E-07	Respiratory	--	0.0004	--	0.0004
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Vanadium	--	- -	--	--	- -	NA	--	0.0004	--	0.0004
			Chemical Total	--	1E-06	--	--	1E-06		- -	0.05	- -	0.05
		Exposure Point Total						1E-06					0.05
	Exposure Medium Total							1E-06					0.05
Medium Total								3E-05					0.9
Groundwater	Groundwater	SWMU 11	Benzene	2E-07	--	2E-08	--	2E-07	Blood	0.03	--	0.003	0.03
			Chloroform	4E-08	--	2E-09	--	4E-08	Liver	0.004	--	0.0003	0.004
			cis-1,2-Dichloroethene	- -	--	- -	--	- -	Kidney	0.4	--	0.04	0.5
			Tetrachloroethene	5E-08	--	2E-08	--	7E-08	Neurotoxicity	0.1	--	0.06	0.2
			Trichloroethene (Mutagenic)	6E-06	--	8E-07	--	7E-06	NA	--	--	--	--
			Trichloroethene (Nonmutagenic)	4E-06	--	5E-07	--	4E-06	Immune System, Developmental	7	--	0.9	8
			Vinyl Chloride	2E-05	--	7E-07	--	2E-05	Liver	0.005	--	0.0002	0.006
			Chemical Total	3E-05	--	2E-06	--	3E-05		8	--	1	9
		Exposure Point Total						3E-05					9
	Exposure Medium Total							3E-05					9
	Air	SWMU 11	Benzene	--	4E-09	--	--	4E-09	Blood	--	0.0005	--	0.0005
			Chloroform	--	3E-09	--	--	3E-09	Liver	--	0.00005	--	0.00005
			cis-1,2-Dichloroethene	--	- -	--	--	- -	NA	--	--	--	--
			Tetrachloroethene	--	7E-10	--	--	7E-10	Neurotoxicity	--	0.002	--	0.002
			Trichloroethene (Mutagenic)	--	9E-08	--	--	9E-08	NA	--	--	--	--
			Trichloroethene (Nonmutagenic)	--	4E-08	--	--	4E-08	Liver, Kidney	--	0.2	--	0.2
			Vinyl Chloride	--	5E-07	--	--	5E-07	Liver	--	0.00003	--	0.00003
			Chemical Total	--	6E-07	--	--	6E-07		- -	0.2	- -	0.2
		Exposure Point Total						6E-07					0.2
	Exposure Medium Total							6E-07					0.2
Medium Total								3E-05					9

TABLE 9.8.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Vapor Intrusion	Air	SWMU 11	Benzene	--	3E-09	--	--	3E-09	Blood	--	0.0001	--	0.0001
			Chloroform	--	3E-09	--	--	3E-09	Liver	--	0.00002	--	0.00002
			cis-1,2-Dichloroethene	--	- -	--	--	- -	NA	--	--	--	--
			Tetrachloroethene	--	2E-09	--	--	2E-09	Neurotoxicity	--	0.001	--	0.001
			Trichloroethene (Mutagenic)	--	1E-07	--	--	1E-07	NA	--	--	--	--
			Trichloroethene (Nonmutagenic)	--	6E-08	--	--	6E-08	Liver, Kidney	--	0.10	--	0.10
			Vinyl Chloride	--	2E-08	--	--	2E-08	Liver	--	0.00003	--	0.00003
			Chemical Total	--	2E-07	--	--	2E-07		- -	0.1	- -	0.1
		Exposure Point Total						2E-07					0.1
	Exposure Medium Total							2E-07					0.1
Medium Total								2E-07					0.1
Receptor Total							Receptor Risk Total	7E-05				Receptor HI Total	11

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

Total Blood HI	0.03
Total CNS HI	0.1
Total CVS HI	0.2
Total Developmental HI	8
Total GS HI	0.8
Total Kidney HI	0.9
Total Liver HI	0.4
Total Respiratory HI	0.0004
Total None Specified HI	0.1
Total Skin HI	0.2
Total Neurotoxicity HI	0.2
Total Reproductive HI	0.05

TABLE 9.9.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	SWMU 11	2,3,7,8-TCDD Equivalents	5E-08	--	2E-09	--	5E-08	Reproductive	0.006	--	0.0002	0.006
			Benzo(a)anthracene	3E-09	--	5E-10	--	4E-09	NA	--	--	--	--
			Benzo(a)pyrene	4E-08	--	6E-09	--	4E-08	NA	--	--	--	--
			Benzo(b)fluoranthene	5E-09	--	7E-10	--	5E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	4E-08	--	6E-09	--	5E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	2E-09	--	3E-10	--	2E-09	NA	--	--	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.007	--	--	0.007
			Iron	- -	--	- -	--	- -	GS	0.01	--	--	0.01
			Chemical Total	1E-07	--	2E-08	--	2E-07		0.03	--	0.0002	0.03
		Exposure Point Total						2E-07					0.03
	Exposure Medium Total							2E-07					0.03
	Air	SWMU 11	2,3,7,8-TCDD Equivalents	--	2E-11	--	--	2E-11	Liver, Reproductive, Respiratory	--	0.0000001	--	0.0000001
			Benzo(a)anthracene	--	6E-13	--	--	6E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	6E-12	--	--	6E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	8E-13	--	--	8E-13	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	8E-12	--	--	8E-12	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Aluminum	--	- -	--	--	- -	CNS	--	0.001	--	0.001
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	3E-11	--	--	3E-11		- -	0.001	- -	0.001
		Exposure Point Total						3E-11					0.001
	Exposure Medium Total							3E-11					0.001
Medium Total								2E-07					0.03
Surface Soil	Surface Soil	IA 6	Benzo(a)anthracene	6E-09	--	8E-10	--	6E-09	NA	--	--	--	--
			Benzo(a)pyrene	7E-08	--	1E-08	--	8E-08	NA	--	--	--	--
			Benzo(b)fluoranthene	9E-09	--	1E-09	--	1E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	2E-08	--	2E-09	--	2E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	4E-09	--	6E-10	--	5E-09	NA	--	--	--	--
			Aluminum	- -	--	- -	--	- -	CNS	0.007	--	--	0.007
			Iron	- -	--	- -	--	- -	GS	0.02	--	--	0.02
			Chemical Total	1E-07	--	2E-08	--	1E-07		0.03	--	--	0.03
		Exposure Point Total						1E-07					0.03
	Exposure Medium Total							1E-07					0.03
	Air	IA 6	Benzo(a)anthracene	--	9E-13	--	--	9E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Benzo(b)fluoranthene	--	1E-12	--	--	1E-12	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	3E-12	--	--	3E-12	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	7E-13	--	--	7E-13	NA	--	--	--	--
			Aluminum	--	- -	--	--	- -	CNS	--	0.001	--	0.001
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Chemical Total	--	2E-11	--	--	2E-11		- -	0.001	- -	0.001
		Exposure Point Total						2E-11					0.001
	Exposure Medium Total							2E-11					0.001
Medium Total								1E-07					0.03

TABLE 9.9.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	SWMU 11	Tetrachloroethene	3E-10	--	- -	--	3E-10	Neurotoxicity	0.0002	--	--	0.0002
			Trichloroethene (Mutagenic)	2E-10	--	- -	--	2E-10	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	4E-10	--	- -	--	4E-10	Immune System, Developmental	0.0002	--	--	0.0002
			Vinyl Chloride	5E-09	--	- -	--	5E-09	Liver	0.00002	--	--	0.00002
			Arsenic	8E-07	--	5E-08	--	9E-07	Skin, CVS	0.02	--	0.001	0.02
			Chromium	3E-06	--	- -	--	3E-06	None Specified	0.01	--	--	0.01
			Iron	- -	--	- -	--	- -	GS	0.05	--	--	0.05
			Vanadium	- -	--	- -	--	- -	Kidney	0.008	--	--	0.008
			Chemical Total	4E-06	--	5E-08	--	4E-06		0.09	--	0.001	0.09
		Exposure Point Total						4E-06					0.09
	Exposure Medium Total							4E-06					0.09
	Air	SWMU 11	Tetrachloroethene	--	2E-08	--	--	2E-08	Neurotoxicity	--	0.02	--	0.02
			Trichloroethene (Mutagenic)	--	1E-08	--	--	1E-08	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	--	2E-08	--	--	2E-08	Liver, Kidney	--	0.03	--	0.03
			Vinyl Chloride	--	4E-08	--	--	4E-08	Liver	--	0.0010	--	0.0010
			Arsenic	--	4E-09	--	--	4E-09	NA	--	0.0007	--	0.0007
			Chromium	--	5E-07	--	--	5E-07	Respiratory	--	0.0004	--	0.0004
			Iron	--	- -	--	--	- -	NA	--	--	--	--
			Vanadium	--	- -	--	--	- -	NA	--	0.0004	--	0.0004
			Chemical Total	--	6E-07	--	--	6E-07		- -	0.05	- -	0.05
		Exposure Point Total						6E-07					0.05
	Exposure Medium Total							6E-07					0.05
Medium Total								4E-06					0.1
Groundwater	Groundwater	SWMU 11	Benzene	2E-07	--	3E-08	--	3E-07	Blood	0.01	--	0.001	0.01
			Chloroform	5E-08	--	4E-09	--	6E-08	Liver	0.002	--	0.0001	0.002
			cis-1,2-Dichloroethene	- -	--	- -	--	- -	Kidney	0.2	--	0.02	0.2
			Tetrachloroethene	7E-08	--	4E-08	--	1E-07	Neurotoxicity	0.05	--	0.03	0.09
			Trichloroethene (Mutagenic)	2E-06	--	3E-07	--	2E-06	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	5E-06	--	9E-07	--	6E-06	Immune System, Developmental	3	--	0.5	3
			Vinyl Chloride	5E-07	--	2E-08	--	5E-07	Liver	0.002	--	0.0001	0.002
			Chemical Total	8E-06	--	1E-06	--	1E-05		3	--	0.5	4
		Exposure Point Total						1E-05					4
	Exposure Medium Total							1E-05					4
	Air	SWMU 11	Benzene	--	1E-08	--	--	1E-08	Blood	--	0.0005	--	0.0005
			Chloroform	--	1E-08	--	--	1E-08	Liver	--	0.00005	--	0.00005
			cis-1,2-Dichloroethene	--	- -	--	--	- -	NA	--	--	--	--
			Tetrachloroethene	--	2E-09	--	--	2E-09	Neurotoxicity	--	0.002	--	0.002
			Trichloroethene (Mutagenic)	--	7E-08	--	--	7E-08	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	--	1E-07	--	--	1E-07	Liver, Kidney	--	0.2	--	0.2
			Vinyl Chloride	--	1E-09	--	--	1E-09	Liver	--	0.00003	--	0.00003
			Chemical Total	--	2E-07	--	--	2E-07		- -	0.2	- -	0.2
		Exposure Point Total						2E-07					0.2
	Exposure Medium Total							2E-07					0.2
Medium Total								1E-05					4

TABLE 9.9.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Air	Air	SWMU 11	Benzene	--	3E-09	--	--	3E-09	Blood	--	0.0001	--	0.0001
			Chloroform	--	3E-09	--	--	3E-09	Liver	--	0.00002	--	0.00002
			cis-1,2-Dichloroethene	--	- -	--	--	- -	NA	--	--	--	--
			Tetrachloroethene	--	2E-09	--	--	2E-09	Neurotoxicity	--	0.001	--	0.001
			Trichloroethene (Mutagenic)	--	3E-08	--	--	3E-08	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	--	6E-08	--	--	6E-08	Liver, Kidney	--	0.10	--	0.10
			Vinyl Chloride	--	1E-09	--	--	1E-09	Liver	--	0.00003	--	0.00003
			Chemical Total	--	1E-07	--	--	1E-07		- -	0.1	- -	0.1
		Exposure Point Total						1E-07					0.1
	Exposure Medium Total							1E-07					0.1
Medium Total								1E-07					0.1
Receptor Total							Receptor Risk Total	1E-05				Receptor HI Total	4

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

Total Blood HI	0.01
Total CNS HI	0.02
Total CVS HI	0.02
Total Developmental HI	3
Total GS HI	0.08
Total Kidney HI	0.6
Total Liver HI	0.4
Total Respiratory HI	0.0004
Total None Specified HI	0.01
Total Skin HI	0.02
Total Neurotoxicity HI	0.1
Total Reproductive HI	0.006

TABLE 9.10.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	SWMU 11	2,3,7,8-TCDD Equivalents	2E-07	--	6E-09	--	2E-07					
			Benzo(a)anthracene	4E-08	--	6E-09	--	5E-08					
			Benzo(a)pyrene	4E-07	--	7E-08	--	5E-07					
			Benzo(b)fluoranthene	6E-08	--	8E-09	--	7E-08					
			Dibenzo(a,h)anthracene	5E-07	--	8E-08	--	6E-07					
			Indeno(1,2,3-cd)pyrene	3E-08	--	4E-09	--	3E-08					
			Aluminum	- -	--	- -	--	- -					
			Iron	- -	--	- -	--	- -					
			Chemical Total	1E-06	--	2E-07	--	1E-06					
		Exposure Point Total						1E-06					
	Exposure Medium Total							1E-06					
	Air	SWMU 11	2,3,7,8-TCDD Equivalents	--	2E-11	--	--	2E-11					
			Benzo(a)anthracene	--	1E-12	--	--	1E-12					
			Benzo(a)pyrene	--	1E-11	--	--	1E-11					
			Benzo(b)fluoranthene	--	2E-12	--	--	2E-12					
			Dibenzo(a,h)anthracene	--	2E-11	--	--	2E-11					
			Indeno(1,2,3-cd)pyrene	--	7E-13	--	--	7E-13					
			Aluminum	--	- -	--	--	- -					
			Iron	--	- -	--	--	- -					
			Chemical Total	--	5E-11	--	--	5E-11					
		Exposure Point Total						5E-11					
	Exposure Medium Total							5E-11					
Medium Total								1E-06					
Surface Soil	Surface Soil	IA 6	Benzo(a)anthracene	7E-08	--	1E-08	--	8E-08					
			Benzo(a)pyrene	8E-07	--	1E-07	--	9E-07					
			Benzo(b)fluoranthene	1E-07	--	2E-08	--	1E-07					
			Dibenzo(a,h)anthracene	2E-07	--	3E-08	--	2E-07					
			Indeno(1,2,3-cd)pyrene	5E-08	--	7E-09	--	6E-08					
			Aluminum	- -	--	- -	--	- -					
			Iron	- -	--	- -	--	- -					
			Chemical Total	1E-06	--	2E-07	--	1E-06					
		Exposure Point Total						1E-06					
	Exposure Medium Total							1E-06					
	Air	IA 6	Benzo(a)anthracene	--	2E-12	--	--	2E-12					
			Benzo(a)pyrene	--	2E-11	--	--	2E-11					
			Benzo(b)fluoranthene	--	3E-12	--	--	3E-12					
			Dibenzo(a,h)anthracene	--	6E-12	--	--	6E-12					
			Indeno(1,2,3-cd)pyrene	--	1E-12	--	--	1E-12					
			Aluminum	--	- -	--	--	- -					
			Iron	--	- -	--	--	- -					
			Chemical Total	--	4E-11	--	--	4E-11					
		Exposure Point Total						4E-11					
	Exposure Medium Total							4E-11					
Medium Total								1E-06					

TABLE 9.10.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NSA CRANE, CRANE, INDIANA

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	SWMU 11	Tetrachloroethene	1E-09	--	- -	--	1E-09					
			Trichloroethene (Mutagenic)	2E-09	--	- -	--	2E-09					
			Trichloroethene (Nonmutagenic	1E-09	--	- -	--	1E-09					
			Vinyl Chloride	8E-07	--	- -	--	8E-07					
			Arsenic	3E-06	--	2E-07	--	3E-06					
			Chromium	3E-05	--	- -	--	3E-05					
			Iron	- -	--	- -	--	- -					
			Vanadium	- -	--	- -	--	- -					
			Chemical Total	4E-05	--	2E-07	--	4E-05					
		Exposure Point Total						4E-05					
	Exposure Medium Total							4E-05					
	Air	SWMU 11	Tetrachloroethene	--	2E-08	--	--	2E-08					
			Trichloroethene (Mutagenic)	--	2E-08	--	--	2E-08					
			Trichloroethene (Nonmutagenic	--	3E-08	--	--	3E-08					
			Vinyl Chloride	--	7E-07	--	--	7E-07					
			Arsenic	--	5E-09	--	--	5E-09					
			Chromium	--	1E-06	--	--	1E-06					
			Iron	--	- -	--	--	- -					
			Vanadium	--	- -	--	--	- -					
			Chemical Total	--	2E-06	--	--	2E-06					
		Exposure Point Total						2E-06					
	Exposure Medium Total							2E-06					
Medium Total								4E-05					
Groundwater	Groundwater	SWMU 11	Benzene	4E-07	--	5E-08	--	4E-07					
			Chloroform	9E-08	--	7E-09	--	9E-08					
			cis-1,2-Dichloroethene	- -	--	- -	--	- -					
			Tetrachloroethene	1E-07	--	6E-08	--	2E-07					
			Trichloroethene (Mutagenic)	8E-06	--	1E-06	--	1E-05					
			Trichloroethene (Nonmutagenic	9E-06	--	1E-06	--	1E-05					
			Vinyl Chloride	2E-05	--	7E-07	--	2E-05					
			Chemical Total	4E-05	--	3E-06	--	4E-05					
		Exposure Point Total						4E-05					
	Exposure Medium Total							4E-05					
	Air	SWMU 11	Benzene	--	2E-08	--	--	2E-08					
			Chloroform	--	2E-08	--	--	2E-08					
			cis-1,2-Dichloroethene	--	- -	--	--	- -					
			Tetrachloroethene	--	3E-09	--	--	3E-09					
			Trichloroethene (Mutagenic)	--	2E-07	--	--	2E-07					
			Trichloroethene (Nonmutagenic	--	2E-07	--	--	2E-07					
			Vinyl Chloride	--	5E-07	--	--	5E-07					
			Chemical Total	--	9E-07	--	--	9E-07					
		Exposure Point Total						9E-07					
	Exposure Medium Total							9E-07					
Medium Total								4E-05					
Air	Air	SWMU 11	Benzene	--	6E-09	--	--	6E-09					
			Chloroform	--	7E-09	--	--	7E-09					
			cis-1,2-Dichloroethene	--	- -	--	--	- -					
			Tetrachloroethene	--	3E-09	--	--	3E-09					
			Trichloroethene (Mutagenic)	--	1E-07	--	--	1E-07					
			Trichloroethene (Nonmutagenic	--	1E-07	--	--	1E-07					
			Vinyl Chloride	--	2E-08	--	--	2E-08					
			Chemical Total	--	3E-07	--	--	3E-07					
		Exposure Point Total						3E-07					
	Exposure Medium Total							3E-07					
Medium Total								3E-07					
Receptor Total							Receptor Risk Total	8E-05					

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

APPENDIX G.4

PROUCL OUTPUTS

Surface Soil

UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	11/11/2013 11:22:28 AM
From File	ProUCL Data Surface Soil Excluding IA6.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

BENZO(A)ANTHRACENE

General Statistics

Total Number of Observations	18	Number of Distinct Observations	17
Number of Detects	4	Number of Non-Detects	14
Number of Distinct Detects	4	Number of Distinct Non-Detects	13
Minimum Detect	5.49	Minimum Non-Detect	3.85
Maximum Detect	322	Maximum Non-Detect	4.43
Variance Detects	20513	Percent Non-Detects	77.78%
Mean Detects	122.6	SD Detects	143.2
Median Detects	81.55	CV Detects	1.168
Skewness Detects	1.27	Kurtosis Detects	1.013
Mean of Logged Detects	3.961	SD of Logged Detects	1.772

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.888	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.748	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.234	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.443	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	30.25	Standard Error of Mean	20.83
SD	76.54	95% KM (BCA) UCL	N/A
95% KM (t) UCL	66.49	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	64.51	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	92.74	95% KM Chebyshev UCL	121.1
97.5% KM Chebyshev UCL	160.3	99% KM Chebyshev UCL	237.5

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.204	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.672	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.186	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.406	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.711	k star (bias corrected MLE)	0.344
Theta hat (MLE)	172.5	Theta star (bias corrected MLE)	356.1
nu hat (MLE)	5.688	nu star (bias corrected)	2.755
MLE Mean (bias corrected)	122.6	MLE Sd (bias corrected)	209

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.156	nu hat (KM)	5.623
Approximate Chi Square Value (5.62, α)	1.45	Adjusted Chi Square Value (5.62, β)	1.258
95% Gamma Approximate KM-UCL (use when n>=50)	117.3	95% Gamma Adjusted KM-UCL (use when n<50)	135.2

BENZO(A)ANTHRACENE (Continued)

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	27.26
Maximum	322	Median	0.01
SD	79.83	CV	2.928
k hat (MLE)	0.131	k star (bias corrected MLE)	0.146
Theta hat (MLE)	208.9	Theta star (bias corrected MLE)	187
nu hat (MLE)	4.698	nu star (bias corrected)	5.248
MLE Mean (bias corrected)	27.26	MLE Sd (bias corrected)	71.4
		Adjusted Level of Significance (β)	0.0357
Approximate Chi Square Value (5.25, α)	1.269	Adjusted Chi Square Value (5.25, β)	1.093
95% Gamma Approximate UCL (use when n>=50)	112.8	95% Gamma Adjusted UCL (use when n<50)	N/A

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.973	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.748	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.195	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.443	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	27.27	Mean in Log Scale	-2.166
SD in Original Scale	79.82	SD in Log Scale	3.503
95% t UCL (assumes normality of ROS data)	60	95% Percentile Bootstrap UCL	61.21
95% BCA Bootstrap UCL	84.71	95% Bootstrap t UCL	283.4
95% H-UCL (Log ROS)	22917		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	1.929	95% H-UCL (KM -Log)	43.16
KM SD (logged)	1.305	95% Critical H Value (KM-Log)	3.11
KM Standard Error of Mean (logged)	0.355		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	28.84	Mean in Log Scale	1.433
SD in Original Scale	79.26	SD in Log Scale	1.578
95% t UCL (Assumes normality)	61.34	95% H-Stat UCL	56.96

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	66.49	95% KM (Percentile Bootstrap) UCL	N/A

Warning: One or more Recommended UCL(s) not available!

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

BENZO(A)PYRENE

General Statistics			
Total Number of Observations	18	Number of Distinct Observations	17
Number of Detects	4	Number of Non-Detects	14
Number of Distinct Detects	4	Number of Distinct Non-Detects	13
Minimum Detect	3.9	Minimum Non-Detect	3.85
Maximum Detect	348	Maximum Non-Detect	4.43
Variance Detects	24193	Percent Non-Detects	77.78%
Mean Detects	130.6	SD Detects	155.5
Median Detects	85.25	CV Detects	1.191
Skewness Detects	1.303	Kurtosis Detects	1.174
Mean of Logged Detects	3.917	SD of Logged Detects	1.95

Normal GOF Test on Detects Only		
Shapiro Wilk Test Statistic	0.885	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.748	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.236	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.443	Detected Data appear Normal at 5% Significance Level
Detected Data appear Normal at 5% Significance Level		

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs			
Mean	32.03	Standard Error of Mean	22.46
SD	82.51	95% KM (BCA) UCL	N/A
95% KM (t) UCL	71.09	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	68.97	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	99.4	95% KM Chebyshev UCL	129.9
97.5% KM Chebyshev UCL	172.3	99% KM Chebyshev UCL	255.5

Gamma GOF Tests on Detected Observations Only		
A-D Test Statistic	0.199	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.675	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.175	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.407	Detected data appear Gamma Distributed at 5% Significance Level
Detected data appear Gamma Distributed at 5% Significance Level		

Gamma Statistics on Detected Data Only			
k hat (MLE)	0.641	k star (bias corrected MLE)	0.327
Theta hat (MLE)	203.9	Theta star (bias corrected MLE)	399.6
nu hat (MLE)	5.124	nu star (bias corrected)	2.614
MLE Mean (bias corrected)	130.6	MLE Sd (bias corrected)	228.5

Gamma Kaplan-Meier (KM) Statistics			
k hat (KM)	0.151	nu hat (KM)	5.424
Approximate Chi Square Value (5.42, α)	1.353	Adjusted Chi Square Value (5.42, β)	1.169
95% Gamma Approximate KM-UCL (use when n>=50)	128.4	95% Gamma Adjusted KM-UCL (use when n<50)	148.5

BENZO(A)PYRENE (Continued)

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	29.03
Maximum	348	Median	0.01
SD	85.97	CV	2.961
k hat (MLE)	0.129	k star (bias corrected MLE)	0.145
Theta hat (MLE)	224.8	Theta star (bias corrected MLE)	200.7
nu hat (MLE)	4.649	nu star (bias corrected)	5.207
MLE Mean (bias corrected)	29.03	MLE Sd (bias corrected)	76.33
		Adjusted Level of Significance (β)	0.0357
Approximate Chi Square Value (5.21, α)	1.249	Adjusted Chi Square Value (5.21, β)	1.075
95% Gamma Approximate UCL (use when n>=50)	121	95% Gamma Adjusted UCL (use when n<50)	N/A

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.964	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.748	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.195	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.443	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	29.23	Mean in Log Scale	-0.356
SD in Original Scale	85.9	SD in Log Scale	2.572
95% t UCL (assumes normality of ROS data)	64.45	95% Percentile Bootstrap UCL	65.95
95% BCA Bootstrap UCL	93	95% Bootstrap t UCL	317.1
95% H-UCL (Log ROS)	546.9		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	1.922	95% H-UCL (KM -Log)	45.81
KM SD (logged)	1.331	95% Critical H Value (KM-Log)	3.151
KM Standard Error of Mean (logged)	0.362		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	30.61	Mean in Log Scale	1.423
SD in Original Scale	85.41	SD in Log Scale	1.598
95% t UCL (Assumes normality)	65.63	95% H-Stat UCL	60.09

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	71.09	95% KM (Percentile Bootstrap) UCL	N/A

Warning: One or more Recommended UCL(s) not available!

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

BENZO(B)FLUORANTHENE

General Statistics			
Total Number of Observations	18	Number of Distinct Observations	17
Number of Detects	6	Number of Non-Detects	12
Number of Distinct Detects	6	Number of Distinct Non-Detects	11
Minimum Detect	3.63	Minimum Non-Detect	3.85
Maximum Detect	454	Maximum Non-Detect	4.43
Variance Detects	31816	Percent Non-Detects	66.67%
Mean Detects	118	SD Detects	178.4
Median Detects	31.45	CV Detects	1.511
Skewness Detects	1.78	Kurtosis Detects	2.917
Mean of Logged Detects	3.383	SD of Logged Detects	2.026

Normal GOF Test on Detects Only		
Shapiro Wilk Test Statistic	0.743	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.788	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.306	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.362	Detected Data appear Normal at 5% Significance Level
Detected Data appear Approximate Normal at 5% Significance Level		

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs			
Mean	41.76	Standard Error of Mean	27.98
SD	108.4	95% KM (BCA) UCL	88.91
95% KM (t) UCL	90.44	95% KM (Percentile Bootstrap) UCL	89.26
95% KM (z) UCL	87.79	95% KM Bootstrap t UCL	354.4
90% KM Chebyshev UCL	125.7	95% KM Chebyshev UCL	163.7
97.5% KM Chebyshev UCL	216.5	99% KM Chebyshev UCL	320.2

Gamma GOF Tests on Detected Observations Only		
A-D Test Statistic	0.404	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.742	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.267	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.35	Detected data appear Gamma Distributed at 5% Significance Level
Detected data appear Gamma Distributed at 5% Significance Level		

Gamma Statistics on Detected Data Only			
k hat (MLE)	0.463	k star (bias corrected MLE)	0.343
Theta hat (MLE)	254.9	Theta star (bias corrected MLE)	344.5
nu hat (MLE)	5.557	nu star (bias corrected)	4.112
MLE Mean (bias corrected)	118	MLE Sd (bias corrected)	201.6

Gamma Kaplan-Meier (KM) Statistics			
k hat (KM)	0.148	nu hat (KM)	5.345
Approximate Chi Square Value (5.35, α)	1.315	Adjusted Chi Square Value (5.35, β)	1.135
95% Gamma Approximate KM-UCL (use when n>=50)	169.8	95% Gamma Adjusted KM-UCL (use when n<50)	196.7

BENZO(B)FLUORANTHENE (Continued)

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	39.35
Maximum	454	Median	0.01
SD	112.4	CV	2.857
k hat (MLE)	0.138	k star (bias corrected MLE)	0.152
Theta hat (MLE)	284.2	Theta star (bias corrected MLE)	258.2
nu hat (MLE)	4.985	nu star (bias corrected)	5.487
MLE Mean (bias corrected)	39.35	MLE Sd (bias corrected)	100.8
		Adjusted Level of Significance (β)	0.0357
Approximate Chi Square Value (5.49, α)	1.384	Adjusted Chi Square Value (5.49, β)	1.197
95% Gamma Approximate UCL (use when n>=50)	156	95% Gamma Adjusted UCL (use when n<50)	180.3

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.901	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.788	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.228	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.362	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	40.3	Mean in Log Scale	1.33
SD in Original Scale	112.1	SD in Log Scale	1.874
95% t UCL (assumes normality of ROS data)	86.24	95% Percentile Bootstrap UCL	87.21
95% BCA Bootstrap UCL	122.2	95% Bootstrap t UCL	363.2
95% H-UCL (Log ROS)	140.5		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	1.987	95% H-UCL (KM -Log)	68.51
KM SD (logged)	1.454	95% Critical H Value (KM-Log)	3.355
KM Standard Error of Mean (logged)	0.375		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	40.71	Mean in Log Scale	1.605
SD in Original Scale	111.9	SD in Log Scale	1.698
95% t UCL (Assumes normality)	86.59	95% H-Stat UCL	99.45

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	90.44	95% KM (Percentile Bootstrap) UCL	89.26

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

DIBENZO(A,H)ANTHRACENE

General Statistics			
Total Number of Observations	18	Number of Distinct Observations	16
Number of Detects	3	Number of Non-Detects	15
Number of Distinct Detects	3	Number of Distinct Non-Detects	13
Minimum Detect	9.15	Minimum Non-Detect	3.85
Maximum Detect	82.1	Maximum Non-Detect	4.43
Variance Detects	1472	Percent Non-Detects	83.33%
Mean Detects	38.75	SD Detects	38.37
Median Detects	25	CV Detects	0.99
Skewness Detects	1.406	Kurtosis Detects	N/A
Mean of Logged Detects	3.28	SD of Logged Detects	1.098

Warning: Data set has only 3 Detected Values.

This is not enough to compute meaningful or reliable statistics and estimates.

Normal GOF Test on Detects Only			
Shapiro Wilk Test Statistic	0.904	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.767	Detected Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.307	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.512	Detected Data appear Normal at 5% Significance Level	

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs			
Mean	9.667	Standard Error of Mean	5.266
SD	18.24	95% KM (BCA) UCL	N/A
95% KM (t) UCL	18.83	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	18.33	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	25.46	95% KM Chebyshev UCL	32.62
97.5% KM Chebyshev UCL	42.55	99% KM Chebyshev UCL	62.06

Gamma GOF Tests on Detected Observations Only

Not Enough Data to Perform GOF Test

Gamma Statistics on Detected Data Only			
k hat (MLE)	1.471	k star (bias corrected MLE)	N/A
Theta hat (MLE)	26.34	Theta star (bias corrected MLE)	N/A
nu hat (MLE)	8.825	nu star (bias corrected)	N/A
MLE Mean (bias corrected)	N/A	MLE Sd (bias corrected)	N/A

Gamma Kaplan-Meier (KM) Statistics			
k hat (KM)	0.281	nu hat (KM)	10.11
		Adjusted Level of Significance (β)	0.0357
Approximate Chi Square Value (10.11, α)	4.01	Adjusted Chi Square Value (10.11, β)	3.648
95% Gamma Approximate KM-UCL (use when n>=50)	24.37	95% Gamma Adjusted KM-UCL (use when n<50)	26.79

Lognormal GOF Test on Detected Observations Only			
Shapiro Wilk Test Statistic	0.998	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.767	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.189	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.512	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Lognormal at 5% Significance Level

DIBENZO(A,H)ANTHRACENE (Continued)

Lognormal ROS Statistics Using Imputed Non-Detects			
Mean in Original Scale	6.52	Mean in Log Scale	-1.826
SD in Original Scale	19.83	SD in Log Scale	2.471
95% t UCL (assumes normality of ROS data)	14.65	95% Percentile Bootstrap UCL	15.15
95% BCA Bootstrap UCL	19.69	95% Bootstrap t UCL	61.61
95% H-UCL (Log ROS)	75.92		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed			
KM Mean (logged)	1.67	95% H-UCL (KM -Log)	11.72
KM SD (logged)	0.808	95% Critical H Value (KM-Log)	2.372
KM Standard Error of Mean (logged)	0.233		

DL/2 Statistics			
DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	8.158	Mean in Log Scale	1.14
SD in Original Scale	19.27	SD in Log Scale	1.055
95% t UCL (Assumes normality)	16.06	95% H-Stat UCL	10.94

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use			
95% KM (t) UCL	18.83	95% KM (Percentile Bootstrap) UCL	N/A

Warning: One or more Recommended UCL(s) not available!

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

INDENO(1,2,3-CD)PYRENE

General Statistics			
Total Number of Observations	18	Number of Distinct Observations	17
Number of Detects	6	Number of Non-Detects	12
Number of Distinct Detects	6	Number of Distinct Non-Detects	12
Minimum Detect	2.08	Minimum Non-Detect	3.85
Maximum Detect	187	Maximum Non-Detect	4.43
Variance Detects	5575	Percent Non-Detects	66.67%
Mean Detects	52.16	SD Detects	74.66
Median Detects	14.28	CV Detects	1.431
Skewness Detects	1.541	Kurtosis Detects	1.669
Mean of Logged Detects	2.67	SD of Logged Detects	1.934

Normal GOF Test on Detects Only		
Shapiro Wilk Test Statistic	0.765	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.788	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.31	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.362	Detected Data appear Normal at 5% Significance Level
Detected Data appear Approximate Normal at 5% Significance Level		

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs			
Mean	19.19	Standard Error of Mean	11.81
SD	45.74	95% KM (BCA) UCL	39.51
95% KM (t) UCL	39.74	95% KM (Percentile Bootstrap) UCL	39.01
95% KM (z) UCL	38.62	95% KM Bootstrap t UCL	149.8
90% KM Chebyshev UCL	54.63	95% KM Chebyshev UCL	70.69
97.5% KM Chebyshev UCL	92.97	99% KM Chebyshev UCL	136.7

Gamma GOF Tests on Detected Observations Only		
A-D Test Statistic	0.456	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.737	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.283	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.349	Detected data appear Gamma Distributed at 5% Significance Level
Detected data appear Gamma Distributed at 5% Significance Level		

Gamma Statistics on Detected Data Only			
k hat (MLE)	0.495	k star (bias corrected MLE)	0.359
Theta hat (MLE)	105.3	Theta star (bias corrected MLE)	145.4
nu hat (MLE)	5.942	nu star (bias corrected)	4.305
MLE Mean (bias corrected)	52.16	MLE Sd (bias corrected)	87.09

Gamma Kaplan-Meier (KM) Statistics			
k hat (KM)	0.176	nu hat (KM)	6.335
Approximate Chi Square Value (6.33, α)	1.813	Adjusted Chi Square Value (6.33, β)	1.591
95% Gamma Approximate KM-UCL (use when n>=50)	67.04	95% Gamma Adjusted KM-UCL (use when n<50)	76.39

INDENO(1,2,3-CD)PYRENE (Continued)

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	17.39
Maximum	187	Median	0.01
SD	47.74	CV	2.745
k hat (MLE)	0.152	k star (bias corrected MLE)	0.164
Theta hat (MLE)	114.2	Theta star (bias corrected MLE)	106.1
nu hat (MLE)	5.482	nu star (bias corrected)	5.902
MLE Mean (bias corrected)	17.39	MLE Sd (bias corrected)	42.96
		Adjusted Level of Significance (β)	0.0357
Approximate Chi Square Value (5.90, α)	1.59	Adjusted Chi Square Value (5.90, β)	1.386
95% Gamma Approximate UCL (use when n>=50)	64.57	95% Gamma Adjusted UCL (use when n<50)	74.07

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.879	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.788	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.253	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.362	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	19.38	Mean in Log Scale	1.614
SD in Original Scale	47	SD in Log Scale	1.305
95% t UCL (assumes normality of ROS data)	38.65	95% Percentile Bootstrap UCL	38.63
95% BCA Bootstrap UCL	49.76	95% Bootstrap t UCL	158.6
95% H-UCL (Log ROS)	31.5		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	1.533	95% H-UCL (KM -Log)	29.56
KM SD (logged)	1.312	95% Critical H Value (KM-Log)	3.12
KM Standard Error of Mean (logged)	0.353		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	18.75	Mean in Log Scale	1.367
SD in Original Scale	47.23	SD in Log Scale	1.414
95% t UCL (Assumes normality)	38.12	95% H-Stat UCL	32.93

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	39.74	95% KM (Percentile Bootstrap) UCL	39.01

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

UCL Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	11/11/2013 11:45:04 AM
From File	ProUCL Data Surface Soil Excluding IA6.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

TEQ - HALFND

General Statistics

Total Number of Observations	11	Number of Distinct Observations	11
		Number of Missing Observations	13
Minimum	3.717	Mean	6.086
Maximum	20.19	Median	4.393
SD	4.762	Std. Error of Mean	1.436
Coefficient of Variation	0.782	Skewness	3.113

Normal GOF Test

Shapiro Wilk Test Statistic	0.506	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.85	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.368	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.267	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	8.688	95% Adjusted-CLT UCL (Chen-1995)	9.888
		95% Modified-t UCL (Johnson-1978)	8.913

Gamma GOF Test

A-D Test Statistic	1.782	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.733	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.299	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.257	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.59	k star (bias corrected MLE)	2.672
Theta hat (MLE)	1.695	Theta star (bias corrected MLE)	2.278
nu hat (MLE)	78.98	nu star (bias corrected)	58.77
MLE Mean (bias corrected)	6.086	MLE Sd (bias corrected)	3.723
		Approximate Chi Square Value (0.05)	42.15
Adjusted Level of Significance	0.0278	Adjusted Chi Square Value	39.86

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	8.487	95% Adjusted Gamma UCL (use when n<50)	8.974

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.672	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.85	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.27	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.267	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	1.313	Mean of logged Data	1.66
Maximum of Logged Data	3.005	SD of logged Data	0.48

TEQ - HALFND (Continued)

Assuming Lognormal Distribution			
95% H-UCL	8.183	90% Chebyshev (MVUE) UCL	8.422
95% Chebyshev (MVUE) UCL	9.592	97.5% Chebyshev (MVUE) UCL	11.22
99% Chebyshev (MVUE) UCL	14.41		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs			
95% CLT UCL	8.448	95% Jackknife UCL	8.688
95% Standard Bootstrap UCL	8.317	95% Bootstrap-t UCL	18.13
95% Hall's Bootstrap UCL	16.71	95% Percentile Bootstrap UCL	8.702
95% BCA Bootstrap UCL	10.37		
90% Chebyshev(Mean, Sd) UCL	10.39	95% Chebyshev(Mean, Sd) UCL	12.34
97.5% Chebyshev(Mean, Sd) UCL	15.05	99% Chebyshev(Mean, Sd) UCL	20.37

Suggested UCL to Use			
95% Student's-t UCL	8.688	or 95% Modified-t UCL	8.913

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

ALUMINUM

General Statistics			
Total Number of Observations	18	Number of Distinct Observations	17
		Number of Missing Observations	0
Minimum	7490	Mean	13851
Maximum	19900	Median	13650
SD	3304	Std. Error of Mean	778.8
Coefficient of Variation	0.239	Skewness	-0.133

Normal GOF Test		
Shapiro Wilk Test Statistic	0.963	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.897	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.153	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.209	Data appear Normal at 5% Significance Level
Data appear Normal at 5% Significance Level		

Assuming Normal Distribution			
95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	15206	95% Adjusted-CLT UCL (Chen-1995)	15106
		95% Modified-t UCL (Johnson-1978)	15202

Gamma GOF Test		
A-D Test Statistic	0.431	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.739	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.179	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.203	Detected data appear Gamma Distributed at 5% Significance Level
Detected data appear Gamma Distributed at 5% Significance Level		

Gamma Statistics			
k hat (MLE)	16.93	k star (bias corrected MLE)	14.14
Theta hat (MLE)	818.3	Theta star (bias corrected MLE)	979.3
nu hat (MLE)	609.4	nu star (bias corrected)	509.2
MLE Mean (bias corrected)	13851	MLE Sd (bias corrected)	3683
		Approximate Chi Square Value (0.05)	457.8
Adjusted Level of Significance	0.0357	Adjusted Chi Square Value	453.2

Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50))	15404	95% Adjusted Gamma UCL (use when n<50)	15563

Lognormal GOF Test		
Shapiro Wilk Test Statistic	0.922	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.897	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.199	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.209	Data appear Lognormal at 5% Significance Level
Data appear Lognormal at 5% Significance Level		

Lognormal Statistics			
Minimum of Logged Data	8.921	Mean of logged Data	9.506
Maximum of Logged Data	9.898	SD of logged Data	0.26

Assuming Lognormal Distribution			
95% H-UCL	15600	90% Chebyshev (MVUE) UCL	16453
95% Chebyshev (MVUE) UCL	17619	97.5% Chebyshev (MVUE) UCL	19237
99% Chebyshev (MVUE) UCL	22417		

Nonparametric Distribution Free UCL Statistics
Data appear to follow a Discernible Distribution at 5% Significance Level

ALUMINUM (Continued)

Nonparametric Distribution Free UCLs			
95% CLT UCL	15132	95% Jackknife UCL	15206
95% Standard Bootstrap UCL	15075	95% Bootstrap-t UCL	15165
95% Hall's Bootstrap UCL	15179	95% Percentile Bootstrap UCL	15088
95% BCA Bootstrap UCL	15078		
90% Chebyshev(Mean, Sd) UCL	16188	95% Chebyshev(Mean, Sd) UCL	17246
97.5% Chebyshev(Mean, Sd) UCL	18715	99% Chebyshev(Mean, Sd) UCL	21600

Suggested UCL to Use	
95% Student's-t UCL	15206

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be
reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.

IRON

General Statistics			
Total Number of Observations	18	Number of Distinct Observations	17
		Number of Missing Observations	0
Minimum	13400	Mean	20911
Maximum	27200	Median	21150
SD	4213	Std. Error of Mean	993
Coefficient of Variation	0.201	Skewness	-0.248

Normal GOF Test		
Shapiro Wilk Test Statistic	0.953	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.897	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.127	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.209	Data appear Normal at 5% Significance Level
Data appear Normal at 5% Significance Level		

Assuming Normal Distribution			
95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	22639	95% Adjusted-CLT UCL (Chen-1995)	22482
		95% Modified-t UCL (Johnson-1978)	22629

Gamma GOF Test		
A-D Test Statistic	0.376	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.739	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.14	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.203	Detected data appear Gamma Distributed at 5% Significance Level
Detected data appear Gamma Distributed at 5% Significance Level		

Gamma Statistics			
k hat (MLE)	24.5	k star (bias corrected MLE)	20.45
Theta hat (MLE)	853.6	Theta star (bias corrected MLE)	1022
nu hat (MLE)	881.9	nu star (bias corrected)	736.3
MLE Mean (bias corrected)	20911	MLE Sd (bias corrected)	4624
		Approximate Chi Square Value (0.05)	674.3
Adjusted Level of Significance	0.0357	Adjusted Chi Square Value	668.6

Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50))	22833	95% Adjusted Gamma UCL (use when n<50)	23027

Lognormal GOF Test		
Shapiro Wilk Test Statistic	0.939	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.897	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.136	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.209	Data appear Lognormal at 5% Significance Level
Data appear Lognormal at 5% Significance Level		

Lognormal Statistics			
Minimum of Logged Data	9.503	Mean of logged Data	9.927
Maximum of Logged Data	10.21	SD of logged Data	0.213

Assuming Lognormal Distribution			
95% H-UCL	22985	90% Chebyshev (MVUE) UCL	24094
95% Chebyshev (MVUE) UCL	25528	97.5% Chebyshev (MVUE) UCL	27519
99% Chebyshev (MVUE) UCL	31430		

Nonparametric Distribution Free UCL Statistics
Data appear to follow a Discernible Distribution at 5% Significance Level

IRON (Continued)

Nonparametric Distribution Free UCLs			
95% CLT UCL	22545	95% Jackknife UCL	22639
95% Standard Bootstrap UCL	22513	95% Bootstrap-t UCL	22568
95% Hall's Bootstrap UCL	22483	95% Percentile Bootstrap UCL	22517
95% BCA Bootstrap UCL	22506		
90% Chebyshev(Mean, Sd) UCL	23890	95% Chebyshev(Mean, Sd) UCL	25240
97.5% Chebyshev(Mean, Sd) UCL	27113	99% Chebyshev(Mean, Sd) UCL	30792

Suggested UCL to Use	
95% Student's-t UCL	22639

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be
reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.

Subsurface Soil

UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	11/11/2013 11:17:40 AM
From File	ProUCL Data Subsurface Soil.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

TETRACHLOROETHENE

General Statistics

Total Number of Observations	83	Number of Distinct Observations	71
Number of Detects	36	Number of Non-Detects	47
Number of Distinct Detects	36	Number of Distinct Non-Detects	40
Minimum Detect	1.57	Minimum Non-Detect	1.98
Maximum Detect	31200	Maximum Non-Detect	136
Variance Detects	26911020	Percent Non-Detects	56.63%
Mean Detects	1128	SD Detects	5188
Median Detects	43.45	CV Detects	4.6
Skewness Detects	5.887	Kurtosis Detects	35.03
Mean of Logged Detects	4.001	SD of Logged Detects	2.262

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.226	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.935	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.438	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.148	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	491.1	Standard Error of Mean	380.1
SD	3414	95% KM (BCA) UCL	1252
95% KM (t) UCL	1123	95% KM (Percentile Bootstrap) UCL	1225
95% KM (z) UCL	1116	95% KM Bootstrap t UCL	7473
90% KM Chebyshev UCL	1631	95% KM Chebyshev UCL	2148
97.5% KM Chebyshev UCL	2865	99% KM Chebyshev UCL	4273

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	3.823	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.889	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.263	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.162	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.237	k star (bias corrected MLE)	0.235
Theta hat (MLE)	4765	Theta star (bias corrected MLE)	4789
nu hat (MLE)	17.04	nu star (bias corrected)	16.96
MLE Mean (bias corrected)	1128	MLE Sd (bias corrected)	2324

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.0207	nu hat (KM)	3.434
Approximate Chi Square Value (3.43, α)	0.512	Adjusted Chi Square Value (3.43, β)	0.494
95% Gamma Approximate KM-UCL (use when n>=50)	3295	95% Gamma Adjusted KM-UCL (use when n<50)	3414

Gamma (KM) may not be used when k hat (KM) is < 0.1

TETRACHLOROETHENE (Continued)

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	489.2
Maximum	31200	Median	0.01
SD	3435	CV	7.023
k hat (MLE)	0.113	k star (bias corrected MLE)	0.117
Theta hat (MLE)	4324	Theta star (bias corrected MLE)	4178
nu hat (MLE)	18.78	nu star (bias corrected)	19.43
MLE Mean (bias corrected)	489.2	MLE Sd (bias corrected)	1430
		Adjusted Level of Significance (β)	0.0471
Approximate Chi Square Value (19.43, α)	10.44	Adjusted Chi Square Value (19.43, β)	10.32
95% Gamma Approximate UCL (use when n>=50)	911.1	95% Gamma Adjusted UCL (use when n<50)	921.4

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.962	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.935	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.0963	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.148	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	489.5	Mean in Log Scale	1.259
SD in Original Scale	3435	SD in Log Scale	2.892
95% t UCL (assumes normality of ROS data)	1117	95% Percentile Bootstrap UCL	1219
95% BCA Bootstrap UCL	1982	95% Bootstrap t UCL	7015
95% H-UCL (Log ROS)	982.5		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	2.104	95% H-UCL (KM -Log)	268.5
KM SD (logged)	2.264	95% Critical H Value (KM-Log)	3.702
KM Standard Error of Mean (logged)	0.258		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	495	Mean in Log Scale	2.195
SD in Original Scale	3435	SD in Log Scale	2.412
95% t UCL (Assumes normality)	1122	95% H-Stat UCL	464.3

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Lognormal Distributed at 5% Significance Level

Suggested UCL to Use

97.5% KM (Chebyshev) UCL	2865

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

TRICHLOROETHENE

General Statistics			
Total Number of Observations	83	Number of Distinct Observations	79
Number of Detects	42	Number of Non-Detects	41
Number of Distinct Detects	42	Number of Distinct Non-Detects	37
Minimum Detect	1.5	Minimum Non-Detect	1.98
Maximum Detect	1290	Maximum Non-Detect	136
Variance Detects	87026	Percent Non-Detects	49.4%
Mean Detects	162.5	SD Detects	295
Median Detects	33	CV Detects	1.815
Skewness Detects	2.387	Kurtosis Detects	5.313
Mean of Logged Detects	3.462	SD of Logged Detects	1.996

Normal GOF Test on Detects Only		
Shapiro Wilk Test Statistic	0.591	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.942	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.307	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.137	Detected Data Not Normal at 5% Significance Level
Detected Data Not Normal at 5% Significance Level		

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs			
Mean	83.77	Standard Error of Mean	24.69
SD	222.2	95% KM (BCA) UCL	129.6
95% KM (t) UCL	124.8	95% KM (Percentile Bootstrap) UCL	127
95% KM (z) UCL	124.4	95% KM Bootstrap t UCL	144.7
90% KM Chebyshev UCL	157.8	95% KM Chebyshev UCL	191.4
97.5% KM Chebyshev UCL	238	99% KM Chebyshev UCL	329.5

Gamma GOF Tests on Detected Observations Only		
A-D Test Statistic	1.489	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.836	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.148	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.146	Detected Data Not Gamma Distributed at 5% Significance Level
Detected Data Not Gamma Distributed at 5% Significance Level		

Gamma Statistics on Detected Data Only			
k hat (MLE)	0.403	k star (bias corrected MLE)	0.39
Theta hat (MLE)	402.9	Theta star (bias corrected MLE)	416.2
nu hat (MLE)	33.88	nu star (bias corrected)	32.8
MLE Mean (bias corrected)	162.5	MLE Sd (bias corrected)	260.1

Gamma Kaplan-Meier (KM) Statistics			
k hat (KM)	0.142	nu hat (KM)	23.59
Approximate Chi Square Value (23.59, α)	13.54	Adjusted Chi Square Value (23.59, β)	13.4
95% Gamma Approximate KM-UCL (use when n>=50)	146	95% Gamma Adjusted KM-UCL (use when n<50)	147.4

TRICHLOROETHENE (Continued)

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	82.24
Maximum	1290	Median	1.5
SD	224	CV	2.724
k hat (MLE)	0.155	k star (bias corrected MLE)	0.157
Theta hat (MLE)	530.4	Theta star (bias corrected MLE)	522.2
nu hat (MLE)	25.74	nu star (bias corrected)	26.14
MLE Mean (bias corrected)	82.24	MLE Sd (bias corrected)	207.2
		Adjusted Level of Significance (β)	0.0471
Approximate Chi Square Value (26.14, α)	15.49	Adjusted Chi Square Value (26.14, β)	15.34
95% Gamma Approximate UCL (use when n>=50)	138.8	95% Gamma Adjusted UCL (use when n<50)	140.1

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.894	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.942	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.0871	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.137	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Approximate Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	83.1	Mean in Log Scale	1.965
SD in Original Scale	223.7	SD in Log Scale	2.105
95% t UCL (assumes normality of ROS data)	124	95% Percentile Bootstrap UCL	126.2
95% BCA Bootstrap UCL	137.3	95% Bootstrap t UCL	142.4
95% H-UCL (Log ROS)	147.3		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	2.094	95% H-UCL (KM -Log)	128.8
KM SD (logged)	2.008	95% Critical H Value (KM-Log)	3.375
KM Standard Error of Mean (logged)	0.228		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	86.54	Mean in Log Scale	2.108
SD in Original Scale	222.9	SD in Log Scale	2.169
95% t UCL (Assumes normality)	127.2	95% H-Stat UCL	203.8

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Lognormal Distributed at 5% Significance Level

Suggested UCL to Use

97.5% KM (Chebyshev) UCL	238

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

VINYL CHLORIDE

General Statistics			
Total Number of Observations	83	Number of Distinct Observations	73
Number of Detects	23	Number of Non-Detects	60
Number of Distinct Detects	22	Number of Distinct Non-Detects	52
Minimum Detect	1.58	Minimum Non-Detect	1.98
Maximum Detect	154	Maximum Non-Detect	465
Variance Detects	2238	Percent Non-Detects	72.29%
Mean Detects	29.43	SD Detects	47.31
Median Detects	4.54	CV Detects	1.608
Skewness Detects	1.611	Kurtosis Detects	1.299
Mean of Logged Detects	2.116	SD of Logged Detects	1.543

Normal GOF Test on Detects Only		
Shapiro Wilk Test Statistic	0.63	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.914	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.43	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.185	Detected Data Not Normal at 5% Significance Level
Detected Data Not Normal at 5% Significance Level		

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs			
Mean	10.29	Standard Error of Mean	3.352
SD	28.47	95% KM (BCA) UCL	16.1
95% KM (t) UCL	15.87	95% KM (Percentile Bootstrap) UCL	16.17
95% KM (z) UCL	15.8	95% KM Bootstrap t UCL	18.16
90% KM Chebyshev UCL	20.35	95% KM Chebyshev UCL	24.9
97.5% KM Chebyshev UCL	31.22	99% KM Chebyshev UCL	43.64

Gamma GOF Tests on Detected Observations Only		
A-D Test Statistic	3.177	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.805	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.397	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.192	Detected Data Not Gamma Distributed at 5% Significance Level
Detected Data Not Gamma Distributed at 5% Significance Level		

Gamma Statistics on Detected Data Only			
k hat (MLE)	0.501	k star (bias corrected MLE)	0.465
Theta hat (MLE)	58.69	Theta star (bias corrected MLE)	63.28
nu hat (MLE)	23.07	nu star (bias corrected)	21.39
MLE Mean (bias corrected)	29.43	MLE Sd (bias corrected)	43.15

Gamma Kaplan-Meier (KM) Statistics			
k hat (KM)	0.131	nu hat (KM)	21.7
Approximate Chi Square Value (21.70, α)	12.11	Adjusted Chi Square Value (21.70, β)	11.99
95% Gamma Approximate KM-UCL (use when n>=50)	18.44	95% Gamma Adjusted KM-UCL (use when n<50)	18.63

VINYL CHLORIDE (Continued)

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	8.162
Maximum	154	Median	0.01
SD	27.86	CV	3.413
k hat (MLE)	0.158	k star (bias corrected MLE)	0.16
Theta hat (MLE)	51.8	Theta star (bias corrected MLE)	51.04
nu hat (MLE)	26.16	nu star (bias corrected)	26.55
MLE Mean (bias corrected)	8.162	MLE Sd (bias corrected)	20.41
		Adjusted Level of Significance (β)	0.0471
Approximate Chi Square Value (26.55, α)	15.8	Adjusted Chi Square Value (26.55, β)	15.65
95% Gamma Approximate UCL (use when n>=50)	13.71	95% Gamma Adjusted UCL (use when n<50)	13.84

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.775	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.914	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.33	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.185	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	8.694	Mean in Log Scale	0.31
SD in Original Scale	27.7	SD in Log Scale	1.43
95% t UCL (assumes normality of ROS data)	13.75	95% Percentile Bootstrap UCL	13.83
95% BCA Bootstrap UCL	15.48	95% Bootstrap t UCL	16.44
95% H-UCL (Log ROS)	5.789		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	20.77	Mean in Log Scale	1.393
SD in Original Scale	40.68	SD in Log Scale	1.685
95% t UCL (Assumes normality)	28.19	95% H-Stat UCL	28.98

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (Chebyshev) UCL	24.9

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

UCL Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	11/11/2013 11:18:43 AM
From File	ProUCL Data Subsurface Soil.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

ARSENIC

General Statistics

Total Number of Observations	4	Number of Distinct Observations	4
		Number of Missing Observations	0
Minimum	2.49	Mean	8.88
Maximum	20.4	Median	6.315
SD	7.889	Std. Error of Mean	3.945
Coefficient of Variation	0.888	Skewness	1.675

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest. For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012). Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.0

Normal GOF Test

Shapiro Wilk Test Statistic	0.815	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.748	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.373	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.443	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	18.16	95% Adjusted-CLT UCL (Chen-1995)	18.9
		95% Modified-t UCL (Johnson-1978)	18.71

Gamma GOF Test

A-D Test Statistic	0.379	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.661	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.322	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.398	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.933	k star (bias corrected MLE)	0.65
Theta hat (MLE)	4.594	Theta star (bias corrected MLE)	13.66
nu hat (MLE)	15.46	nu star (bias corrected)	5.199
MLE Mean (bias corrected)	8.88	MLE Sd (bias corrected)	11.02
		Approximate Chi Square Value (0.05)	1.245
Adjusted Level of Significance	N/A	Adjusted Chi Square Value	N/A

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	37.07	95% Adjusted Gamma UCL (use when n<50)	N/A

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.945	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.748	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.271	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.443	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

ARSENIC (Continued)

Lognormal Statistics			
Minimum of Logged Data	0.912	Mean of logged Data	1.903
Maximum of Logged Data	3.016	SD of logged Data	0.862

Assuming Lognormal Distribution			
95% H-UCL	173.8	90% Chebyshev (MVUE) UCL	19.42
95% Chebyshev (MVUE) UCL	24.26	97.5% Chebyshev (MVUE) UCL	30.98
99% Chebyshev (MVUE) UCL	44.18		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs			
95% CLT UCL	15.37	95% Jackknife UCL	18.16
95% Standard Bootstrap UCL	N/A	95% Bootstrap-t UCL	N/A
95% Hall's Bootstrap UCL	N/A	95% Percentile Bootstrap UCL	N/A
95% BCA Bootstrap UCL	N/A		
90% Chebyshev(Mean, Sd) UCL	20.71	95% Chebyshev(Mean, Sd) UCL	26.07
97.5% Chebyshev(Mean, Sd) UCL	33.51	99% Chebyshev(Mean, Sd) UCL	48.13

Suggested UCL to Use	
95% Student's-t UCL	18.16

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

CHROMIUM

General Statistics			
Total Number of Observations	4	Number of Distinct Observations	4
		Number of Missing Observations	0
Minimum	13.8	Mean	33.88
Maximum	74.9	Median	23.4
SD	27.91	Std. Error of Mean	13.96
Coefficient of Variation	0.824	Skewness	1.767

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.0

Normal GOF Test		
Shapiro Wilk Test Statistic	0.803	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.748	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.342	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.443	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution			
95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	66.72	95% Adjusted-CLT UCL (Chen-1995)	70.01
		95% Modified-t UCL (Johnson-1978)	68.78

Gamma GOF Test		
A-D Test Statistic	0.393	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.66	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.291	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.397	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics			
k hat (MLE)	2.442	k star (bias corrected MLE)	0.777
Theta hat (MLE)	13.87	Theta star (bias corrected MLE)	43.59
nu hat (MLE)	19.54	nu star (bias corrected)	6.217
MLE Mean (bias corrected)	33.88	MLE Sd (bias corrected)	38.43
		Approximate Chi Square Value (0.05)	1.752
Adjusted Level of Significance	N/A	Adjusted Chi Square Value	N/A

Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50))	120.2	95% Adjusted Gamma UCL (use when n<50)	N/A

Lognormal GOF Test		
Shapiro Wilk Test Statistic	0.93	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.748	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.247	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.443	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics			
Minimum of Logged Data	2.625	Mean of logged Data	3.304
Maximum of Logged Data	4.316	SD of logged Data	0.73

CHROMIUM (Continued)

Assuming Lognormal Distribution			
95% H-UCL	291.1	90% Chebyshev (MVUE) UCL	67.76
95% Chebyshev (MVUE) UCL	83.51	97.5% Chebyshev (MVUE) UCL	105.4
99% Chebyshev (MVUE) UCL	148.3		

Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution at 5% Significance Level			
Nonparametric Distribution Free UCLs			
95% CLT UCL	56.83	95% Jackknife UCL	66.72
95% Standard Bootstrap UCL	N/A	95% Bootstrap-t UCL	N/A
95% Hall's Bootstrap UCL	N/A	95% Percentile Bootstrap UCL	N/A
95% BCA Bootstrap UCL	N/A		
90% Chebyshev(Mean, Sd) UCL	75.75	95% Chebyshev(Mean, Sd) UCL	94.71
97.5% Chebyshev(Mean, Sd) UCL	121	99% Chebyshev(Mean, Sd) UCL	172.7
Suggested UCL to Use			
95% Student's-t UCL	66.72		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

IRON

General Statistics			
Total Number of Observations	4	Number of Distinct Observations	4
		Number of Missing Observations	0
Minimum	11400	Mean	32275
Maximum	75600	Median	21050
SD	29240	Std. Error of Mean	14620
Coefficient of Variation	0.906	Skewness	1.851

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.0

Normal GOF Test		
Shapiro Wilk Test Statistic	0.762	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.748	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.396	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.443	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution			
95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	66681	95% Adjusted-CLT UCL (Chen-1995)	70777
		95% Modified-t UCL (Johnson-1978)	68936

Gamma GOF Test		
A-D Test Statistic	0.498	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.66	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.375	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.398	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics			
k hat (MLE)	2.066	k star (bias corrected MLE)	0.683
Theta hat (MLE)	15621	Theta star (bias corrected MLE)	47242
nu hat (MLE)	16.53	nu star (bias corrected)	5.465
MLE Mean (bias corrected)	32275	MLE Sd (bias corrected)	39048
		Approximate Chi Square Value (0.05)	1.373
Adjusted Level of Significance	N/A	Adjusted Chi Square Value	N/A

Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50))	128468	95% Adjusted Gamma UCL (use when n<50)	N/A

Lognormal GOF Test		
Shapiro Wilk Test Statistic	0.895	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.748	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.327	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.443	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics			
Minimum of Logged Data	9.341	Mean of logged Data	10.12
Maximum of Logged Data	11.23	SD of logged Data	0.796

IRON (Continued)

Assuming Lognormal Distribution			
95% H-UCL	405927	90% Chebyshev (MVUE) UCL	66728
95% Chebyshev (MVUE) UCL	82821	97.5% Chebyshev (MVUE) UCL	105158
99% Chebyshev (MVUE) UCL	149035		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs			
95% CLT UCL	56323	95% Jackknife UCL	66681
95% Standard Bootstrap UCL	N/A	95% Bootstrap-t UCL	N/A
95% Hall's Bootstrap UCL	N/A	95% Percentile Bootstrap UCL	N/A
95% BCA Bootstrap UCL	N/A		
90% Chebyshev(Mean, Sd) UCL	76135	95% Chebyshev(Mean, Sd) UCL	96002
97.5% Chebyshev(Mean, Sd) UCL	123577	99% Chebyshev(Mean, Sd) UCL	177743

Suggested UCL to Use			
95% Student's-t UCL	66681		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

VANADIUM

General Statistics			
Total Number of Observations	4	Number of Distinct Observations	4
		Number of Missing Observations	0
Minimum	17.6	Mean	42.28
Maximum	86.2	Median	32.65
SD	30.13	Std. Error of Mean	15.07
Coefficient of Variation	0.713	Skewness	1.656

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.0

Normal GOF Test		
Shapiro Wilk Test Statistic	0.819	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.748	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.372	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.443	Data appear Normal at 5% Significance Level
Data appear Normal at 5% Significance Level		

Assuming Normal Distribution			
95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	77.73	95% Adjusted-CLT UCL (Chen-1995)	80.38
		95% Modified-t UCL (Johnson-1978)	79.81

Gamma GOF Test		
A-D Test Statistic	0.415	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.659	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.341	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.397	Detected data appear Gamma Distributed at 5% Significance Level
Detected data appear Gamma Distributed at 5% Significance Level		

Gamma Statistics			
k hat (MLE)	3.095	k star (bias corrected MLE)	0.94
Theta hat (MLE)	13.66	Theta star (bias corrected MLE)	44.95
nu hat (MLE)	24.76	nu star (bias corrected)	7.524
MLE Mean (bias corrected)	42.28	MLE Sd (bias corrected)	43.59
		Approximate Chi Square Value (0.05)	2.463
Adjusted Level of Significance	N/A	Adjusted Chi Square Value	N/A

Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50))	129.2	95% Adjusted Gamma UCL (use when n<50)	N/A

Lognormal GOF Test		
Shapiro Wilk Test Statistic	0.926	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.748	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.299	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.443	Data appear Lognormal at 5% Significance Level
Data appear Lognormal at 5% Significance Level		

Lognormal Statistics			
Minimum of Logged Data	2.868	Mean of logged Data	3.574
Maximum of Logged Data	4.457	SD of logged Data	0.657

Assuming Lognormal Distribution			
95% H-UCL	247.2	90% Chebyshev (MVUE) UCL	81.49
95% Chebyshev (MVUE) UCL	99.51	97.5% Chebyshev (MVUE) UCL	124.5
99% Chebyshev (MVUE) UCL	173.6		

VANADIUM (Continued)

Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution at 5% Significance Level			
Nonparametric Distribution Free UCLs			
95% CLT UCL	67.06	95% Jackknife UCL	77.73
95% Standard Bootstrap UCL	N/A	95% Bootstrap-t UCL	N/A
95% Hall's Bootstrap UCL	N/A	95% Percentile Bootstrap UCL	N/A
95% BCA Bootstrap UCL	N/A		
90% Chebyshev(Mean, Sd) UCL	87.47	95% Chebyshev(Mean, Sd) UCL	107.9
97.5% Chebyshev(Mean, Sd) UCL	136.4	99% Chebyshev(Mean, Sd) UCL	192.2
Suggested UCL to Use			
95% Student's-t UCL	77.73		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Sediment

UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	11/11/2013 11:15:58 AM
From File	ProUCL Data Sediment.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Dibenzo(a,h)anthracene

General Statistics

Total Number of Observations	8	Number of Distinct Observations	8
Number of Detects	5	Number of Non-Detects	3
Number of Distinct Detects	5	Number of Distinct Non-Detects	3
Minimum Detect	9.83	Minimum Non-Detect	3.69
Maximum Detect	29.7	Maximum Non-Detect	22.7
Variance Detects	63.01	Percent Non-Detects	37.5%
Mean Detects	15.99	SD Detects	7.938
Median Detects	14.5	CV Detects	0.497
Skewness Detects	1.863	Kurtosis Detects	3.741
Mean of Logged Detects	2.691	SD of Logged Detects	0.426

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.0

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.778	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.762	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.369	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.396	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	12.11	Standard Error of Mean	3.185
SD	7.871	95% KM (BCA) UCL	17.5
95% KM (t) UCL	18.15	95% KM (Percentile Bootstrap) UCL	17.11
95% KM (z) UCL	17.35	95% KM Bootstrap t UCL	18.05
90% KM Chebyshev UCL	21.67	95% KM Chebyshev UCL	26
97.5% KM Chebyshev UCL	32	99% KM Chebyshev UCL	43.8

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.514	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.68	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.337	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.358	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	6.381	k star (bias corrected MLE)	2.686
Theta hat (MLE)	2.505	Theta star (bias corrected MLE)	5.952
nu hat (MLE)	63.81	nu star (bias corrected)	26.86
MLE Mean (bias corrected)	15.99	MLE Sd (bias corrected)	9.755

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	2.369	nu hat (KM)	37.9
Approximate Chi Square Value (37.90, α)	24.81	Adjusted Chi Square Value (37.90, β)	22.16
95% Gamma Approximate KM-UCL (use when n>=50)	18.51	95% Gamma Adjusted KM-UCL (use when n<50)	20.72

Dibenzo(a,h)anthracene (Continued)

Gamma ROS Statistics using Imputed Non-Detects			
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
GROS may not be used when kstar of detected data is small such as < 0.1			
For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
Minimum	1.969	Mean	11.62
Maximum	29.7	Median	10.57
SD	8.782	CV	0.756
k hat (MLE)	1.685	k star (bias corrected MLE)	1.136
Theta hat (MLE)	6.9	Theta star (bias corrected MLE)	10.23
nu hat (MLE)	26.95	nu star (bias corrected)	18.18
MLE Mean (bias corrected)	11.62	MLE Sd (bias corrected)	10.9
		Adjusted Level of Significance (β)	0.0195
Approximate Chi Square Value (18.18, α)	9.521	Adjusted Chi Square Value (18.18, β)	7.987
95% Gamma Approximate UCL (use when n>=50)	22.19	95% Gamma Adjusted UCL (use when n<50)	26.46

Lognormal GOF Test on Detected Observations Only			
Shapiro Wilk Test Statistic	0.874	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.762	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.31	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.396	Detected Data appear Lognormal at 5% Significance Level	
Detected Data appear Lognormal at 5% Significance Level			

Lognormal ROS Statistics Using Imputed Non-Detects			
Mean in Original Scale	12.67	Mean in Log Scale	2.406
SD in Original Scale	7.66	SD in Log Scale	0.537
95% t UCL (assumes normality of ROS data)	17.8	95% Percentile Bootstrap UCL	17.05
95% BCA Bootstrap UCL	18.66	95% Bootstrap t UCL	21.26
95% H-UCL (Log ROS)	20.9		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed			
KM Mean (logged)	2.273	95% H-UCL (KM -Log)	25.16
KM SD (logged)	0.693	95% Critical H Value (KM-Log)	2.72
KM Standard Error of Mean (logged)	0.288		

DL/2 Statistics			
DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	11.92	Mean in Log Scale	2.162
SD in Original Scale	8.706	SD in Log Scale	0.96
95% t UCL (Assumes normality)	17.75	95% H-Stat UCL	46.13
DL/2 is not a recommended method, provided for comparisons and historical reasons			

Nonparametric Distribution Free UCL Statistics			
Detected Data appear Normal Distributed at 5% Significance Level			
Suggested UCL to Use			
95% KM (t) UCL	18.15	95% KM (Percentile Bootstrap) UCL	17.11

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Thallium

General Statistics			
Total Number of Observations	8	Number of Distinct Observations	8
Number of Detects	4	Number of Non-Detects	4
Number of Distinct Detects	4	Number of Distinct Non-Detects	4
Minimum Detect	0.487	Minimum Non-Detect	0.278
Maximum Detect	0.742	Maximum Non-Detect	2.73
Variance Detects	0.0144	Percent Non-Detects	50%
Mean Detects	0.6	SD Detects	0.12
Median Detects	0.586	CV Detects	0.2
Skewness Detects	0.376	Kurtosis Detects	-3.365
Mean of Logged Detects	-0.525	SD of Logged Detects	0.199

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.0

Normal GOF Test on Detects Only			
Shapiro Wilk Test Statistic	0.916	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.748	Detected Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.259	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.443	Detected Data appear Normal at 5% Significance Level	
Detected Data appear Normal at 5% Significance Level			

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs			
Mean	0.462	Standard Error of Mean	0.0776
SD	0.178	95% KM (BCA) UCL	N/A
95% KM (t) UCL	0.609	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	0.59	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	0.695	95% KM Chebyshev UCL	0.8
97.5% KM Chebyshev UCL	0.947	99% KM Chebyshev UCL	1.234

Gamma GOF Tests on Detected Observations Only			
A-D Test Statistic	0.346	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.657	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.288	**Kolmogrov-Smirnoff GOF**	
5% K-S Critical Value	0.394	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			

Gamma Statistics on Detected Data Only			
k hat (MLE)	33.78	k star (bias corrected MLE)	8.611
Theta hat (MLE)	0.0178	Theta star (bias corrected MLE)	0.0697
nu hat (MLE)	270.2	nu star (bias corrected)	68.89
MLE Mean (bias corrected)	0.6	MLE Sd (bias corrected)	0.205

Gamma Kaplan-Meier (KM) Statistics			
k hat (KM)	6.76	nu hat (KM)	108.2
Approximate Chi Square Value (108.17, α)	85.16	Adjusted Chi Square Value (108.17, β)	80.01
95% Gamma Approximate KM-UCL (use when n>=50)	0.587	95% Gamma Adjusted KM-UCL (use when n<50)	0.625

Thallium (Continued)

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.276	Mean	0.46
Maximum	0.742	Median	0.469
SD	0.179	CV	0.389
k hat (MLE)	7.463	k star (bias corrected MLE)	4.747
Theta hat (MLE)	0.0616	Theta star (bias corrected MLE)	0.0969
nu hat (MLE)	119.4	nu star (bias corrected)	75.96
MLE Mean (bias corrected)	0.46	MLE Sd (bias corrected)	0.211
		Adjusted Level of Significance (β)	0.0195
Approximate Chi Square Value (75.96, α)	56.88	Adjusted Chi Square Value (75.96, β)	52.73
95% Gamma Approximate UCL (use when n>=50)	0.614	95% Gamma Adjusted UCL (use when n<50)	N/A

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.917	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.748	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.254	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.443	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.482	Mean in Log Scale	-0.774
SD in Original Scale	0.155	SD in Log Scale	0.315
95% t UCL (assumes normality of ROS data)	0.585	95% Percentile Bootstrap UCL	0.568
95% BCA Bootstrap UCL	0.579	95% Bootstrap t UCL	0.613
95% H-UCL (Log ROS)	0.62		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-0.849	95% H-UCL (KM -Log)	0.642
KM SD (logged)	0.396	95% Critical H Value (KM-Log)	2.188
KM Standard Error of Mean (logged)	0.173		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	0.547	Mean in Log Scale	-0.83
SD in Original Scale	0.393	SD in Log Scale	0.741
95% t UCL (Assumes normality)	0.811	95% H-Stat UCL	1.264

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.609	95% KM (Percentile Bootstrap) UCL	N/A

Warning: One or more Recommended UCL(s) not available!

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

UCL Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	11/11/2013 12:40:58 PM
From File	ProUCL Data Sediment.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

TEQ Who-2005 - Halfnd

General Statistics

Total Number of Observations	4	Number of Distinct Observations	4
		Number of Missing Observations	6
Minimum	4.537	Mean	7.275
Maximum	9.049	Median	7.757
SD	1.924	Std. Error of Mean	0.962
Coefficient of Variation	0.265	Skewness	-1.377

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest. For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012). Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.0

Normal GOF Test

Shapiro Wilk Test Statistic	0.873	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.748	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.341	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.443	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	9.539	95% Adjusted-CLT UCL (Chen-1995)	8.15
		95% Modified-t UCL (Johnson-1978)	9.429

Gamma GOF Test

A-D Test Statistic	0.516	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.657	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.376	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.395	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	16.08	k star (bias corrected MLE)	4.187
Theta hat (MLE)	0.452	Theta star (bias corrected MLE)	1.738
nu hat (MLE)	128.6	nu star (bias corrected)	33.49
MLE Mean (bias corrected)	7.275	MLE Sd (bias corrected)	3.556
		Approximate Chi Square Value (0.05)	21.26
Adjusted Level of Significance	N/A	Adjusted Chi Square Value	N/A

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	11.46	95% Adjusted Gamma UCL (use when n<50)	N/A

TEQ Who-2005 - Halfnd (Continued)

Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.825	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk Critical Value	0.748	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.367	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.443	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	1.512	Mean of logged Data	1.953
Maximum of Logged Data	2.203	SD of logged Data	0.303
Assuming Lognormal Distribution			
95% H-UCL	12.01	90% Chebyshev (MVUE) UCL	10.58
95% Chebyshev (MVUE) UCL	12.07	97.5% Chebyshev (MVUE) UCL	14.14
99% Chebyshev (MVUE) UCL	18.2		
Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution at 5% Significance Level			
Nonparametric Distribution Free UCLs			
95% CLT UCL	8.858	95% Jackknife UCL	9.539
95% Standard Bootstrap UCL	N/A	95% Bootstrap-t UCL	N/A
95% Hall's Bootstrap UCL	N/A	95% Percentile Bootstrap UCL	N/A
95% BCA Bootstrap UCL	N/A		
90% Chebyshev(Mean, Sd) UCL	10.16	95% Chebyshev(Mean, Sd) UCL	11.47
97.5% Chebyshev(Mean, Sd) UCL	13.28	99% Chebyshev(Mean, Sd) UCL	16.85
Suggested UCL to Use			
95% Student's-t UCL	9.539		
Recommended UCL exceeds the maximum observation			

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.

Benzo(a)pyrene

General Statistics			
Total Number of Observations	8	Number of Distinct Observations	8
		Number of Missing Observations	0
Minimum	5.01	Mean	43.74
Maximum	136	Median	31.3
SD	44.79	Std. Error of Mean	15.83
Coefficient of Variation	1.024	Skewness	1.531

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.0

Normal GOF Test		
Shapiro Wilk Test Statistic	0.818	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.818	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.316	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.313	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution			
95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	73.74	95% Adjusted-CLT UCL (Chen-1995)	78.94
		95% Modified-t UCL (Johnson-1978)	75.17

Gamma GOF Test		
A-D Test Statistic	0.291	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.734	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.199	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.301	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics			
k hat (MLE)	1.13	k star (bias corrected MLE)	0.79
Theta hat (MLE)	38.71	Theta star (bias corrected MLE)	55.4
nu hat (MLE)	18.08	nu star (bias corrected)	12.63
MLE Mean (bias corrected)	43.74	MLE Sd (bias corrected)	49.23
		Approximate Chi Square Value (0.05)	5.647
Adjusted Level of Significance	0.0195	Adjusted Chi Square Value	4.522

Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50)	97.86	95% Adjusted Gamma UCL (use when n<50)	122.2

Lognormal GOF Test		
Shapiro Wilk Test Statistic	0.937	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.818	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.169	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.313	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics			
Minimum of Logged Data	1.611	Mean of logged Data	3.274
Maximum of Logged Data	4.913	SD of logged Data	1.152

Assuming Lognormal Distribution			
95% H-UCL	269.2	90% Chebyshev (MVUE) UCL	102.6
95% Chebyshev (MVUE) UCL	128.4	97.5% Chebyshev (MVUE) UCL	164.2
99% Chebyshev (MVUE) UCL	234.5		

Benzo(a)pyrene (Continued)

Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution at 5% Significance Level			
Nonparametric Distribution Free UCLs			
95% CLT UCL	69.79	95% Jackknife UCL	73.74
95% Standard Bootstrap UCL	66.73	95% Bootstrap-t UCL	121.9
95% Hall's Bootstrap UCL	250.9	95% Percentile Bootstrap UCL	67.88
95% BCA Bootstrap UCL	75		
90% Chebyshev(Mean, Sd) UCL	91.25	95% Chebyshev(Mean, Sd) UCL	112.8
97.5% Chebyshev(Mean, Sd) UCL	142.6	99% Chebyshev(Mean, Sd) UCL	201.3
Suggested UCL to Use			
95% Adjusted Gamma UCL	122.2		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Benzo(b)fluoranthene

General Statistics			
Total Number of Observations	8	Number of Distinct Observations	8
		Number of Missing Observations	0
Minimum	7.48	Mean	84.05
Maximum	298	Median	55.55
SD	94.15	Std. Error of Mean	33.29
Coefficient of Variation	1.12	Skewness	2.024

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.0

Normal GOF Test		
Shapiro Wilk Test Statistic	0.775	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.818	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.247	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.313	Data appear Normal at 5% Significance Level
Data appear Approximate Normal at 5% Significance Level		

Assuming Normal Distribution			
95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	147.1	95% Adjusted-CLT UCL (Chen-1995)	164.3
		95% Modified-t UCL (Johnson-1978)	151.1

Gamma GOF Test		
A-D Test Statistic	0.208	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.735	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.127	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.301	Detected data appear Gamma Distributed at 5% Significance Level
Detected data appear Gamma Distributed at 5% Significance Level		

Gamma Statistics			
k hat (MLE)	1.05	k star (bias corrected MLE)	0.74
Theta hat (MLE)	80.02	Theta star (bias corrected MLE)	113.6
nu hat (MLE)	16.81	nu star (bias corrected)	11.84
MLE Mean (bias corrected)	84.05	MLE Sd (bias corrected)	97.72
		Approximate Chi Square Value (0.05)	5.12
Adjusted Level of Significance	0.0195	Adjusted Chi Square Value	4.06

Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50))	194.3	95% Adjusted Gamma UCL (use when n<50)	245

Lognormal GOF Test		
Shapiro Wilk Test Statistic	0.969	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.818	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.169	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.313	Data appear Lognormal at 5% Significance Level
Data appear Lognormal at 5% Significance Level		

Lognormal Statistics			
Minimum of Logged Data	2.012	Mean of logged Data	3.885
Maximum of Logged Data	5.697	SD of logged Data	1.197

Assuming Lognormal Distribution			
95% H-UCL	590	90% Chebyshev (MVUE) UCL	201.3
95% Chebyshev (MVUE) UCL	252.7	97.5% Chebyshev (MVUE) UCL	324.1
99% Chebyshev (MVUE) UCL	464.4		

Benzo(b)fluoranthene (Continued)

Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution at 5% Significance Level			
Nonparametric Distribution Free UCLs			
95% CLT UCL	138.8	95% Jackknife UCL	147.1
95% Standard Bootstrap UCL	134.4	95% Bootstrap-t UCL	226.7
95% Hall's Bootstrap UCL	391.4	95% Percentile Bootstrap UCL	137.1
95% BCA Bootstrap UCL	158.3		
90% Chebyshev(Mean, Sd) UCL	183.9	95% Chebyshev(Mean, Sd) UCL	229.1
97.5% Chebyshev(Mean, Sd) UCL	291.9	99% Chebyshev(Mean, Sd) UCL	415.3
Suggested UCL to Use			
95% Student's-t UCL	147.1		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Aluminum

General Statistics			
Total Number of Observations	8	Number of Distinct Observations	8
		Number of Missing Observations	0
Minimum	6500	Mean	8505
Maximum	11300	Median	7975
SD	1814	Std. Error of Mean	641.4
Coefficient of Variation	0.213	Skewness	0.804

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.0

Normal GOF Test		
Shapiro Wilk Test Statistic	0.875	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.818	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.235	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.313	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution			
95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	9720	95% Adjusted-CLT UCL (Chen-1995)	9755
		95% Modified-t UCL (Johnson-1978)	9750

Gamma GOF Test		
A-D Test Statistic	0.433	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.716	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.223	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.294	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics			
k hat (MLE)	26.63	k star (bias corrected MLE)	16.73
Theta hat (MLE)	319.3	Theta star (bias corrected MLE)	508.4
nu hat (MLE)	426.1	nu star (bias corrected)	267.7
MLE Mean (bias corrected)	8505	MLE Sd (bias corrected)	2079
		Approximate Chi Square Value (0.05)	230.8
Adjusted Level of Significance	0.0195	Adjusted Chi Square Value	222.1

Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50))	9864	95% Adjusted Gamma UCL (use when n<50)	10250

Lognormal GOF Test		
Shapiro Wilk Test Statistic	0.907	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.818	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.207	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.313	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics			
Minimum of Logged Data	8.78	Mean of logged Data	9.03
Maximum of Logged Data	9.333	SD of logged Data	0.205

Assuming Lognormal Distribution			
95% H-UCL	9914	90% Chebyshev (MVUE) UCL	10354
95% Chebyshev (MVUE) UCL	11194	97.5% Chebyshev (MVUE) UCL	12359
99% Chebyshev (MVUE) UCL	14649		

Aluminum (Continued)

Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution at 5% Significance Level			
Nonparametric Distribution Free UCLs			
95% CLT UCL	9560	95% Jackknife UCL	9720
95% Standard Bootstrap UCL	9503	95% Bootstrap-t UCL	10613
95% Hall's Bootstrap UCL	11687	95% Percentile Bootstrap UCL	9588
95% BCA Bootstrap UCL	9631		
90% Chebyshev(Mean, Sd) UCL	10429	95% Chebyshev(Mean, Sd) UCL	11301
97.5% Chebyshev(Mean, Sd) UCL	12510	99% Chebyshev(Mean, Sd) UCL	14886
Suggested UCL to Use			
95% Student's-t UCL	9720		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Arsenic

General Statistics			
Total Number of Observations	8	Number of Distinct Observations	8
		Number of Missing Observations	0
Minimum	14.3	Mean	17.98
Maximum	27	Median	16.65
SD	4.259	Std. Error of Mean	1.506
Coefficient of Variation	0.237	Skewness	1.559

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.0

Normal GOF Test			
Shapiro Wilk Test Statistic	0.822	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.818	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.243	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.313	Data appear Normal at 5% Significance Level	
Data appear Normal at 5% Significance Level			

Assuming Normal Distribution			
95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	20.83	95% Adjusted-CLT UCL (Chen-1995)	21.34
		95% Modified-t UCL (Johnson-1978)	20.97

Gamma GOF Test			
A-D Test Statistic	0.564	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.716	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.264	**Kolmogrov-Smirnoff Gamma GOF Test**	
5% K-S Critical Value	0.294	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			

Gamma Statistics			
k hat (MLE)	23.32	k star (bias corrected MLE)	14.66
Theta hat (MLE)	0.771	Theta star (bias corrected MLE)	1.226
nu hat (MLE)	373.1	nu star (bias corrected)	234.5
MLE Mean (bias corrected)	17.98	MLE Sd (bias corrected)	4.695
		Approximate Chi Square Value (0.05)	200.1
Adjusted Level of Significance	0.0195	Adjusted Chi Square Value	192

Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50))	21.07	95% Adjusted Gamma UCL (use when n<50)	21.96

Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.866	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk Critical Value	0.818	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.251	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.313	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			

Lognormal Statistics			
Minimum of Logged Data	2.66	Mean of logged Data	2.867
Maximum of Logged Data	3.296	SD of logged Data	0.215

Assuming Lognormal Distribution			
95% H-UCL	21.12	90% Chebyshev (MVUE) UCL	22.06
95% Chebyshev (MVUE) UCL	23.92	97.5% Chebyshev (MVUE) UCL	26.51
99% Chebyshev (MVUE) UCL	31.58		

Arsenic (Continued)

Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution at 5% Significance Level			
Nonparametric Distribution Free UCLs			
95% CLT UCL	20.45	95% Jackknife UCL	20.83
95% Standard Bootstrap UCL	20.19	95% Bootstrap-t UCL	22.92
95% Hall's Bootstrap UCL	30.8	95% Percentile Bootstrap UCL	20.61
95% BCA Bootstrap UCL	21.03		
90% Chebyshev(Mean, Sd) UCL	22.49	95% Chebyshev(Mean, Sd) UCL	24.54
97.5% Chebyshev(Mean, Sd) UCL	27.38	99% Chebyshev(Mean, Sd) UCL	32.96
Suggested UCL to Use			
95% Student's-t UCL	20.83		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Chromium

General Statistics			
Total Number of Observations	8	Number of Distinct Observations	8
		Number of Missing Observations	0
Minimum	42.3	Mean	72.28
Maximum	132	Median	67.05
SD	30.35	Std. Error of Mean	10.73
Coefficient of Variation	0.42	Skewness	1.091

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.0

Normal GOF Test		
Shapiro Wilk Test Statistic	0.893	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.818	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.189	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.313	Data appear Normal at 5% Significance Level
Data appear Normal at 5% Significance Level		

Assuming Normal Distribution			
95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	92.61	95% Adjusted-CLT UCL (Chen-1995)	94.35
		95% Modified-t UCL (Johnson-1978)	93.3

Gamma GOF Test		
A-D Test Statistic	0.316	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.717	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.197	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.295	Detected data appear Gamma Distributed at 5% Significance Level
Detected data appear Gamma Distributed at 5% Significance Level		

Gamma Statistics			
k hat (MLE)	7.164	k star (bias corrected MLE)	4.561
Theta hat (MLE)	10.09	Theta star (bias corrected MLE)	15.85
nu hat (MLE)	114.6	nu star (bias corrected)	72.97
MLE Mean (bias corrected)	72.28	MLE Sd (bias corrected)	33.84
		Approximate Chi Square Value (0.05)	54.3
Adjusted Level of Significance	0.0195	Adjusted Chi Square Value	50.25

Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50))	97.13	95% Adjusted Gamma UCL (use when n<50)	105

Lognormal GOF Test		
Shapiro Wilk Test Statistic	0.936	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.818	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.184	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.313	Data appear Lognormal at 5% Significance Level
Data appear Lognormal at 5% Significance Level		

Lognormal Statistics			
Minimum of Logged Data	3.745	Mean of logged Data	4.209
Maximum of Logged Data	4.883	SD of logged Data	0.398

Assuming Lognormal Distribution			
95% H-UCL	101.3	90% Chebyshev (MVUE) UCL	102.7
95% Chebyshev (MVUE) UCL	116.6	97.5% Chebyshev (MVUE) UCL	135.9
99% Chebyshev (MVUE) UCL	173.7		

Chromium

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	89.93	95% Jackknife UCL	92.61
95% Standard Bootstrap UCL	88.47	95% Bootstrap-t UCL	100.3
95% Hall's Bootstrap UCL	104.6	95% Percentile Bootstrap UCL	88.79
95% BCA Bootstrap UCL	93.86		
90% Chebyshev(Mean, Sd) UCL	104.5	95% Chebyshev(Mean, Sd) UCL	119.1
97.5% Chebyshev(Mean, Sd) UCL	139.3	99% Chebyshev(Mean, Sd) UCL	179.1

Suggested UCL to Use

95% Student's-t UCL	92.61

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Iron

General Statistics			
Total Number of Observations	8	Number of Distinct Observations	8
		Number of Missing Observations	0
Minimum	16300	Mean	24138
Maximum	37800	Median	20400
SD	8132	Std. Error of Mean	2875
Coefficient of Variation	0.337	Skewness	0.749

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.0

Normal GOF Test		
Shapiro Wilk Test Statistic	0.851	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.818	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.252	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.313	Data appear Normal at 5% Significance Level
Data appear Normal at 5% Significance Level		

Assuming Normal Distribution			
95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	29585	95% Adjusted-CLT UCL (Chen-1995)	29681
		95% Modified-t UCL (Johnson-1978)	29712

Gamma GOF Test		
A-D Test Statistic	0.605	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.715	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.264	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.294	Detected data appear Gamma Distributed at 5% Significance Level
Detected data appear Gamma Distributed at 5% Significance Level		

Gamma Statistics			
k hat (MLE)	10.82	k star (bias corrected MLE)	6.844
Theta hat (MLE)	2232	Theta star (bias corrected MLE)	3527
nu hat (MLE)	173.1	nu star (bias corrected)	109.5
MLE Mean (bias corrected)	24138	MLE Sd (bias corrected)	9227
		Approximate Chi Square Value (0.05)	86.35
Adjusted Level of Significance	0.0195	Adjusted Chi Square Value	81.16

Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50))	30610	95% Adjusted Gamma UCL (use when n<50)	32568

Lognormal GOF Test		
Shapiro Wilk Test Statistic	0.87	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.818	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.246	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.313	Data appear Lognormal at 5% Significance Level
Data appear Lognormal at 5% Significance Level		

Lognormal Statistics			
Minimum of Logged Data	9.699	Mean of logged Data	10.04
Maximum of Logged Data	10.54	SD of logged Data	0.323

Assuming Lognormal Distribution			
95% H-UCL	31291	90% Chebyshev (MVUE) UCL	32382
95% Chebyshev (MVUE) UCL	36134	97.5% Chebyshev (MVUE) UCL	41342
99% Chebyshev (MVUE) UCL	51571		

Iron (Continued)

Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution at 5% Significance Level			
Nonparametric Distribution Free UCLs			
95% CLT UCL	28867	95% Jackknife UCL	29585
95% Standard Bootstrap UCL	28536	95% Bootstrap-t UCL	31317
95% Hall's Bootstrap UCL	27966	95% Percentile Bootstrap UCL	28775
95% BCA Bootstrap UCL	29538		
90% Chebyshev(Mean, Sd) UCL	32763	95% Chebyshev(Mean, Sd) UCL	36670
97.5% Chebyshev(Mean, Sd) UCL	42093	99% Chebyshev(Mean, Sd) UCL	52745
Suggested UCL to Use			
95% Student's-t UCL	29585		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

APPENDIX G.5

SAMPLE CALCULATIONS

CALCULATION WORKSHEET

CLIENT: NSA CRANE, CRANE INDIANA		**JOB NUMBER:** 112G02635
SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SOIL HYPOTHETICAL CHILD RESIDENTS		
BASED ON: USEPA, DECEMBER 1989		
BY: R. JUPIN	**CHECKED BY:** L. Clifton	**DATE:** 11/14/2013

PURPOSE: To estimate intake, carcinogenic and noncarcinogenic risks from incidental ingestion of subsurface soil.

EQUATION:

$$IEX = \frac{CS \times RBA \times IR \times EF \times ED \times FI \times CF}{BW \times AT}$$

Where:

IEX	=	estimated exposure intake (mg/kg/day)
Cs	=	exposure point concentration in soil (mg/kg)
RBA	=	relative bioavailability (unitless)
IR	=	incidental ingestion rate (mg/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
FI	=	fraction ingested from contaminated source (unitless)
CF	=	conversion factor (1E-06 kg/mg)
BW	=	body weight (kg)
AT	=	averaging time (days)
CSFo	=	oral carcinogenic slope factor ($(mg/kg/day)^{-1}$)
RfDo	=	oral noncarcinogenic reference dose (mg/kg/day)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg/day) x CSFo (mg/kg/day)-1
HQ (Noncarcinogens) = Intake (mg/kg/day) / RFDo (mg/kg/day)

ASSUMPTIONS:

Cs	=	20.4	mg/kg	Chemical: Arsenic
RBA	=	0.6		
IR	=	200	mg/day	
EF	=	350	days/year	
ED	=	6	years	
FI	=	1		
CF	=	1E-06	kg/mg	
BW	=	15	kg	
ATc	=	25,550	days	
ATnc	=	2190	days	
CSFo	=	1.5E+00	$(mg/kg/day)^{-1}$	
RfDo	=	3.0E-04	(mg/kg/day)	

CLIENT: NSA CRANE, CRANE INDIANA		**JOB NUMBER:** 112G02635
SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SOIL HYPOTHETICAL CHILD RESIDENTS		
BASED ON: USEPA, DECEMBER 1989		
BY: R. JUPIN	**CHECKED BY:** L. Liffan	**DATE:** 11/14/2013

EXAMPLE CARCINOGENIC CALCULATION

$$IEXc = \frac{20.4 \text{ mg/kg} \times 0.6 \times 200 \text{ mg/day} \times 350 \text{ days/year} \times 6 \text{ years} \times 1 \times 1E\text{-}06 \text{ kg/mg}}{15 \text{ kg} \times 25550 \text{ days}}$$

IEXc = 1.34E-05 mg/kg/day

ILCR = 1.34E-05 mg/kg/day x 1.50E+00 (mg/kg/day)-1 = Incremental Lifetime Cancer Risk

ILCR = 2.0E-05

EXAMPLE NONCARCINOGENIC CALCULATION

$$IEXnc = \frac{20.4 \text{ mg/kg} \times 0.6 \times 200 \text{ mg/day} \times 350 \text{ days/year} \times 6 \text{ years} \times 1 \times 1E\text{-}06 \text{ kg/mg}}{15 \text{ kg} \times 2190 \text{ days}}$$

IEXnc = 1.56E-04 mg/kg/day

HQ = 1.56E-04 mg/kg/day / 3.00E-04 (mg/kg/day) = Hazard Quotient

HQ = 5.2E-01

CLIENT: NSA CRANE, CRANE INDIANA		**JOB NUMBER:** 112G02635
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SOIL HYPOTHETICAL CHILD RESIDENTS		
BASED ON: USEPA, JULY 2004		
BY: R. JUPIN	**CHECKED BY:** L. Crafton	**DATE:** 11/14/2013

PURPOSE: To estimate intake, carcinogenic and noncarcinogenic risks from dermal contact with subsurface soil.

EQUATION:

$$DEX = \frac{Cs \times CF \times SA \times AF \times ABS \times EF \times ED}{BW \times AT}$$

Where:

DEX	=	estimated exposure intake (mg/kg/day)
Cs	=	exposure point concentration in soil (mg/kg)
CF	=	conversion factor (1E-06 kg/mg)
SA	=	skin surface available for contact (cm2/day)
ABS	=	absorption factor (unitless)
AF	=	adherence factor (mg/cm2)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
BW	=	body weight (kg)
AT	=	averaging time (days)
CSFd	=	dermal carcinogenic slope factor ($(mg/kg/day)^{-1}$)
RfDd	=	dermal noncarcinogenic reference dose (mg/kg/day)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg/day) x CSFd (mg/kg/day)-1
HQ (Noncarcinogens) = Intake (mg/kg/day) / RFDd (mg/kg/day)

ASSUMPTIONS:

Cs	=	20.4	mg/kg	Chemical: Arsenic
CF	=	1E-06	kg/mg	
SA	=	2,800	cm^2/day	
AF	=	0.2	mg/cm^2	
ABS	=	0.03		
EF	=	350	days/year	
ED	=	6	years	
BW	=	15	kg	
ATc	=	25,550	days	
ATnc	=	2190	days	
CSFd	=	1.5E+00	$(mg/kg/day)^{-1}$	
RfDd	=	3.0E-04	(mg/kg/day)	

CLIENT: NSA CRANE, CRANE INDIANA		**JOB NUMBER:** 112G02635
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SOIL HYPOTHETICAL CHILD RESIDENTS		
BASED ON: USEPA, JULY 2004		
BY: R. JUPIN	**CHECKED BY:** L. Cafonni	**DATE:** 11/14/2013

EXAMPLE CARCINOGENIC CALCULATION

$$DEXc = \frac{20.4 \text{ mg/kg} \times 1E\text{-}06 \text{ kg/mg} \times 2800 \text{ cm2/day} \times 0.2 \text{ mg/cm2} \times 0.03 \times 350 \text{ days/year} \times 6 \text{ years}}{15 \text{ kg} \times 25550 \text{ days}}$$

DEXc = 1.88E-06 mg/kg/day

ILCR = 1.88E-06 mg/kg/day x 1.50E+00 (mg/kg/day)-1 = Incremental Lifetime Cancer Risk

ILCR = 2.8E-06

EXAMPLE NONCARCINOGENIC CALCULATION

$$DEXnc = \frac{20.4 \text{ mg/kg} \times 1E\text{-}06 \text{ kg/mg} \times 2800 \text{ cm2/day} \times 0.2 \text{ mg/cm2} \times 0.03 \times 350 \text{ days/year} \times 6 \text{ years}}{15 \text{ kg} \times 2190 \text{ days}}$$

DEXnc = 2.19E-05 mg/kg/day

HQ = 2.19E-05 mg/kg/day / 3.00E-04 (mg/kg/day) = Hazard Quotient

HQ = 7.3E-02

CALCULATION WORKSHEET

CLIENT: NSA CRANE, CRANE, INDIANA		**JOB NUMBER:** 112G02635
SUBJECT: CALCULATION OF INTAKE/RISK FROM INHALATION OF FUGATIVE DUST EMISSIONS HYPOTHETICAL CHILD RESIDENTS		
BASED ON: USEPA, JANUARY 2009		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/14/2013

PURPOSE: To estimate intake, carcinogenic and noncarcinogenic risks from inhalation of surface soil.

EQUATION:

$$EC = \frac{Ca \times ET \times EF \times ED}{AT \times 24 \text{ hours/day}}$$

Where:

EC	=	exposure concentration (mg/m3)
Ca	=	exposure point concentration in air (mg/m3)
	=	Cs x 1/PEF
Cs	=	exposure point concentration in soil (mg/kg)
PEF	=	particulate emission factor (m3/kg)
ET	=	exposure time (hrs/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
BW	=	body weight (kg)
AT	=	averaging time (hours)
IUR	=	inhalation unit risk ($(ug/m3)^{-1}$)
RfC	=	inhalation reference concentration (mg/m3)

RISKS:

ILCR (Carcinogens) = Exposure Concentration (mg/m3) x IURi (ug/m3)-1 x 1000 ug/mg
HQ (Noncarcinogens) = Exposure Concentration (mg/m3) / RFCi (mg/m3)

ASSUMPTIONS:

Cs	=	20.4	mg/kg	Chemical: Arsenic
PEF	=	1.32E+09	m3/kg	
Ca	=	1.55E-08	mg/m3	
ET	=	24	hours/day	
EF	=	350	days/year	
ED	=	6	years	
ATc	=	25,550	days	
ATnc	=	2,190	days	
IUR	=	4.3E-03	$(ug/m3)^{-1}$	
RfC	=	1.5E-05	(mg/m3)	

CLIENT: NSA CRANE, CRANE, INDIANA		JOB NUMBER: 112G02635
SUBJECT: CALCULATION OF INTAKE/RISK FROM INHALATION OF FUGATIVE DUST EMISSIONS HYPOTHETICAL CHILD RESIDENTS		
BASED ON: USEPA, JANUARY 2009		
BY: R. JUPIN	CHECKED BY: L. Ciofani	DATE: 11/14/2013

EXAMPLE CARCINOGENIC CALCULATION

$$IEXc = \frac{1.55E\text{-}08 \text{ mg/m3} \times 24 \text{ hours/day} \times 350 \text{ days/year} \times 6 \text{ years}}{25550 \text{ days} \times 24 \text{ hours/day}}$$

IEXc = 1.27E-09 mg/m3

ILCR = 1.27E-09 mg/m3 x 4.30E-03 (ug/m3)-1 x 1000 ug/mg = Incremental Lifetime Cancer Risk

ILCR = 5.5E-09

EXAMPLE NONCARCINOGENIC CALCULATION

$$IEXnc = \frac{1.55E\text{-}08 \text{ mg/m3} \times 24 \text{ hours/day} \times 350 \text{ days/year} \times 6 \text{ years}}{2190 \text{ days} \times 24 \text{ hours/day}}$$

IEXnc = 1.49E-08 mg/m3

HQ = 1.49E-08 mg/m3 / 1.50E-05 (mg/m3) = Hazard Quotient

HQ **9.9E-04**

CLIENT:	JOB NUMBER:
NSA CRANE, CRANE, INDIANA	112G02635

SUBJECT:
CALCULATION OF PARTICULATE EMISSION FACTOR FOR CONSTRUCTION WORKERS

BASED ON:
Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites (USEPA, December 2002)

BY:	CHECKED BY:	DATE:
R. JUPIN	L. Ciofani	11/14/2013

Equation 5-5
Derivation of the Particulate Emission Factor
Construction Scenario - Construction Worker

$$PEF_{sc} = Q/C_{sr} \times \frac{1}{F_D} \times \left[\frac{T \times A_R}{556 \times (W/3)^{0.4} \times \frac{(365d/yr - p)}{365d/yr} \times \Sigma VKT} \right]$$

Parameter/Definition (units)	Default
PEF_{sc}/subchronic road particulate emission factor (m^3/kg)	site-specific
Q/C_{sr}/ inverse of the ratio of the 1-h geometric mean air concentration to the emission flux along a straight road segment bisecting a square site (g/m^2-s per kg/m^3)	23.02[a] (Equation 5-6)
F_D/dispersion correction factor (unitless)	0.185 (Appendix E)
T/total time over which construction occurs (s)	site-specific
A_R/surface area of contaminated road segment (m^2) L_R/length of road segment (ft) W_R/width of road segment (ft)	274.213 ($A_R = L_R \times W_R \times 0.092903 m^2/ft^2$)
W/mean vehicle weight (tons)	site-specific
p/number of days with at least 0.01 inches of precipitation (days/year)	site-specific (Exhibit 5-2)
ΣVKT/sum of fleet vehicle kilometers traveled during the exposure duration (km)	site-specific

[a] Assumes a 0.5 acre site

Calculation of PEF for Construction Workers

Q/C	23.02	(g/m^2-s per kg/m^3)	
Fd	0.185	dispersion correction factor (unitless)	
T	4.32E+06	sec	3600 sec/hr x 8hr/day x 150 days/yr
A_R	274.213	m^2	
W	8	tons	
p	125	day/year	
VKT	202.5	km	30 vehicles x 0.045 km/day x 150 days

PEF = 1.34E+06 m^3/kg

CALCULATION WORKSHEET

CLIENT: NSA CRANE, CRANE, INDIANA		**JOB NUMBER:** 112G02635
SUBJECT: CALCULATION OF INTAKE/RISK FROM INGESTION OF GROUNDWATER ADULT RESIDENTS		
BASED ON: USEPA, DECEMBER 1989		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/14/2013

PURPOSE: To estimate intake, carcinogenic and noncarcinogenic risks from ingestion of groundwater.

EQUATION:

$$IEX = \frac{Cgw \times CF \times IR \times EF \times ED}{BW \times AT}$$

Where:

IEX	=	estimated exposure intake (mg/kg/day)
Cgw	=	exposure point concentration in groundwater (ug/L)
CF	=	conversion factor (1.0E-3 mg/ug)
IR	=	ingestion rate (L/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
BW	=	body weight (kg)
AT	=	averaging time (days)
CSFo	=	oral carcinogenic slope factor ($(mg/kg/day)^{-1}$)
RfDo	=	oral noncarcinogenic reference dose (mg/kg/day)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg/day) x CSFo (mg/kg/day)-1
HQ (Noncarcinogens) = Intake (mg/kg/day) / RFDo (mg/kg/day)

ASSUMPTIONS:

Cgw	=	3.23	ug/L	Chemical: Benzene
IR	=	2	L/day	
CF	=	1.0E-03	mg/ug	
EF	=	350	days/year	
ED	=	24	years	
BW	=	70	kg	
ATc	=	25,550	days	
ATnc	=	8,760	days	
CSFo	=	5.5E-02	$(mg/kg/day)^{-1}$	
RfDo	=	4.0E-03	(mg/kg/day)	

CLIENT: NSA CRANE, CRANE, INDIANA		**JOB NUMBER:** 112G02635
SUBJECT: CALCULATION OF INTAKE/RISK FROM INGESTION OF GROUNDWATER ADULT RESIDENTS		
BASED ON: USEPA, DECEMBER 1989		
BY: R. JUPIN	**CHECKED BY:** L. Cofan	**DATE:** 11/14/2013

EXAMPLE CARCINOGENIC CALCULATION

$$IEXc = \frac{3.23\ ug/L \times 0.001\ mg/ug \times 2\ L/day \times 350\ days/year \times 24\ years}{70\ kg \times 25550\ days}$$

IEXc = 3.03E-05 mg/kg/day

ILCR = 3.03E-05 mg/kg/day x 5.50E-02 (mg/kg/day)-1 = Incremental Lifetime Cancer Risk

ILCR = 1.7E-06

EXAMPLE NONCARCINOGENIC CALCULATION

$$IEXnc = \frac{3.23\ ug/L \times 0.001\ mg/ug \times 2\ L/day \times 350\ days/year \times 24\ years}{70\ kg \times 8760\ days}$$

IEXnc = 8.85E-05 mg/kg/day

$$HQ = \frac{8.85E\text{-}05\ mg/kg/day}{4.00E\text{-}03\ (mg/kg/day)} = \text{Hazard Quotient}$$

HQ = 2.2E-02

CLIENT: NSA CRANE, CRANE, INDIANA		**JOB NUMBER:** 112G02635
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH GROUNDWATER ADULT RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, JULY 2004		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/14/2013

PURPOSE: To estimate intake, carcinogenic and noncarcinogenic risks from dermal contact with groundwater.

EQUATION:

$$DAD = \frac{DAevent \times EV \times ED \times EF \times A}{BW \times AT}$$

Where:

DAD	=	dermally absorbed dose (mg/kg/day)
DAevent	=	absorbed dose per event (mg/cm^2/event)
EV	=	event frequency (events/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
A	=	skin surface available for contact (cm^2)
BW	=	body weight (kg)
AT	=	averaging time (days)
CSFd	=	dermal carcinogenic slope factor ((mg/kg/day)$^{-1}$)
RfDd	=	dermal noncarcinogenic reference dose (mg/kg/day)

RISKS:

ILCR (Carcinogens) = DAD (mg/kg/day) x CSFd (mg/kg/day)-1
HQ (Noncarcinogens) = DAD (mg/kg/day) / RFDd (mg/kg/day)

EQUATIONS for DAevent:

For Inorganics:

DAevent = Kp x Cw x CF x tevent

For Organics:

$$\text{If } tevent \le t^*, \text{ then: } DAevent = 2 \times FA \times Kp \times Cw \times CF \times \sqrt{\frac{6 \times tau \times tevent}{\pi}}$$

$$\text{If } tevent > t^*, \text{ then: } DAevent = FA \times Kp \times Cw \times CF \times \left[\frac{tevent}{1+B} + 2 \times tau \times \left(\frac{1+3B+3B^2}{(1+B)^2}\right)\right]$$

CLIENT: NSA CRANE, CRANE, INDIANA		JOB NUMBER: 112G02635
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH GROUNDWATER ADULT RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, JULY 2004		
BY: R. JUPIN	CHECKED BY:	DATE: 11/14/2013

Where:

Kp	=	permeability coefficient from water (cm/hr)
Cgw	=	concentration of chemical in groundwater (mg/L)
tevent	=	duration of event (hr/event)
CF	=	conversion factor (0.001 L/cm^3)
t*	=	time it takes to reach steady-state (hr/event)
τ	=	lag time (hr/event)
B	=	Bunge Model Constant (dimensionless)

EXAMPLE CALCULATION OF DAevent

ASSUMPTIONS:

Cgw	=	0.00323	mg/L	Chemical: Benzene
Kp	=	1.49E-02	cm/hr	
FA	=	1	unitless	
tevent	=	0.58	hr/event	
CF	=	0.001	L/cm^3	
t*	=	0.70	hr/event	
τ	=	0.29	hr/event	
B	=	0.051		

tevent < t*, therefore,

$$DAevent = (2 \times 0.0149\ cm/hr)\ (1)\ (0.00323\ mg/L)\ (0.001\ L/cm3) \times \sqrt{\frac{6 \times 0.292\ hr/event \times 0.58\ hr/event}{\pi}}$$

DAevent = 5.47E-08 mg/cm^2-event

RISK CALCULATIONS

ASSUMPTIONS:

A	=	18,000	cm^2
EV	=	1	event/day
ED	=	24	years
EF	=	350	days/year
BW	=	70	kg
ATc	=	25,550	days
ATnc	=	8,760	days
CSFd	=	5.5E-02	$(mg/kg/day)^{-1}$
RfDd	=	4.0E-03	(mg/kg/day)

CLIENT: NSA CRANE, CRANE, INDIANA		JOB NUMBER: 112G02635
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH GROUNDWATER ADULT RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, JULY 2004		
BY: R. JUPIN	CHECKED BY:	DATE: 11/14/2013

EXAMPLE CARCINOGENIC CALCULATION

$$DADc = \frac{5.47E\text{-}08 \text{ mg/cm2-event} \times 1 \text{ event/day} \times 24 \text{ years} \times 350 \text{ days/year} \times 18000 \text{ cm2}}{70 \text{ kg} \times 25550 \text{ days}}$$

DADc = 4.63E-06 mg/kg/day

ILCR = 4.63E-06 mg/kg/day x 5.50E-02 (mg/kg/day)-1 = Incremental Lifetime Cancer Risk

ILCR = 2.5E-07

EXAMPLE NONCARCINOGENIC CALCULATION

$$DADnc = \frac{5.47E\text{-}08 \text{ mg/cm2-event} \times 1 \text{ event/day} \times 24 \text{ years} \times 350 \text{ days/year} \times 18000 \text{ cm2}}{70 \text{ kg} \times 8760 \text{ days}}$$

DADnc = 1.35E-05 mg/kg/day

HQ = 1.35E-05 mg/kg/day / 4.00E-03 (mg/kg/day) = Hazard Quotient

HQ = 3.4E-03

CLIENT: NSA CRANE, CRANE, INDIANA		**JOB NUMBER:** 112G02635
SUBJECT: CALCULATION OF INTAKE/RISK FROM INHALATION OF VOLATILES WHILE SHOWERING ADULT RESIDENT.		
BASED ON: EPA, 1989 AND FOSTER AND CHROSTOWSKI, 1987		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/14/2013

PURPOSE: To estimate intake, carcinogenic and noncarcinogenic risks from inhalation of volatiles while showering by an adult resident.

EQUATIONS:

$$EC = \frac{Cair \times EF \times ED}{AT \times 24}$$

Where:

$Cair = (S \times K)/(Ra \times 60)$ $\quad S = Cwd \times FR/SV$

$$K = Ds + \frac{\exp(-Ra \times Dt) - \exp[Ra \times (Ds - Dt)]}{Ra}$$

$Cwd = Cw \times [1-\exp(-Kal \times ts/60d)]$

$Kal = Kl \times [(T1 \times Us)/(Ts \times U1)^{-0.5}$ $\quad Kl = 1/[1/k1 + RT/(H \times kg)]$

$k1 = 20\ cm/hr \times (44/MW)^{0.5}$ $\quad kg = 3000\ cm/hr \times (18/MW)^{0.5}$

RISKS:

ILCR (Carcinogens) = Exposure Concentration (mg/m3) x IUR (ug/m3)-1 x 1000 ug/mg
HQ (Noncarcinogens) = Exposure Concentration (mg/m3) / RFC (mg/m3)

Where:

EC	=	exposure concentration (mg/m3)
Cair	=	chemical concentration in bathroom (mg/m3)
S	=	volatile chemical generation rate (mg/m3-min - shower)
EF	=	exposure frequency (showers/year)
ED	=	exposure duration (years)
AT	=	averaging time (days)
Ra	=	air exchange rate (1/min)
Ds	=	shower duration (min)
Dt	=	total time in bathroom (min)
FR	=	shower water flow rate (L/min)
SV	=	shower room air volume (m3)
CW	=	chemical concentration in groundwater (mg/L)
ts	=	shower droplet drop time (sec)
d	=	shower droplet diameter (mm)
MW	=	molecular weight of compound (g/mole)
H	=	Henry's Law constant (atm-m3/mole)
RT	=	Ideal gas constant x absolute temperature (2.4E-02 atm-m3/mole)
T1	=	calibration water temperature (K)
Ts	=	shower water temperature (K)
U1	=	water viscosity at T1 (cp)
Us	=	water viscosity at Ts (cp)
IUR	=	inhalation unit risk ($(ug/m3)^{-1}$)
RfC	=	inhalation reference concentration (mg/m3)

CLIENT: NSA CRANE, CRANE, INDIANA		**JOB NUMBER:** 112G02635
SUBJECT: CALCULATION OF INTAKE/RISK FROM INHALATION OF VOLATILES WHILE SHOWERING ADULT RESIDENT.		
BASED ON: EPA, 1989 AND FOSTER AND CHROSTOWSKI, 1987		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/14/2013

ASSUMPTIONS: Chemical: Benzene

EF	=	350	showers/year
ED	=	24	years
ATc	=	25550	days
ATn	=	8760	days
Ra	=	0.0167	1/min
CF	=	1440	min/day
Ds	=	30	min
Dt	=	60	min
FR	=	10	L/min
SV	=	12	m3
Cw	=	0.00323	mg/L
ts	=	0.5	sec
d	=	1	mm
MW	=	78.1	g/mole
H	=	5.55E-03	atm-m3/mole
RT	=	2.40E-02	atm-m3/mole
T1	=	293	K
Ts	=	318	K
U1	=	1.002	centipoise
Us	=	0.596	centipoise
IUR	=	7.8E-06	(ug/m3)-1
RfC	=	3.0E-02	mg/m3

EXAMPLE CALCULATION:

k1 = 20 cm/hr x (44 g/mole / 78.1 g/mole)^0.5

k1 = **15.01 cm/hr**

kg = 3000 cm/hr x (18 g/mole / 78.1 g/mole)^0.5

kg = **1440.23 cm/hr**

Kl = 1/[1/15.0 cm/hr + 2.40E-02 atm-m3/mole/(5.55E-03 atm-m3/mole x 1440.2 cm/hr)]

Kl = **1.44E+01 cm/hr**

CLIENT: NSA CRANE, CRANE, INDIANA		**JOB NUMBER:** 112G02635
SUBJECT: CALCULATION OF INTAKE/RISK FROM INHALATION OF VOLATILES WHILE SHOWERING ADULT RESIDENT.		
BASED ON: EPA, 1989 AND FOSTER AND CHROSTOWSKI, 1987		
BY: R. JUPIN	**CHECKED BY:** L. Cif	**DATE:** 11/14/2013

Kal = 1.44E+01 cm/hr x [(293 K x 0.596 centipoise)/(318 K x 1.002 centipoise)]^-0.5

Kal = **19.4 cm/hr**

Cwd = 0.00323 mg/L x [1 - exp((-19.4 cm/hr x 0.5 sec)/(60 x 1 mm))]

Cwd = **4.82E-04 mg/L**

S = 4.82E-04 mg/L x 10 L/min / 12 m3

S = **4.02E-04 mg/m3-min-shower**

$$K = 30\text{ min} + \frac{\exp(-0.0167\text{ 1/min} \times 60\text{ min}) - \exp[0.0167\text{ 1/min} \times (30\text{ min} - 60\text{ min})]}{0.0167\text{ 1/min}}$$

K = **15.70 min**

$$Cair = \frac{4.02E\text{-}04\text{ mg/m3-min-shower} \times 15.70\text{ min}}{0.0167\text{ 1/min} \times 60\text{ min}}$$

Cair = **6.30E-03 mg/m3-shower**

CARCINOGENIC INTAKE:

$$EC = \frac{6.30E\text{-}03\text{ mg/m3-shower} \times 350\text{ showers/year} \times 24\text{ years}}{25550\text{ days} \times 1440\text{ min/day} \times 0.0167\text{ 1/min}}$$

EC = **8.61E-05 mg/m3**

ILCR = 8.61E-05 mg/m3 x 7.80E-06 (ug/m3)-1 x 1000 ug/mg

ILCR = 6.7E-07

NONCARCINOGENIC INTAKE:

$$EC = \frac{6.30E\text{-}03\text{ mg/m3-shower} \times 350\text{ showers/year} \times 24\text{ years}}{8760\text{ days} \times 1440\text{ min/day} \times 0.0167\text{ 1/min}}$$

EC = **2.51E-04 mg/m3**

HI = 2.51E-04 mg/m3 / 3.00E-02 mg/m3

HI = 8.4E-03

CALCULATION WORKSHEET

CLIENT: NSA CRANE, CRANE, INDIANA		**JOB NUMBER:** 112G02635
SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SEDIMENT ADULT RECREATIONAL USERS		
BASED ON: USEPA, DECEMBER 1989		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/14/2013

PURPOSE: To estimate intake, carcinogenic and noncarcinogenic risks from incidental ingestion of sediment.

EQUATION:

$$IEX = \frac{CS \times RBA \times IR \times EF \times ED \times FI \times CF}{BW \times AT}$$

Where:

IEX	=	estimated exposure intake (mg/kg/day)
Cs	=	exposure point concentration in sediment (mg/kg)
IR	=	incidental ingestion rate (mg/day)
RBA	=	relative bioavailability (unitless)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
FI	=	fraction ingested from contaminated source (unitless)
CF	=	conversion factor (1.0E-6 kg/mg)
BW	=	body weight (kg)
AT	=	averaging time (days)
CSFo	=	oral carcinogenic slope factor ($(mg/kg/day)^{-1}$)
RfDo	=	oral noncarcinogenic reference dose (mg/kg/day)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg/day) x CSFo (mg/kg/day)-1

HQ (Noncarcinogens) = Intake (mg/kg/day) / RFDo (mg/kg/day)

ASSUMPTIONS:

Cs	=	20.8	mg/kg	Chemical: Arsenic
RBA	=	0.6		
IR	=	100	mg/day	
EF	=	52	days/year	
ED	=	24	years	
FI	=	0.5		
CF	=	1.0E-06	kg/mg	
BW	=	70	kg	
ATc	=	25,550	days	
ATnc	=	8,760	days	
CSFo	=	1.5E+00	$(mg/kg/day)^{-1}$	
RfDo	=	3.0E-04	(mg/kg/day)	

CLIENT: NSA CRANE, CRANE, INDIANA		**JOB NUMBER:** 112G02635
SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SEDIMENT ADULT RECREATIONAL USERS		
BASED ON: USEPA, DECEMBER 1989		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/14/2013

EXAMPLE CARCINOGENIC CALCULATION

$$IEXc = \frac{20.8 \text{ mg/kg} \times 0.6 \times 100 \text{ mg/day} \times 52 \text{ days/year} \times 24 \text{ years} \times 0.5 \times 1.0\text{E-06 kg/mg}}{70 \text{ kg} \times 25550 \text{ days}}$$

IEXc = 4.35E-07 mg/kg/day

ILCR = 4.35E-07 mg/kg/day x 1.50E+00 (mg/kg/day)-1 = Incremental Lifetime Cancer Risk

ILCR = 6.5E-07

EXAMPLE NONCARCINOGENIC CALCULATION

$$IEXnc = \frac{20.8 \text{ mg/kg} \times 0.6 \times 100 \text{ mg/day} \times 52 \text{ days/year} \times 24 \text{ years} \times 0.5 \times 1.0\text{E-06 kg/mg}}{70 \text{ kg} \times 8760 \text{ days}}$$

IEXnc = 1.27E-06 mg/kg/day

HQ = 1.27E-06 mg/kg/day / 3.00E-04 (mg/kg/day) = Hazard Quotient

HQ = 4.2E-03

CALCULATION WORKSHEET

CLIENT: NSA CRANE, CRANE, INDIANA		**JOB NUMBER:** 112G02635
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SEDIMENT ADULT RECREATIONAL USERS		
BASED ON: USEPA, JULY 2004		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/14/2013

PURPOSE: To estimate intake, carcinogenic and noncarcinogenic risks from dermal contact with sediment.

EQUATION:

$$DEX = \frac{Cs \times CF \times SA \times AF \times ABS \times EF \times ED}{BW \times AT}$$

Where:

DEX	=	estimated exposure intake (mg/kg/day)
Cs	=	exposure point concentration in sediment (mg/kg)
CF	=	conversion factor (1.0E-6 kg/mg)
SA	=	skin surface available for contact (cm^2/day)
ABS	=	absorption factor (unitless)
AF	=	adherence factor (mg/cm^2)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
BW	=	body weight (kg)
AT	=	averaging time (days)
CSFd	=	dermal carcinogenic slope factor ($(mg/kg/day)^{-1}$)
RfDd	=	dermal noncarcinogenic reference dose (mg/kg/day)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg/day) x CSFd (mg/kg/day)-1
HQ (Noncarcinogens) = Intake (mg/kg/day) / RFDd (mg/kg/day)

ASSUMPTIONS:

Cs	=	20.8	mg/kg	Chemical: Arsenic
CF	=	1.0E-06	kg/mg	
SA	=	9,070	cm^2/day	
AF	=	0.07	mg/cm^2	
ABS	=	0.03		
EF	=	52	days/year	
ED	=	24	years	
BW	=	70	kg	
ATc	=	25,550	days	
ATnc	=	8,760	days	
CSFd	=	1.5E+00	$(mg/kg/day)^{-1}$	
RfDd	=	3.0E-04	(mg/kg/day)	

CLIENT: NSA CRANE, CRANE, INDIANA		**JOB NUMBER:** 112G02635
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SEDIMENT ADULT RECREATIONAL USERS		
BASED ON: USEPA, JULY 2004		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/14/2013

EXAMPLE CARCINOGENIC CALCULATION

$$DEXc = \frac{20.8 \text{ mg/kg} \times 1.0E\text{-}06 \text{ kg/mg} \times 9070 \text{ cm2/day} \times 0.07 \text{ mg/cm2} \times 0.03 \times 52 \text{ days/year} \times 24 \text{ years}}{70 \text{ kg} \times 25550 \text{ days}}$$

DEXc = 2.76E-07 mg/kg/day

ILCR = 2.76E-07 mg/kg/day x 1.50E+00 (mg/kg/day)-1 = Incremental Lifetime Cancer Risk

ILCR = 4.1E-07

EXAMPLE NONCARCINOGENIC CALCULATION

$$DEXnc = \frac{20.8 \text{ mg/kg} \times 1.0E\text{-}06 \text{ kg/mg} \times 9070 \text{ cm2/day} \times 0.07 \text{ mg/cm2} \times 0.03 \times 52 \text{ days/year} \times 24 \text{ years}}{70 \text{ kg} \times 8760 \text{ days}}$$

DEXnc = 8.06E-07 mg/kg/day

HQ = 8.06E-07 mg/kg/day / 3.00E-04 (mg/kg/day) = Hazard Quotient

HQ = 2.7E-03

CLIENT: NSA CRANE, CRANE, INDIANA		**JOB NUMBER:** 112G02635
SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SOIL FOR MUTAGENIC CHEMICALS - HYPOTHETICAL CHILD RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:** L. Cufar	**DATE:** 11/14/2013

PURPOSE: To estimate intake and cancer risks for mutagenic chemicals from incidental ingestion of surface soil.

EQUATION:

$$IEX = \frac{CS \times IR \times EF \times ED \times FI \times CF}{BW \times AT} \times ADAF$$

Where:

IEX	=	estimated exposure intake (mg/kg/day)
Cs	=	exposure point concentration in soil (mg/kg)
IR	=	incidental ingestion rate (mg/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
FI	=	fraction ingested from contaminated source (unitless)
CF	=	conversion factor (1.0E-6 kg/mg)
BW	=	body weight (kg)
AT	=	averaging time (days)
ADAF	=	age-dependent adjustment factor
CSFo	=	oral carcinogenic slope factor ($(mg/kg/day)^{-1}$)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg/day) x CSFo (mg/kg/day)-1

ASSUMPTIONS:

Cs	=	0.071	mg/kg	Chemical: Benzo(a)pyrene
IR	=	200	mg/day	
EF	=	350	days/year	
ED_1	=	2	years	
ED_2	=	4	years	
FI	=	1		
CF	=	1.0E-06	kg/mg	
BW	=	15	kg	
AT	=	25,550	days	
CSFo	=	7.3E+00	$(mg/kg/day)^{-1}$	
$ADAF_1$	=	10		
$ADAF_2$	=	3		

CLIENT: NSA CRANE, CRANE, INDIANA		**JOB NUMBER:** 112G02635
SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SOIL FOR MUTAGENIC CHEMICALS - HYPOTHETICAL CHILD RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/14/2013

EXAMPLE CARCINOGENIC CALCULATION

$$IEX_1 = \frac{0.071 \text{ mg/kg} \times 200 \text{ mg/day} \times 350 \text{ days/year} \times 2 \text{ years} \times 1 \times 1.0\text{E-06 kg/mg}}{15 \text{ kg} \times 25550 \text{ days}} \times 10$$

IEX_1 = 2.59E-07 mg/kg/day

$$IEX_2 = \frac{0.071 \text{ mg/kg} \times 200 \text{ mg/day} \times 350 \text{ days/year} \times 4 \text{ years} \times 1 \times 1.0\text{E-06 kg/mg}}{15 \text{ kg} \times 25550 \text{ days}} \times 3$$

IEX_2 = 1.56E-07 mg/kg/day

ILCR = (2.59E-07 mg/kg/day + 1.56E-07 mg/kg/day) x 7.30E+00 (mg/kg/day)-1

ILCR = 3.0E-06

CALCULATION WORKSHEET

CLIENT: NSA CRANE, CRANE, INDIANA		**JOB NUMBER:** 112G02635
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SOIL FOR MUTAGENIC CHEMICALS HYPOTHETICAL CHILD RESIDENTS		
BASED ON: USEPA, JULY 2004, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/14/2013

PURPOSE: To estimate intake and cancer risks for mutagenic chemicals from dermal contact with of surface soil.

EQUATION:

$$DEX = \frac{Cs \times CF \times SA \times AF \times ABS \times EF \times ED}{BW \times AT} \times ADAF$$

Where:

DEX	=	estimated exposure intake (mg/kg/day)
Cs	=	exposure point concentration in soil (mg/kg)
CF	=	conversion factor (1.0E-6 kg/mg)
SA	=	skin surface available for contact (cm^2/day)
ABS	=	absorption factor (unitless)
AF	=	adherence factor (mg/cm^2)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
BW	=	body weight (kg)
AT	=	averaging time (days)
ADAF	=	age-dependent adjustment factor
CSFd	=	dermal carcinogenic slope factor ($(mg/kg/day)^{-1}$)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg/day) x CSFd (mg/kg/day)-1

ASSUMPTIONS:

Cs	=	0.071	mg/kg	Chemical: Benzo(a)pyrene
CF	=	1.0E-06	kg/mg	
SA	=	2,800	cm^2/day	
AF	=	0.2	mg/cm^2	
ABS	=	0.13		
EF	=	350	days/year	
ED_1	=	2	years	
ED_2	=	4	years	
BW	=	15	kg	
AT	=	25,550	days	
CSFd	=	7.3E+00	$(mg/kg/day)^{-1}$	
$ADAF_1$	=	10		
$ADAF_2$	=	3		

CLIENT: NSA CRANE, CRANE, INDIANA		**JOB NUMBER:** 112G02635
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SOIL FOR MUTAGENIC CHEMICALS HYPOTHETICAL CHILD RESIDENTS		
BASED ON: USEPA, JULY 2004, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/14/2013

EXAMPLE CARCINOGENIC CALCULATION

$$DEXc = \frac{0.071 \text{ mg/kg} \times 1.0E\text{-}06 \text{ kg/mg} \times 2800 \text{ cm2/day} \times 0.2 \text{ mg/cm2} \times 0.13 \times 350 \text{ days/year} \times 2 \text{ years}}{15 \text{ kg} \times 25550 \text{ days}} \times 10$$

DEXc = 9.44E-08 mg/kg/day

$$DEXc = \frac{0.071 \text{ mg/kg} \times 1.0E\text{-}06 \text{ kg/mg} \times 2800 \text{ cm2/day} \times 0.2 \text{ mg/cm2} \times 0.13 \times 350 \text{ days/year} \times 4 \text{ years}}{15 \text{ kg} \times 25550 \text{ days}} \times 3$$

DEXc = 5.66E-08 mg/kg/day

ILCR = (9.44E-08 mg/kg/day + 5.66E-08 mg/kg/day) x 7.30E+00 (mg/kg/day)-1

ILCR = 1.1E-06

CALCULATION WORKSHEET

CLIENT: NSA CRANE, CRANE, INDIANA		**JOB NUMBER:** 112G02635
SUBJECT: CALCULATION OF INTAKE/RISK FROM INHALATION OF FUGATIVE DUST EMISSIONS FOR MUTAGENIC CHEMICALS - HYPOTHETICAL CHILD RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/14/2013

PURPOSE: To estimate intake, carcinogenic risks for mutagenic chemicals from inhalation of fugitive dust emissions from surface soil.

EQUATION:

$$EC = \frac{Ca \times ET \times EF \times ED}{AT \times 24\ hours/day} \times ADAF$$

Where:

EC	=	estimated exposure concentration (mg/m3)
Ca	=	exposure point concentration in air (mg/m3)
	=	Cs x 1/PEF
Cs	=	exposure point concentration in soil (mg/kg)
PEF	=	particulate emission factor (m3/kg)
ET	=	exposure time (hrs/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
AT	=	averaging time (hours)
ADAF	=	age-dependent adjustment factor
IUR	=	inhalation unit risk($(ug/mg)^{-1}$)

RISKS:

ILCR = Exposure concentration (mg/m3) x IURi (ug/m3)-1 x 1000 ug/mg

ASSUMPTIONS:

Cs	=	0.071	mg/kg	Chemical: Benzo(a)pyrene
PEF	=	1.32E+09	m3/kg	
Ca	=	5.40E-11	mg/m3	
ET	=	24	hr/day	
EF	=	350	days/year	
ED_1	=	2	years	
ED_2	=	4	years	
ATc	=	25,550	days	
IUR	=	1.1E-03	$(ug/m3)^{-1}$	
$ADAF_1$	=	10		
$ADAF_2$	=	3		

CLIENT: NSA CRANE, CRANE, INDIANA		**JOB NUMBER:** 112G02635
SUBJECT: CALCULATION OF INTAKE/RISK FROM INHALATION OF FUGATIVE DUST EMISSIONS FOR MUTAGENIC CHEMICALS - HYPOTHETICAL CHILD RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/14/2013

EXAMPLE CARCINOGENIC CALCULATION

$$EC = \frac{5.40E\text{-}11 \text{ mg/m3} \times 24 \text{ hr/day} \times 350 \text{ days/year} \times 2 \text{ years}}{25550 \text{ days} \times 24 \text{ hours/day}} \times 10$$

EC = 1.48E-11 mg/m3

$$EC = \frac{5.40E\text{-}11 \text{ mg/m3} \times 24 \text{ hr/day} \times 350 \text{ days/year} \times 4 \text{ years}}{25550 \text{ days} \times 24 \text{ hours/day}} \times 3$$

EC = 8.87E-12 mg/m3

ILCR = (1.48E-11 mg/m3 + 8.87E-12 mg/m3) x 1.10E-03 (ug/m3)-1 x 1000 ug/mg

ILCR = 2.6E-11

CLIENT: NSA CRANE, CRANE, INDIANA		**JOB NUMBER:** 112G02635
SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SOIL FOR MUTAGENIC CHEMICALS - HYPOTHETICAL ADULT RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/14/2013

PURPOSE: To estimate intake and cancer risks for mutagenic chemicals from incidental ingestion of surface soil.

EQUATION:

$$IEX = \frac{CS \times IR \times EF \times ED \times FI \times CF}{BW \times AT} \times ADAF$$

Where:

IEX	=	estimated exposure intake (mg/kg/day)
Cs	=	exposure point concentration in soil (mg/kg)
IR	=	incidental ingestion rate (mg/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
FI	=	fraction ingested from contaminated source (unitless)
CF	=	conversion factor (1.0E-6 kg/mg)
BW	=	body weight (kg)
AT	=	averaging time (days)
ADAF	=	age-dependent adjustment factor
CSFo	=	oral carcinogenic slope factor ($(mg/kg/day)^{-1}$)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg/day) x CSFo (mg/kg/day)-1

ASSUMPTIONS:

Cs	=	0.071	mg/kg	Chemical: Benzo(a)pyrene
IR	=	100	mg/day	
EF	=	350	days/year	
ED_1	=	10	years	
ED_2	=	14	years	
FI	=	1		
CF	=	1.0E-06	kg/mg	
BW	=	70	kg	
AT	=	25,550	days	
CSFo	=	7.3E+00	$(mg/kg/day)^{-1}$	
$ADAF_1$	=	3		
$ADAF_2$	=	1		

CLIENT: NSA CRANE, CRANE, INDIANA		**JOB NUMBER:** 112G02635
SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SOIL FOR MUTAGENIC CHEMICALS - HYPOTHETICAL ADULT RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/14/2013

EXAMPLE CARCINOGENIC CALCULATION

$$IEX_1 = \frac{0.071 \text{ mg/kg} \times 100 \text{ mg/day} \times 350 \text{ days/year} \times 10 \text{ years} \times 1 \times 1.0\text{E-06 kg/mg}}{70 \text{ kg} \times 25550 \text{ days}} \times 3$$

IEX_1 = 4.17E-08 mg/kg/day

$$IEX_2 = \frac{0.071 \text{ mg/kg} \times 100 \text{ mg/day} \times 350 \text{ days/year} \times 14 \text{ years} \times 1 \times 1.0\text{E-06 kg/mg}}{70 \text{ kg} \times 25550 \text{ days}} \times 1$$

IEX_2 = 1.95E-08 mg/kg/day

ILCR = (4.17E-08 mg/kg/day + 1.95E-08 mg/kg/day) x 7.30E+00 (mg/kg/day)-1

ILCR = 4.5E-07

CLIENT: NSA CRANE, CRANE, INDIANA		JOB NUMBER: 112G02635
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SOIL FOR MUTAGENIC CHEMICALS HYPOTHETICAL ADULT RESIDENTS		
BASED ON: USEPA, JULY 2004, MARCH 2005		
BY: R. JUPIN	CHECKED BY: L. Cif	DATE: 11/14/2013

PURPOSE: To estimate intake and cancer risks for mutagenic chemicals from dermal contact with of surface soil.

EQUATION:

$$DEX = \frac{Cs \times CF \times SA \times AF \times ABS \times EF \times ED}{BW \times AT} \times ADAF$$

Where:

DEX	=	estimated exposure intake (mg/kg/day)
Cs	=	exposure point concentration in soil (mg/kg)
CF	=	conversion factor (1.0E-6 kg/mg)
SA	=	skin surface available for contact (cm^2/day)
ABS	=	absorption factor (unitless)
AF	=	adherence factor (mg/cm^2)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
BW	=	body weight (kg)
AT	=	averaging time (days)
ADAF	=	age-dependent adjustment factor
CSFd	=	dermal carcinogenic slope factor ($(mg/kg/day)^{-1}$)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg/day) x CSFd (mg/kg/day)-1

ASSUMPTIONS:

Cs	=	0.071	mg/kg	Chemical: Benzo(a)pyrene
CF	=	1.0E-06	kg/mg	
SA	=	5,700	cm^2/day	
AF	=	0.07	mg/cm^2	
ABS	=	0.13		
EF	=	350	days/year	
ED_1	=	10	years	
ED_2	=	14	years	
BW	=	70	kg	
AT	=	25,550	days	
CSFd	=	7.3E+00	$(mg/kg/day)^{-1}$	
$ADAF_1$	=	3		
$ADAF_2$	=	1		

CLIENT: NSA CRANE, CRANE, INDIANA		**JOB NUMBER:** 112G02635
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SOIL FOR MUTAGENIC CHEMICALS HYPOTHETICAL ADULT RESIDENTS		
BASED ON: USEPA, JULY 2004, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/14/2013

EXAMPLE CARCINOGENIC CALCULATION

$$\text{DEXc} = \frac{0.071 \text{ mg/kg} \times 1.0\text{E-06 kg/mg} \times 5700 \text{ cm2/day} \times 0.07 \text{ mg/cm2} \times 0.13 \times 350 \text{ days/year} \times 10 \text{ years}}{70 \text{ kg} \times 25550 \text{ days}} \times 3$$

DEXc = 2.16E-08 mg/kg/day

$$\text{DEXc} = \frac{0.071 \text{ mg/kg} \times 1.0\text{E-06 kg/mg} \times 5700 \text{ cm2/day} \times 0.07 \text{ mg/cm2} \times 0.13 \times 350 \text{ days/year} \times 14 \text{ years}}{70 \text{ kg} \times 25550 \text{ days}} \times 1$$

DEXc = 1.01E-08 mg/kg/day

ILCR = (2.16E-08 mg/kg/day + 1.01E-08 mg/kg/day) x 7.30E+00 (mg/kg/day)-1

ILCR = 2.3E-07

CALCULATION WORKSHEET

CLIENT: NSA CRANE, CRANE, INDIANA		**JOB NUMBER:** 112G02635
SUBJECT: CALCULATION OF INTAKE/RISK FROM INHALATION OF FUGATIVE DUST EMISSIONS FOR MUTAGENIC CHEMICALS - HYPOTHETICAL ADULT RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/14/2013

PURPOSE: To estimate intake, carcinogenic risks for mutagenic chemicals from inhalation of fugitive dust emissions from surface soil.

EQUATION:

$$EC = \frac{Ca \times ET \times EF \times ED}{AT \times 24\ hours/day} \times ADAF$$

Where:

EC	=	estimated exposure intake (mg/kg/day)
Ca	=	exposure point concentration in air (mg/m3)
	=	Cs x 1/PEF
Cs	=	exposure point concentration in soil (mg/kg)
PEF	=	particulate emission factor (m3/kg)
ET	=	exposure time (hrs/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
BW	=	body weight (kg)
AT	=	averaging time (hours)
ADAF	=	age-dependent adjustment factor
IURi	=	inhalation unit risk($(ug/mg)^{-1}$)

RISKS:

ILCR = Exposure concentration (mg/m3) x IUR (ug/m3)-1 x 1000 ug/mg

ASSUMPTIONS:

Cs	=	0.071	mg/kg	Chemical: Benzo(a)pyrene
PEF	=	1.32E+09	m3/kg	
Ca	=	5.40E-11	mg/m3	
ET	=	24	hr/day	
EF	=	350	days/year	
ED_1	=	10	years	
ED_2	=	14	years	
ATc	=	25,550	days	
IUR	=	1.1E-03	$(ug/m3)^{-1}$	
$ADAF_1$	=	3		
$ADAF_2$	=	1		

CLIENT: NSA CRANE, CRANE, INDIANA		**JOB NUMBER:** 112G02635
SUBJECT: CALCULATION OF INTAKE/RISK FROM INHALATION OF FUGATIVE DUST EMISSIONS FOR MUTAGENIC CHEMICALS - HYPOTHETICAL ADULT RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:** L. Cifani	**DATE:** 11/14/2013

EXAMPLE CARCINOGENIC CALCULATION

$$EC = \frac{5.40E\text{-}11\ mg/m3 \times 24\ hr/day \times 350\ days/year \times 10\ years}{25550\ days \times 24\ hours/day} \times 3$$

EC = 2.22E-11 mg/m3

$$EC = \frac{5.40E\text{-}11\ mg/m3 \times 24\ hr/day \times 350\ days/year \times 14\ years}{25550\ days \times 24\ hours/day} \times 1$$

EC = 1.03E-11 mg/m3

ILCR = (2.22E-11 mg/m3 + 1.03E-11 mg/m3) x 1.10E-03 (ug/m3)-1 x 1000 ug/mg

ILCR = 3.6E-11

CALCULATION WORKSHEET

CLIENT: NSA CRANE, CRANE, INDIANA		**JOB NUMBER:** 112G02635
SUBJECT: MUTAGENIC CALCULATION OF INTAKE/RISK FROM INGESTION OF GROUNDWATER FOR VINYL CHLORIDE CHILD RESIDENTS		
BASED ON: USEPA, DECEMBER 1989		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/14/2013

PURPOSE: To estimate intake and carcinogenic risk for vinyl chloride from ingestion of groundwater.

EQUATION:

$$IEX = \frac{Cgw \times CF \times IR \times EF \times ED}{BW \times AT} + \frac{Cgw \times IR \times CF}{BW}$$

Where:

IEX	=	estimated exposure intake (mg/kg/day)
Cgw	=	exposure point concentration in groundwater (ug/L)
CF	=	conversion factor (1.0E-3 mg/ug)
IR	=	ingestion rate (L/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
BW	=	body weight (kg)
AT	=	averaging time (days)
CSFo	=	oral carcinogenic slope factor ($(mg/kg/day)^{-1}$)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg/day) x CSFo (mg/kg/day)-1

CALCULATION WORKSHEET

CLIENT: NSA CRANE, CRANE, INDIANA		**JOB NUMBER:** 112G02635
SUBJECT: MUTAGENIC CALCULATION OF INTAKE/RISK FROM INGESTION OF GROUNDWATER FOR VINYL CHLORIDE CHILD RESIDENTS		
BASED ON: USEPA, DECEMBER 1989		
BY: R. JUPIN	**CHECKED BY:** L. Cifu	**DATE:** 11/14/2013

ASSUMPTIONS:

Cgw	=	0.503	ug/L
IR	=	1	L/day
CF	=	1.0E-03	mg/ug
EF	=	350	days/year
ED	=	6	years
BW	=	15	kg
ATc	=	25,550	days
ATnc	=	2,190	days
CSFo	=	7.2E-01	$(mg/kg/day)^{-1}$

EXAMPLE CARCINOGENIC CALCULATION

$$IEXc = \frac{0.503\ ug/L \times 0.001\ mg/ug \times 1\ L/day \times 350\ days/year \times 6\ years}{15\ kg \times 25550\ days} + \frac{0.503\ ug/L \times 1\ L/day \times 0.001\ mg/ug}{15\ kg}$$

IEXc = 3.63E-05 mg/kg/day

ILCR = 3.63E-05 mg/kg/day x 7.20E-01 (mg/kg/day)-1 = Incremental Lifetime Cancer Risk

ILCR = 2.6E-05

CALCULATION WORKSHEET

CLIENT: NSA CRANE, CRANE, INDIANA		**JOB NUMBER:** 112G02635
SUBJECT: MUTAGENIC CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH GROUNDWATER FOR VINYL CHLORIDE CHILD RESIDENTS		
BASED ON: USEPA, JULY 2004, MARCH 2005.		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/14/2013

PURPOSE: To estimate intake and carcinogenic risk for vinyl chloride from dermal contact with groundwater.

EQUATION:

$$DAD = \frac{DAevent \times EV \times ED \times EF \times SA}{BW \times AT} + \frac{DAevent \times SA \times EV}{BW}$$

Where:

DAD	=	dermally absorbed dose (mg/kg/day)
DAevent	=	absorbed dose per event ($mg/cm^2/event$)
EV	=	event frequency (events/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
SA	=	skin surface available for contact (cm^2)
BW	=	body weight (kg)
AT	=	averaging time (days)
CSFd	=	dermal carcinogenic slope factor ($(mg/kg/day)^{-1}$)

RISKS:

ILCR (Carcinogens) = DAD (mg/kg/day) x CSFd (mg/kg/day)-1

CLIENT: NSA CRANE, CRANE, INDIANA		JOB NUMBER: 112G02635
SUBJECT: MUTAGENIC CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH GROUNDWATER FOR VINYL CHLORIDE CHILD RESIDENTS		
BASED ON: USEPA, JULY 2004, MARCH 2005.		
BY: R. JUPIN	CHECKED BY: L. Crofen	DATE: 11/14/2013

EQUATIONS for DAevent:

For Inorganics:

DAevent = Kp x Cw x CF x tevent

For Organics:

$$\text{If tevent} \le t^*\text{, then: DAevent} = 2 \times FA \times Kp \times Cw \times CF \times \sqrt{\frac{6 \times tau \times tevent}{\pi}}$$

$$\text{If tevent} > t^*\text{, then: DAevent} = FA \times Kp \times Cw \times CF \times \left[\frac{tevent}{1+B} + 2 \times tau \times \left(\frac{1+3B+3B^2}{(1+B)^2}\right)\right]$$

Where:

Kp	=	permeability coefficient from water (cm/hr)
FA	=	fraction absorbed water (dimensionless)
Cgw	=	concentration of chemical in groundwater (mg/L)
tevent	=	duration of event (hr/event)
CF	=	conversion factor (0.001 L/cm^3)
t*	=	time it takes to reach steady-state (hr/event)
τ	=	lag time (hr/event)
B	=	Bunge Model Constant (dimensionless)

CLIENT: NSA CRANE, CRANE, INDIANA		JOB NUMBER: 112G02635
SUBJECT: MUTAGENIC CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH GROUNDWATER FOR VINYL CHLORIDE CHILD RESIDENTS		
BASED ON: USEPA, JULY 2004, MARCH 2005.		
BY: R. JUPIN	CHECKED BY: L Cipfer	DATE: 11/14/2013

EXAMPLE CALCULATION OF DAevent

ASSUMPTIONS:

Cgw	=	0.000503	mg/L
Kp	=	5.60E-03	cm/hr
FA	=	1	unitless
tevent	=	1	hr/event
CF	=	0.001	L/cm^3
t*	=	0.54	hr/event
τ	=	0.24	hr/event
B	=	0.017	

tevent > t*, therefore,

$$DAevent = (1 \times 0.0056\ cm/hr)\ (0.000503\ mg/L)\ (0.001\ L/cm3) \times \left[\frac{1\ hr/event}{1 + 0.017} + 2 \times 0.239\ hr/event \times \frac{(1 + 3 \times 0.017 + 3 \times 0.017 \times 0.017)}{(1 + 0.017)^2} \right]$$

DAevent = 4.14E-09 mg/cm^2-event

RISK CALCULATIONS

ASSUMPTIONS:

SA	=	6,600	cm^2
EV	=	1	event/day
ED	=	6	years
EF	=	350	days/year
BW	=	15	kg
ATc	=	25,550	days
CSFd	=	7.2E-01	$(mg/kg/day)^{-1}$

CLIENT: NSA CRANE, CRANE, INDIANA		JOB NUMBER: 112G02635
SUBJECT: MUTAGENIC CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH GROUNDWATER FOR VINYL CHLORIDE CHILD RESIDENTS		
BASED ON: USEPA, JULY 2004, MARCH 2005.		
BY: R. JUPIN	CHECKED BY: L. Crifer	DATE: 11/14/2013

EXAMPLE CARCINOGENIC CALCULATION

$$DADc = \frac{4.14E\text{-}09 \text{ mg/cm2-event} \times 1 \text{ event/day} \times 6 \text{ years} \times 350 \text{ days/year} \times 6600 \text{ cm2}}{15 \text{ kg} \times 25550 \text{ days}} + \frac{4.14E\text{-}09 \text{ mg/cm2-event} \times 6600 \text{ cm2} \times 1 \text{ event/day}}{15 \text{ kg}}$$

DADc = 1.97E-06 mg/kg/day

DADc = 1.97E-06 mg/kg/day x 7.20E-01 (mg/kg/day)-1 = Incremental Lifetime Cancer Risk

ILCR = 1.4E-06

CALCULATION WORKSHEET

CLIENT: NSA CRANE, CRANE, INDIANA		**JOB NUMBER:** 112G02635
SUBJECT: MUTAGENIC CALCULATION OF INTAKE/RISK FROM INHALATION OF VINYL CHLORIDE WHILE SHOWERING BY A CHILD RESIDENT		
BASED ON: EPA, 1989 AND FOSTER AND CHROSTOWSKI, 1987		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/14/2013

PURPOSE: To estimate intake and carcinogenic risk for vinyl chloride from inhalation.

EQUATIONS:

$$EC = \frac{Cair \times EF \times ED}{AT \times 24} + Ca$$

Where:

$Cair = (S \times K)/(Ra \times 60)$ $\quad$ $S = Cwd \times FR/SV$

$$K = Ds + \frac{\exp(-Ra \times Dt) - \exp[Ra \times (Ds - Dt)]}{Ra}$$

$Cwd = Cw \times [1-\exp(-Kal \times ts/60d)]$

$Kal = Kl \times [(T1 \times Us)/(Ts \times U1)^{-0.5}$ $\quad$ $Kl = 1/[1/k1 + RT/(H \times kg)]$

$k1 = 20\ cm/hr \times (44/MW)^{0.5}$ $\quad$ $kg = 3000\ cm/hr \times (18/MW)^{0.5}$

RISKS:

ILCR (Carcinogens) = Exposure Concentration (mg/m3) x IUR (ug/m3)-1 x 1000 ug/mg

Where:

EC	=	exposure concentration (mg/m3)
Cair	=	chemical concentration in bathroom (mg/m3)
S	=	volatile chemical generation rate (mg/m3-min - shower)
EF	=	exposure frequency (showers/year)
ED	=	exposure duration (years)
AT	=	averaging time (days)
Ra	=	air exchange rate (1/min)
Ds	=	shower duration (min)
Dt	=	total time in bathroom (min)
FR	=	shower water flow rate (L/min)
SV	=	shower room air volume (m3)
CW	=	chemical concentration in groundwater (mg/L)
ts	=	shower droplet drop time (sec)
d	=	shower droplet diameter (mm)
MW	=	molecular weight of compound (g/mole)
H	=	Henry's Law constant (atm-m3/mole)
RT	=	Ideal gas constant x absolute temperature (2.4E-02 atm-m3/mole)
T1	=	calibration water temperature (K)
Ts	=	shower water temperature (K)
U1	=	water viscosity at T1 (cp)
Us	=	water viscosity at Ts (cp)
IUR	=	inhalation unit risk ($(ug/m3)^{-1}$)

CLIENT: NSA CRANE, CRANE, INDIANA		**JOB NUMBER:** 112G02635
SUBJECT: MUTAGENIC CALCULATION OF INTAKE/RISK FROM INHALATION OF VINYL CHLORIDE WHILE SHOWERING BY A CHILD RESIDENT		
BASED ON: EPA, 1989 AND FOSTER AND CHROSTOWSKI, 1987		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/14/2013

ASSUMPTIONS:

EF	=	350	showers/year
ED	=	6	years
ATc	=	25550	days
Ra	=	0.0167	1/min
CF	=	1440	min/day
Ds	=	30	min
Dt	=	60	min
FR	=	10	L/min
SV	=	12	m3
Cw	=	0.000503	mg/L
ts	=	0.5	sec
d	=	1	mm
MW	=	62.5	g/mole
H	=	2.78E-02	atm-m3/mole
RT	=	2.40E-02	atm-m3/mole
T1	=	293	K
Ts	=	318	K
U1	=	1.002	centipoise
Us	=	0.596	centipoise
IUR	=	4.4E-06	(ug/m3)-1

EXAMPLE CALCULATION:

k1 = 20 cm/hr x (44 g/mole / 62.5 g/mole)^0.5

k1 = **16.78 cm/hr**

kg = 3000 cm/hr x (18 g/mole / 62.5 g/mole)^0.5

kg = **1609.97 cm/hr**

Kl = 1/[1/16.8 cm/hr + 2.40E-02 atm-m3/mole/(2.78E-02 atm-m3/mole x 1610.0 cm/hr)]

Kl = **1.66E+01 cm/hr**

CLIENT: NSA CRANE, CRANE, INDIANA		**JOB NUMBER:** 112G02635
SUBJECT: MUTAGENIC CALCULATION OF INTAKE/RISK FROM INHALATION OF VINYL CHLORIDE WHILE SHOWERING BY A CHILD RESIDENT		
BASED ON: EPA, 1989 AND FOSTER AND CHROSTOWSKI, 1987		
BY: R. JUPIN	**CHECKED BY:**	**DATE:** 11/14/2013

Kal = 1.66E+01 cm/hr x [(293 K x 0.596 centipoise)/(318 K x 1.002 centipoise)]^-0.5

Kal = **22.5 cm/hr**

Cwd = 0.000503 mg/L x [1 - exp((-22.5 cm/hr x 0.5 sec)/(60 x 1 mm))]

Cwd = **8.59E-05 mg/L**

S = 8.59E-05 mg/L x 10 L/min / 12 m3

S = **7.16E-05 mg/m3-min-shower**

$$K = 30\text{ min} + \frac{\exp(-0.0167\text{ 1/min} \times 60\text{ min}) - \exp[0.0167\text{ 1/min} \times (30\text{ min} - 60\text{ min})]}{0.0167\text{ 1/min}}$$

K = **15.70 min**

$$Cair = \frac{7.16\text{E-05 mg/m3-min-shower} \times 15.70\text{ min}}{0.0167\text{ 1/min} \times 60\text{ min}}$$

Cair = **1.12E-03 mg/m3-shower**

CARCINOGENIC INTAKE:

$$EC = \frac{1.12\text{E-03 mg/m3-shower} \times 350\text{ showers/year} \times 6\text{ years}}{25550\text{ days} \times 1440\text{ min/day} \times 0.0167\text{ 1/min}} + 1.12\text{E-03}$$

EC = **1.13E-03 mg/m3**

ILCR = 1.13E-03 mg/m3 x 4.40E-06 (ug/m3)-1 x 1000 ug/mg

ILCR = 5.0E-06

APPENDIX G.6

VAPOR INTRUSION MODELING

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
71432	3.23E+00	Benzene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
13	15	208	208	0	0	A	SIC	SIC		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
SIC	1.38	0.481	0.216	C	1.43	0.459	0.215	C	1.43	0.459	0.215

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

DATA ENTRY SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H ($atm\text{-}m^3/mol$)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Pure component water solubility, S (mg/L)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
8.80E-02	9.80E-06	5.54E-03	25	7,342	353.24	562.16	5.89E+01	1.79E+03	7.8E-06	3.0E-02

END

DATA ENTRY SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	193	0.265	0.244	0.244	0.284	1.49E-09	0.844	1.26E-09	192.31	0.481	0.057	0.424	4,000

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
1.69E+04	1.06E+06	3.77E-04	15	8,091	3.12E-03	1.33E-01	1.76E-04	4.57E-03	0.00E+00	0.00E+00	4.62E-05	4.63E-05	193

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
15	4.29E+02	0.10	8.33E+01	4.57E-03	4.00E+02	1.10E+198	1.50E-05	6.43E-03	7.8E-06	3.0E-02

END

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
67663	1.29E+00	Chloroform

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
13	15	208	208	0	0	A	SIC	SIC		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
SIC	1.38	0.481	0.216	C	1.43	0.459	0.215	C	1.43	0.459	0.215

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

DATA ENTRY SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H ($atm\text{-}m^3/mol$)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Pure component water solubility, S (mg/L)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
1.04E-01	1.00E-05	3.66E-03	25	6,988	334.32	536.40	3.98E+01	7.92E+03	2.3E-05	9.8E-02

END

DATA ENTRY SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	193	0.265	0.244	0.244	0.284	1.49E-09	0.844	1.26E-09	192.31	0.481	0.057	0.424	4,000

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
1.69E+04	1.06E+06	3.77E-04	15	7,523	2.15E-03	9.15E-02	1.76E-04	5.40E-03	0.00E+00	0.00E+00	6.01E-05	6.03E-05	193

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
15	1.18E+02	0.10	8.33E+01	5.40E-03	4.00E+02	3.60E+167	1.95E-05	2.30E-03	2.3E-05	9.8E-02

END

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
156592	2.76E+01	cis-1,2-Dichloroethylene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
13	15	208	208	0	0	A	SIC	SIC		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
SIC	1.38	0.481	0.216	C	1.43	0.459	0.215	C	1.43	0.459	0.215

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

DATA ENTRY SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H ($atm\text{-}m^3/mol$)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Pure component water solubility, S (mg/L)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
7.36E-02	1.13E-05	4.07E-03	25	7,192	333.65	544.00	3.55E+01	3.50E+03	0.0E+00	0.0E+00

END

DATA ENTRY SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	193	0.265	0.244	0.244	0.284	1.49E-09	0.844	1.26E-09	192.31	0.481	0.057	0.424	4,000

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
1.69E+04	1.06E+06	3.77E-04	15	7,704	2.36E-03	1.00E-01	1.76E-04	3.82E-03	0.00E+00	0.00E+00	5.12E-05	5.14E-05	193

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
15	2.77E+03	0.10	8.33E+01	3.82E-03	4.00E+02	5.09E+236	1.66E-05	4.60E-02	NA	NA

END

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
127184	2.55E+01	Tetrachloroethylene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
13	15	208	208	0	0	A	SIC	SIC		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
SIC	1.38	0.481	0.216	C	1.43	0.459	0.215	C	1.43	0.459	0.215

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

DATA ENTRY SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H ($atm\text{-}m^3/mol$)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Pure component water solubility, S (mg/L)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
7.20E-02	8.20E-06	1.84E-02	25	8,288	394.40	620.20	1.55E+02	2.00E+02	2.6E-07	4.0E-02

END

DATA ENTRY SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	193	0.265	0.244	0.244	0.284	1.49E-09	0.844	1.26E-09	192.31	0.481	0.057	0.424	4,000

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
1.69E+04	1.06E+06	3.77E-04	15	9,523	9.35E-03	3.98E-01	1.76E-04	3.74E-03	0.00E+00	0.00E+00	2.80E-05	2.81E-05	193

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
15	1.02E+04	0.10	8.33E+01	3.74E-03	4.00E+02	1.32E+242	9.08E-06	9.22E-02	2.6E-07	4.0E-02

END

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
79016	1.15E+02	Trichloroethylene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
13	15	208	208	0	0	A	SIC	SIC		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
SIC	1.38	0.481	0.216	C	1.43	0.459	0.215	C	1.43	0.459	0.215

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

DATA ENTRY SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H ($atm\text{-}m^3/mol$)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Pure component water solubility, S (mg/L)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
7.90E-02	9.10E-06	1.03E-02	25	7,505	360.36	544.20	1.66E+02	1.47E+03	4.1E-06	2.0E-03

END

DATA ENTRY SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	193	0.265	0.244	0.244	0.284	1.49E-09	0.844	1.26E-09	192.31	0.481	0.057	0.424	4,000

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
1.69E+04	1.06E+06	3.77E-04	15	8,520	5.62E-03	2.39E-01	1.76E-04	4.10E-03	0.00E+00	0.00E+00	3.45E-05	3.46E-05	193

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
15	2.75E+04	0.10	8.33E+01	4.10E-03	4.00E+02	4.40E+220	1.12E-05	3.08E-01	4.1E-06	2.0E-03

END

GW-ADV
Version 3.1; 02/04

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES [X]

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Initial groundwater conc., C_W (µg/L)	Chemical
75014	5.03E-01	Vinyl chloride (chloroethene)

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
13	15	208	208	0	0	A	SIC	SIC		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
SIC	1.38	0.481	0.216	C	1.43	0.459	0.215	C	1.43	0.459	0.215

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1.0E-06	1
				Used to calculate risk-based groundwater concentration.	

END

DATA ENTRY SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H ($atm\text{-}m^3/mol$)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Pure component water solubility, S (mg/L)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
1.06E-01	1.23E-05	2.69E-02	25	5,250	259.25	432.00	1.86E+01	8.80E+03	4.4E-06	1.0E-01

END

DATA ENTRY SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9.46E+08	193	0.265	0.244	0.244	0.284	1.49E-09	0.844	1.26E-09	192.31	0.481	0.057	0.424	4,000

Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. groundwater temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
1.69E+04	1.06E+06	3.77E-04	15	4,966	1.89E-02	8.07E-01	1.76E-04	5.50E-03	0.00E+00	0.00E+00	3.74E-05	3.76E-05	193

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
15	4.06E+02	0.10	8.33E+01	5.50E-03	4.00E+02	2.95E+164	1.21E-05	4.93E-03	4.4E-06	1.0E-01

END

APPENDIX H

SUPPORTING ECOLOGICAL RISK ASSESSMENT DOCUMENTATION AND TABLES

This appendix presents a discussion of the different chemical classes detected at the sites, including toxicity information, potential food chain and trophic transfer, and bioaccumulation potential.

Polynuclear Aromatic Hydocarbons

Polynuclear aromatic hydocarbons (PAHs) are a diverse group of compounds consisting of two or more substituted and unsubstituted polynuclear aromatic rings formed by the incomplete combustion of carbonaceous materials. PAHs are ubiquitous in the modern environment and are common constituents of coal tar, soot, vehicle exhaust, cigarette smoke, certain petroleum products, road tar, mineral oils, creosote, and many cooked foods. PAHs also are released to the environment through natural sources such as volcanoes and forest fires.

PAHs are transferred from surface water by volatilization and sorption to settling particles. The compounds are transformed in surface water by photooxidation, chemical oxidation, and microbial metabolism (ATSDR, 1989a). In soil and sediments, microbial metabolism is the major process for degradation of PAHs (ATSDR, 1989a). Although PAHs accumulate in terrestrial and aquatic plants, many organisms are able to metabolize and eliminate these compounds. Vertebrates can readily metabolize PAHs, but lower forms (insects and worms) cannot metabolize PAHs as quickly. However, food chain uptake does not appear to be a major exposure source to PAHs for aquatic animals (ATSDR, 1989a).

PAHs vary substantially in their toxicity to aquatic organisms. In general, toxicity increases as molecular weight increases, with the exception of some high molecular weight PAHs that have low acute toxicity. Most species of aquatic organisms rapidly accumulate PAHs that occur at low concentrations in the ambient medium. However, uptake of PAHs is highly species-specific, it is higher in algae, mollusks, and other species that are incapable of metabolizing PAHs (Eisler, 1987). The ability of fish to metabolize PAHs may explain why benzo(a)pyrene is frequently not detected or is found at only very low levels in fish from environments heavily contaminated with PAHs (ATSDR, 1989a).

Pesticides

Pesticides are used to control pestiferous invertebrates and, therefore, they are toxic to many soil and aquatic invertebrates. In addition, many pesticides are toxic to ecological receptors at higher

trophic levels such as mammals and birds. For example, DDT compounds have been linked to eggshell thinning and subsequent decreased survival of several birds of prey (such as eagles and falcons). Other pesticides such as chlordanes, dieldrin, aldrin, endrin, and heptachlor are also very toxic to mammals and birds (Newell et al., 1987).

Organochlorine insecticides such as DDT, chlordane, aldrin, dieldrin, heptachlor, endosulfan, and endrin and their associated breakdown products generally degrade very slowly and tend to be soluble in lipids. These result in bioaccumulation and possible increases in concentrations through food webs (Newman, 1998). Pesticides have high Log K_{OC} values so they are expected to sorb strongly to soil and sediment particles when released to the environment. Consequently, these compounds may migrate from their site of application when the soil is eroded, although they will not have a tendency to leach to groundwater.

DDT, DDE, and DDD are highly lipid soluble, which combined with an extremely long half-life, results in bioaccumulation (ATSDR, 1989b). When present in ambient water, DDT and its metabolites are concentrated in freshwater and marine plankton, insects, mollusks, and other invertebrates and fish (ATSDR, 1989b). A progressive accumulation of residues may result in high levels of residues in organisms at the top of the food chain (ATSDR, 1989b). Moderate to significant bioconcentration in aquatic species has been reported for dieldrin, with bioconcentration factors (BCFs) ranging from 100 to 10,000 (Howard, 1991). Heptachlor also has been reported to bioconcentrate in aquatic species, with bioconcentration factors in fish up to about 20,000 (Howard, 1991).

PCBs

The term polychlorinated biphenyls (PCBs) commonly refers to a variety of mixtures of individual biphenyl isomers, each consisting of two joined benzene rings and up to 10 chlorine atoms. Mixtures of these isomers are known by their commercial designation of Aroclor. This trade name is followed by a four-digit number; the first two numbers indicate the type of isomer mixture and the last two numbers indicate the approximate weight percent of chlorine in the mixture (USEPA, 1985).

PCBs released into water adsorb to sediments and other organic matter. Typically, PCB concentrations are greater in the sediment and suspended material than in the water column. Substantial quantities of PCBs in aquatic sediments can act as an environmental reservoir from

which PCBs may be released slowly over a long period of time (ATSDR, 1989c). For PCBs that exist in the dissolved state in water, volatilization becomes the primary fate process (USEPA, 1985).

Degradation of PCBs in the environment is dependent upon the degree of chlorination. Generally, the more chlorinated the PCB molecule, the more persistent it will be in the environment. Factors that determine biodegradability include the amount of chlorination, concentration, type of microbial population, available nutrients, and the temperature (ATSDR, 1989c).

Because PCBs are highly lipophilic, they can bioaccumulate in the lipid portions of animals. Bioconcentration factors in the thousands have been reported for various aquatic species (Eisler, 1986a). PCBs can also accumulate in upper trophic level animals such as piscivorous birds and mammals that feed on contaminated prey items (Eisler, 1986a).

Adverse effects of PCBs on terrestrial wildlife include increased mortality, reproductive effects, and behavioral effects (USEPA, 1985). As a group, birds are more resistant to acutely toxic effects of PCBs than mammals (Eisler, 1986a). Among sensitive avian species, PCBs disrupt the normal pattern of growth, reproduction, metabolism, and behavior (Eisler, 1986a). Of the mammals, the mink is the most sensitive wildlife species tested for which data are available (Eisler, 1986a). Impacts to mink include anorexia, weight loss, lethargy, reproductive effects, and death (Eisler, 1986a).

Dioxins

Dioxin and dioxin-like compounds consist of the following chemical classes: polychlorinated dibenzo-p-dioxins (PCDDs or CDDs), polychlorinated dibenzofurans (PCDFs of CDFs), polybrominated dibenzodioxins (PBDDs or BDDs), polybrominated dibenzofurans (PBDFs or BDFs), and PCBs (USEPA, 1998). The CDDs and BDDs each include 75 individual compounds, and the CDFs BDFs each include 135 different compounds (USEPA, 1998). Of all these compounds, only 7 of the 75 congeners of CDDs or BDDs are thought to have dioxin-like toxicity, as are 10 of the 135 congeners of CDFs, or BDFs (USEPA, 1998). These are the ones with chlorine/bromine substitutions in, at least, the 2, 3, 7, and 8 positions (USEPA, 1998). Of the 209 PCB congeners, 13 are thought to have dioxin-like toxicity, which include the PCBs with four or more chlorines with just one or no substitution in the ortho position (USEPA, 1998).

There are very few toxicity data for dioxins except for 2,3,7,8-TCDD, which has been associated with lethal, carcinogenic, teratogenic, reproductive, mutagenic, histopathologic, and immunotoxic effects (Eisler, 1986b). 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) is the most toxic congener within these groups of compounds (Van den Berg et al., 1998). Because of this, toxicity equivalency factors (developed to estimate the relative toxicity of the dioxin and dioxin-like compounds to 2,3,7,8-TCDD (Van den Berg et al., 1998). There are substantial inter- and intraspecific differences in sensitivity and toxic responses to 2,3,7,8-TCDD (Eisler, 1986b). Two species of earthworms showed no adverse effects at soil concentrations of 5 mg/kg; however, they died at 10 mg/kg of 2,3,7,8-TCDD (Eisler, 1986b). This indicates that terrestrial invertebrates may be resistant to 2,3,7,8-TCDD.

Although there presently is no evidence of biomagnification of PCDDs in birds, it is suspected that piscivorous birds have a greater potential to accumulate PCDDs than the fish that they eat (Eisler, 1986b).

Metals

Many metals occur naturally at various concentrations in the surface water and sediment primarily to chemical weathering of rocks and fallout from volcanoes. Most metals are toxic to aquatic (i.e., fish, invertebrates) and terrestrial (i.e., plants, invertebrates, vertebrates) ecological receptors above certain concentrations, with some metals being more toxic at lower concentrations than others. Also, different chemical forms of the metals may be more toxic than others. For example, hexavalent chromium is typically more toxic than trivalent chromium, and methylmercury is more toxic than inorganic mercury. In addition, the toxicity of several metals (cadmium, chromium, copper, lead, nickel, silver, and zinc) to aquatic receptors in freshwater systems decreases with increasing water hardness.

Many factors (e.g., pH, Eh, clay content, organic matter content) influence the bioavailability of metals to invertebrates in sediment. One way to estimate the bioavailable portion of certain divalent metals (cadmium, copper, lead, nickel, and zinc) in sediment is to measure the amount of acid volatile sulfides (AVS) and simultaneously extracted metals (SEM) in a sediment sample. If the molar concentration of AVS is higher than the molar concentration of SEM, than the SEM metals are expected to be unavailable to aquatic invertebrates and, therefore, nontoxic. AVS plays little or no role in determining interstitial water concentrations of metals in aerobic systems

or those with low productivity (i.e., where the absence of organic carbon limits sulfate reduction) (Ankley et al., 1995), or when ingestion of sediments is the primary exposure route (Lee et al., 2000).

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APPENDIX H

RECEPTOR PROFILES
SWMU 11
NSA CRANE, CRANE, INDIANA

The following sections present the receptor profiles for the representative herbivorous and invertivorous, receptors chosen for food chain modeling at SWMU 11. The majority of the information for the profiles was obtained from the Wildlife Exposure Factors Handbook (USEPA, 1993). The data for the incidental soil ingestion rates were obtained from the U.S. EPA Ecological Soil Screening Guidance, Attachment 4-1 (USEPA, 2007).

The food and water ingestion rates are listed in g/g (of body weight)-day on a wet weight basis but were converted to dry weight for the ERA using the exposure factors presented below. The home ranges are presented in hectares in USEPA (1993) but were converted to acres by multiplying the number of hectares by 2.471. Also note that the estimated percent of soil/sediment in the diets are listed in dry weight.

Short-Tailed Shrew (*Blarina brevicauda*)

Shrews inhabit a wide variety of habitats and are common in areas with abundant vegetative cover. They need cool, moist habitats because of their high metabolic and water-loss rates. The short-tailed shrew is primarily carnivorous, eating insects and other invertebrates such as earthworms, slugs, and snails.

The adult body weight for the short-tailed shrew in various habitats ranged from 0.01525 to 0.01921 kg with an average of 0.0169 kg. The listed food ingestion rates for shrews are between 0.43 and 0.96 g/g-day (wet-weight). The food ingestion rate in kg/day was calculated as shown on Table H.2. The food ingestion rate was then multiplied by 0.16 in the food chain model, which is the percent solids of worms (Sample et al., 1997) to convert the ingestion rate from a wet-weight value to a dry-weight value. The incidental soil ingestion rate was calculated by multiplying the ingestion rate by the percentage of soil that is incidentally ingested (3% for conservative food chain model and 0.9% for the average food chain model) from USEPA (2007). 3% is the 90th percentile value and 0.9% is the 50th percentile value from USEPA (2007). The only available home range for the shrew (0. 9699 acres) was calculated using data from a tamarack bog in Manitoba (only value available).

American Woodcock (*Scolopax minor*)

Woodcocks inhabit both woodlands and abandoned fields, particularly those with rich and moderately to poorly drained loamy soils, which tend to support abundant earthworm populations. They feed primarily on invertebrates found in moist upland soils by probing the soil with their long prehensile-tipped bill. Earthworms are their preferred diet, but seeds and other plant matter may also be consumed.

The adult body weight for the woodcock ranges from 0.166 to 0.213 kg with an average of 0.190 kg. The listed food ingestion rates for the woodcock are between 0.73 and 1.0 g/g-day (wet-weight). The food ingestion rate in kg/day was calculated as shown in Table H.2. The food ingestion rate was then multiplied by 0.16 in the food chain model, which is the percent solids of worms (Sample et al., 1997) to convert the ingestion rate from a wet-weight value to a dry-weight value. The incidental soil ingestion rate was calculated by multiplying the ingestion rate by the percentage of soil that is incidentally ingested (assumed 16.4% for conservative food chain model and 6.4% for the average food chain model) from USEPA (2007). 16.4% is the 90th percentile value and 6.4% is the 50th percentile value from USEPA (2007).

The range of home range sizes for the woodcock is 7.66 to 182 acres with an average home range of 61 acres.

Meadow Vole (*Microtus pennsylvanicus*)

Meadow voles inhabit grassy fields, marshes, and bogs; however, they prefer fields with more grass, more cover, and fewer woody plants. They typically consume green succulent vegetation, sedges, seeds, roots, bark, fungi, insects, and animal matter. However, green succulent vegetation makes up the majority of their diet.

The adult body weight for the vole ranges from 0.0329 to 0.0391 kg with an average of 0.0366 kg. The only listed food ingestion rates for voles range from 0.30 to 0.35 g/g-day (wet-weight), with an average of 0.325 g/g-day. The food ingestion rate in kg/day was calculated as shown in Table H.2. The food ingestion rate was then multiplied by 0.15 in the food chain model, which is the percent solids of plant foliage (USEPA, 2007), to convert the ingestion rate from a wet-weight value to a dry-weight value. The incidental soil ingestion rate was calculated by multiplying the ingestion rate by the percentage of soil that is incidentally ingested (assumed 3.2% for conservative food chain model and 1.2% for the average food chain model) from USEPA (2007). 3.2% is the 90th percentile value and 1.2% is the 50th percentile value from USEPA (2007).

The range of home range sizes for the meadow vole is 0.0297 to 1.06 acres with an average home range of 0.16 acres.

Northern Bobwhite Quail (*Colinus virginianus*)

Bobwhite quails inhabit grasslands, idle fields, pastures, and large clumps of grasses. Bobwhite quails

forage in areas with open vegetation, some bare ground, and light litter. Seeds from weeds, woody plants, and grasses comprise the majority of an adult's diet, although green vegetation has been found to dominate the diet of this species in winter in the southern areas of the United States.

The adult body weight for the bobwhite quail ranges from 0.162 to 0.186 kg with an average of 0.177 kg. The listed food ingestion rates for quails range from 0.067 to 0.093 g/g-day (wet-weight), with an average of 0.082 g/g-day. The food ingestion rate in kg/day was calculated as shown on Table H.2. The food ingestion rates were already dry-weight values. The incidental soil ingestion rate was calculated by multiplying the ingestion rate by the percentage of soil that is incidentally ingested (assumed 13.9% for conservative food chain model and 6.1% for the average food chain model) from USEPA (2007). 13.9% is the 90th percentile value and 6.1% is the 50th percentile value for the mourning dove from USEPA (2007).

The home range for the quail ranges from 16 to 41 acres with an average home range of 29 acres.

References:

Sample, B.E., M.S. Aplin, R.A. Efroymson, G.W., Suter II, and C.J.E. Welsh. 1997. Methods and Tools for Estimation of the Exposure of Terrestrial Wildlife to Contaminants. Oak Ridge National Laboratory. October. ORNL/TM-13391.

USEPA (US Environmental Protection Agency), 1993. Wildlife Exposure Factors Handbook. U.S. Environmental Protection Agency. Office of Research and Development. Washington, D.C. December 1993. EPA/600/R-93/187a.

USEPA, 2007. Guidance for Developing Ecological Soil Screening Level, Attachment 4-1, Exposure Factors and Bioaccumulation Models for Derivation of Wildlife Eco-SSLs. Office of Solid Waste and Emergency and Response. OSWER Directive 9285.7-55. April.

TABLE H.1

EXPOSURE PARAMETERS FOR THE TERRESTRIAL WILDLIFE MODEL
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE, INDIANA

Species/Exposure Inputs	Conservative Inputs		Average Inputs		Source
	Values	Units	Values	Units	
Meadow Vole					
Body Weight = BW	3.290E-02	kg	3.663E-02	kg	USEPA, 1993
Food Ingestion Rate = If	1.920E-03	kg/day	1.785E-03	kg/day	USEPA, 1993
Water Ingestion Rate = Iw	7.700E-03	L/day	6.400E-03	L/day	USEPA, 1993
Soil Ingestion Rate - Is	6.144E-05	kg/day	2.142E-05	kg/day	Beyer, 1993
Home Range = HR	Assume 100% on site		1.640E-01	acres	USEPA, 1993
Short-Tailed Shrew					
Body Weight = BW	1.525E-02	kg	1.687E-02	kg	USEPA, 1993
Food Ingestion Rate = If	2.592E-03	kg/day	1.648E-03	kg/day	USEPA, 1993
Water Ingestion Rate = Iw	4.300E-03	L/day	3.800E-03	L/day	USEPA, 1993
Soil Ingestion Rate - Is	7.776E-05	kg/day	1.483E-05	kg/day	Beyer, 1993
Home Range = HR	Assume 100% on site		9.700E-01	acres	USEPA, 1993
American Woodcock					
Body Weight = BW	1.660E-01	kg	1.895E-01	kg	USEPA, 1993
Food Ingestion Rate = If	3.032E-02	kg/day	2.526E-02	kg/day	USEPA, 1993
Water Ingestion Rate = Iw	2.130E-02	L/day	1.900E-02	L/day	USEPA, 1993
Soil Ingestion Rate - Is	4.972E-03	kg/day	1.617E-03	kg/day	Beyer, 1993
Home Range = HR	Assume 100% on site		6.133E+01	acres	USEPA, 1993
Bobwhite Quail					
Body Weight = BW	1.620E-01	kg	1.770E-01	kg	USEPA, 1993
Food Ingestion Rate = If	1.640E-02	kg/day	1.440E-02	kg/day	USEPA, 1993
Water Ingestion Rate = Iw	2.310E-02	L/day	1.840E-02	L/day	USEPA, 1993
Soil Ingestion Rate - Is	2.280E-03	kg/day	8.784E-04	kg/day	Beyer, 1993
Home Range = HR	Assume 100% on site		2.860E+01	acres	USEPA, 1993

Notes:
The exposure factors were derived as presented in Appendix H Table H.2.

The soil ingestion rates were calculated by multiplying the food ingestion rates by the following incidental soil ingestion rates:

Receptor	Conservative	Average	Source
Bobwhite quail	13.9%	6.1%	1, 2
Meadow Vole	3.2%	1.2%	1
American woodcock	16.4%	6.4%	1
Short-tailed Shrew	3%	0.9%	1

1 - USEPA (U.S. Environmental Protection Agency), 2007. Ecological Soil Screening Level Guidance, Office of Emergency and Remedial Response. February.
2 - Based on the mourning dove.

TABLE H.2

CALCULATION OF EXPOSURE PARAMETERS FOR SURROGATE WILDLIFE RECEPTORS
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Exposure Parameters	Meadow Vole		Short-Tailed Shrew		American Woodcock	Bobwhite Quail	
Body Weights (g)	32.9		17.61	16.87	168	180	181
	39.1		17.33	15.58	209	168	183
	35.5		19.21	15.7	166	162	179
	39		17.4	15.25	212	175	175
					169	178	183.2
					213	179	185.5
						180	173
						162.8	180.4
Minimum	***32.9***		***15.25***		***166***	***162***	
Maximum	***39.1***		***19.21***		***213***	***186***	
Average	***36.6***		***16.87***		***190***	***177***	
Food Ingestion Rate (g/g-day) [1]	0.3		0.49	0.77	1.0	0.067	0.079
	0.35		0.62	0.55	0.77	0.072	0.093
			0.43	0.96	0.73	0.09	0.089
			0.52	0.54			
Minimum	***0.3***		***0.43***		***0.73***	***0.067***	
Maximum	***0.35***		***0.96***		***1.0***	***0.093***	
Average	***0.325***		***0.61***		***0.8***	***0.082***	
Food Ingestion Rate (kg/day)							
Conservative	***1.28E-02***		***1.62E-02***		***1.90E-01***	***1.64E-02***	
Average	***1.19E-02***		***1.03E-02***		***1.58E-01***	***1.44E-02***	
Conversion from wet weight to dry weight	***0.15 [2]***		***0.16 [3]***		***0.16 [3]***	***None [4]***	
Water Ingestion Rate (g/g-day) [1]	0.14	0.21	0.223		0.1	0.115	0.1
					0.1	0.106	0.131
						0.093	0.101
						0.086	0.102
						0.11	0.1
Minimum	***0.14***		***0.223***		***0.1***	***0.086***	
Maximum	***0.21***		***0.223***		***0.1***	***0.131***	
Average	***0.175***		***0.223***		***0.1***	***0.104***	
Water Ingestion Rate (L/day)							
Conservative	***7.69E-03***		***4.28E-03***		***2.13E-02***	***2.31E-02***	
Average	***6.41E-03***		***3.76E-03***		***1.90E-02***	***1.84E-02***	
Home Range (Ha)	0.43	0.1	0.3925		4.5	7.6	
	0.02	0.04			32.4	16.7	
	0.01	0.03			3.1	6.4	
	0.01	0.01			73.6	15.6	
	0.04	0.06			10.5		
	0.02	0.03					
	0.05	0.08					
	0.06	0.06					
Minimum (acres)	***0.0297***		***0.97***		***7.7***	***16***	
Maximum (acres)	***1.06***		***0.97***		***182***	***41***	
Average (acres)	***0.16***		***0.97***		***61***	***29***	

Notes:
Source of data is U.S. EPA (1993). If values from several studies are available, they are given. The minimum, maximum, and average values are derived from these studies.

Footnotes:
(1) - Ingestion Rates (kg/day or L/day) (if more than 1 ingestion rate is available)
- Conservative value = Max Ingestion Rate (g/g-day) * Avg. Body Weight
- Average value = Avg. Ingestion Rate (g/g-day) * Avg. Body Weight

Ingestion Rates (L/day) (if only 1 ingestion rate is available)
- Conservative value = Ingestion Rate (g/g-day) * Max. Body Weight
- Average value = Ingestion Rate (g/g-day) * Avg. Body Weight

(2) - Percent solids in vegetation
(3) - Percent solids in earthworms
(4) - Food items on dry weight basis

APPENDIX H

BIOACCUMULATION FACTORS

This attachment presents the bioaccumulation factors (BAFs) that were used in the food chain models. The following sources of BAFs were used in the ecological risk assessment for most of the chemicals:

- Plant and Soil Invertebrate BAFs: EPA Guidance for Developing Ecological Soil Screening Levels, Attachment 4-1 (USEPA, 2007).

- Plant BAFs (organic chemicals): Toxicity and Chemical-Specific Factors Database (ORNL, 2012).

- Plant BAFs (metals): Empirical Model for the Uptake of Inorganic Chemicals from Soil by Plants (ORNL, 1998).

- Soil Invertebrate BAFs: Development and Validation of Bioaccumulation Models for Earthworms (Sample et al., 1998).

Table H.3 presents the BAFs that were used in the food-chain models for the individual constituents that were detected at SWMU 11. Note that dry weight BAFs were used for this ERA. A default value of 1.0 was used for the BAF if chemical-specific data were not available.

The EPA Guidance for Developing Ecological Soil Screening Levels (Eco SSLs) was the source of the BAFs for some of the chemicals. The majority of these BAFs are regression equations that are used to calculate the tissue concentration from the soil concentration.

Soil to earthworm BAFs for several pesticides were calculated from field studies summarized in various studies. The sources of the BAF are listed in the footnotes in Table H.4. BAFs were calculated by dividing the worm concentration by the soil concentration (if the BAFs were not calculated within the study). The BAFs were either presented on a wet-weight or dry weight basis. Wet weight BAFs were derived by multiplying the dry weight BAF by 0.16, which is the percent solids of soil invertebrates (Sample et. al., 1997), while dry-weight BAFs were derived by dividing the dry weight BAF by 0.16. For this ERA, the dry-weight BAFs were used in the food chain model.

An average BAF was calculated for each pesticide when data from more than one study were available. The compost studies (from Beyer 1990) were not used in the calculation of the average BAFs because properties of the compost may be different than soil. The average BAFs were used for both the conservative and average food chain models.

References

Beyer, Nelson. 1990. Evaluating Soil Contamination. U.S. Department of the Interior, Fish and Wildlife Service. Biological Report 90(2). July.

ORNL (Oak Ridge National Laboratory). 1998. Empirical Model for the Uptake of Inorganic Chemicals from Soil by Plants. BJC/OR-133. September.

ORNL. 2012. Toxicity and Chemical-Specific Factors Database. Oak Ridge National Laboratory Web Page, http://rais.ornl.gov/cgi-bin/tools/TOX_search?select=chem_spef

Sample, B.E., M.S. Aplin, R.A. Efroymson, G.W., Suter II, and C.J.E. Welsh. 1997. Methods and Tools for Estimation of the Exposure of Terrestrial Wildlife to Contaminants. Oak Ridge National Laboratory. October. ORNL/TM-13391.

Sample, B.E., J.J. Beauchamp, R.A. Efroymson, G.W., Suter II, and T.L. Ashwood. 1998. Development and Validation of Bioaccumulation Models for Earthworms. Oak Ridge National Laboratory. June. ES/ER/TM-220.

USEPA, 2007. Guidance for Developing Ecological Soil Screening Level, Attachment 4-1, Exposure Factors and Bioaccumulation Models for Derivation of Wildlife Eco-SSLs. Office of Solid Waste and Emergency and Response. OSWER Directive 9285.7-55. April.

TABLE H.3

TERRESTRIAL FOOD CHAIN MODEL - BAF/BSAF VALUES
SWMU 11
NSA CRANE
CRANE, INDIANA

Chemical	Plant Bioaccumulation Factors			Earthworm Bioaccumulation Factors		
	Conservative	Average		Conservative	Average	
Dioxins/Furans						
2,3,7,8-TCDD Equivalents	0.00438		'(1)	22.2	11	(4)
Polycyclic Aromatic Hydrocarbons						
ACENAPHTHENE	EXP(-0.8556*LN(C)-5.562)		(2)	1.47		(2)
ACENAPHTHYLENE	EXP(0.791*LN(C)-1.144)		(2)	22.9		(2)
ANTHRACENE	EXP(0.7784*LN(C)-0.9887)		(2)	2.42		(2)
BENZO(A)ANTHRACENE	EXP(0.5944*LN(C)-2.7078)		(2)	1.59		(2)
BENZO(A)PYRENE	EXP(0.975*LN(C)-2.0615)		(2)	1.33		(2)
BENZO(B)FLUORANTHENE	0.31		(2)	2.6		(2)
BENZO(G,H,I)PERYLENE	EXP(1.1829*LN(C)-0.9313)		(2)	2.94		(2)
BENZO(K)FLUORANTHENE	EXP(0.8595*LN(C)-2.1579)		(2)	2.6		(2)
CHRYSENE	EXP(0.5944*LN(C)-2.7078)		(2)	2.29		(2)
DIBENZO(A,H)ANTHRACENE	0.13		(2)	2.31		(2)
FLUORANTHENE	0.5		(2)	3.04		(2)
FLUORENE	EXP(-0.8556*LN(C)-5.562)		(2)	9.57		(2)
INDENO(1,2,3-CD)PYRENE	0.11		(2)	2.86		(2)
PHENANTHRENE	EXP(0.6203*LN(C)-0.1665)		(2)	1.72		(2)
PYRENE	0.72		(2)	1.75		(2)
Pesticides						
ALPHA-BHC	0.241		'(1)	1		
GAMMA-BHC (LINDANE)	0.268		'(1)	18		(5)
GAMMA-CHLORDANE	0.0095		'(1)	5		(5)
METHOXYCHLOR	0.0436		'(1)	1		
Metals						
LEAD	EXP(0.561*LN(C)-1.328)		(2)	EXP(0.807*LN(C)-0.218)		(2)
MERCURY	5	0.652	(3)	EXP(0.3369*LN(C)+0.0781)		(4)
SELENIUM	EXP(1.104*LN(C)-0.677)		(2)	EXP(0.733*LN(C)-0.075)		(2)
VANADIUM	0.00485		(2)	0.042		(2)
ZINC	EXP(0.554*LN(C)+1.575)		(2)	EXP(0.328*LN(C)+4.449)		(2)

Notes:
A default value of 1.0 was assigned to chemicals with unknown BAFs. No footnotes are listed by these values.

Footnotes:
1 - ORNL (2012).
2 - USEPA (2007). Several tissue concentration will be calculated using regression equations (where C is the soil concentration) from USEPA (2007), Attachment 4-1, Tables 4a (for inorganics), 4b (for organics).
3 - ORNL (September, 1998) for all chemicals; conservative value is 90th percentile; average value is median value.
4 - Sample et al., (February, 1998) conservative value is 90th percentile; average value is median value.
5 - Calculated from literature field studies (see Table H.4).

Sources:
ORNL (Oak Ridge National Laboratory). 1998. Empirical Model for the Uptake of Inorganic Chemicals from Soil by Plants. BJC/OR-133. September.
ORNL, 2012. Toxicity and Chemical-Specific Factors Database. Oak Ridge National Laboratory Web Page, http://rais.ornl.gov/cgi-bin/tools/TOX_search?select=chem_spef
Sample, B.E., J.J. Beauchamp, R.A. Efroymson, G.W., Suter II, and T.L. Ashwood. 1998. Development and Validation of Bioaccumulation Models for Earthworms. Oak Ridge National Laboratory. February. ES/ER/TM-220.
USEPA, 2007. Guidance for Developing Ecological Soil Screening Level, Attachment 4-1, Exposure Factors and Bioaccumulation Models for Derivation of Wildlife Eco-SSLs. Office of Solid Waste and Emergency and Response. OSWER Directive 9285.7-55.

TABLE H.4

EARTHWORM BAFS FOR PESTICIDES
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Parameter	Study Values					Calculated Values		Reference	Comments
	Worm Concentration		Soil Conc. (dry weight)	Dry Weight BAF	Wet Weight BAF	Final Dry Weight[1] BAF	Final Wet Weight[2] BAF		
	Dry Weight	Wet Weight							
gamma-BHC	NA	NA	NA	NA	1.5-4.2	9.4-26.3	1.5-4.2	1	agricultural soil (0.004 ppm gamma-BHC in soil)
Average dry/wet weight BAF from field studies[3]				***NA***	***NA***	***18***	***2.85***		
Chlordane	NA	NA	NA	5	NA	5.0	0.8	2	from data collected in 7 agricultural fields

Notes:
BAF - bioaccumulation factor = worm concentration/soil concentration
NA - Not applicable
The percent solids of earthworms is assummed to be 0.16 [Sample et al., 1997])
1 - The calculated dry weight BAF was either obtained directly from the study or was calculated by dividing the wet weight BAF by 0.16
2 - The calculated wet weight BAF was either obtained directly from the study or was calculated by multiplying the dry weight BAF by 0.16
3 - The compost studies were not used in calculation of average BAF because the properties of the compost may be different than soil.
The compost studies were presented for informational purposes only.

References
1- Wheatly and Hardman, 1968 (cited in Beyer, 1990)
2- Gish, 1970

TABLE H.5

TOXICITY REFERENCE VALUES
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

PARAMETER	Mammal		Bird	
	NOAEL	LOAEL	NOAEL	LOAEL
DIOXINS/FURANS				
2,3,7,8-TCDD Equivalents	0.000001	0.00001	0.000014	0.00014
POLYCYCLIC AROMATIC HYDROCARBONS				
Acenaphthene	65.6	356	2	20
Acenaphthylene	65.6	356	2	20
Anthracene	65.6	356	2	20
Benzo(a)anthracene	0.615	38.4	2	20
Benzo(a)pyrene	0.615	38.4	2	20
Benzo(b)fluoranthene	0.615	38.4	2	20
Benzo(g,h,i)perylene	0.615	38.4	2	20
Benzo(k)fluoranthene	0.615	38.4	2	20
Chrysene	0.615	38.4	2	20
Dibenzo(a,h)anthracene	0.615	38.4	2	20
Fluoranthene	65.6	356	2	20
Fluorene	65.6	356	2	20
Indeno(1,2,3-cd)pyrene	0.615	38.4	2	20
Phenanthrene	65.6	356	2	20
Pyrene	0.615	38.4	2	20
PESTICIDES/PCBs				
Alpha-BHC	0.014	0.14	0.56	2.25
Gamma-BHC (Lindane)	8	80	2	20
Gamma-Chlordane	4.58	9.16	2.14	10.7
Methoxychlor	4	8	NV	NV
INORGANICS				
Lead	4.7	30.2	1.63	9.70
Mercury	0.032	0.16	0.0064	0.064
Selenium	0.143	0.661	0.29	0.819
Vanadium	4.16	9.44	0.34	1.69
Zinc	75.4	297.58	66.1	171.44

Notes:
The sources of these NOAELS and LOAELS are presented in the table titled "Sources and Endpoints for NOAELS and LOAELS for Terrestrial Wildlife" in this appendix.

The NOAELS and LOAELS in the source table were divided by 10 if a subchronic study was the basis for the value. Also, if only a NOAEL was available, the value was multiplied by 10 to estimate the LOAEL. If only a LOAEL was available, the value was divided by 10 to estimate the NOAEL.

TABLE H.6

SOURCES AND ENDPOINTS FOR NOAELS AND LOAELS FOR TERRESTRIAL WILDLIFE
SWMU 11- OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Parameters	Concentration (mg/kg-day)	Endpoint	Effect	Chronic/ Subchronic	Species	Primary Reference	Source of Reference
Dioxins/Furans							
2,3,7,8-TCDD	0.000001	NOAEL	reproduction	chronic	rat	Murray et al., 1979	Sample et.al., 1996
2,3,7,8-TCDD	0.00001	LOAEL	reproduction	chronic	rat	Murray et al., 1979	Sample et.al., 1996
2,3,7,8-TCDD	0.000014	NOAEL	reproduction	chronic	pheasant	Nosek et al., 1992	Sample et.al., 1996
2,3,7,8-TCDD	0.00014	LOAEL	reproduction	chronic	pheasant	Nosek et al., 1992	Sample et.al., 1996
PAHs							
7,12-Dimethylbenz(a)anthracene	20	LOAEL	systemic	chronic	nestling/starlings	Trust et al., 1994	
7,12-Dimethylbenz(a)anthracene	2	NOAEL	systemic	chronic	nestling/starlings	Trust et al., 1994	
High Molecular Weight PAHs	38.4	LOAEL	reproduction & growth	chronic	mammals	USEPA, 2007	
High Molecular Weight PAHs	0.615	NOAEL	reproduction & growth	chronic	mammals	USEPA, 2007	
Low Molecular Weight PAHs	356	LOAEL	reproduction & growth	chronic	mammals	USEPA, 2007	
Low Molecular Weight PAHs	65.6	NOAEL	reproduction & growth	chronic	mammals	USEPA, 2007	
Pesticides							
BHC (mixed isomers)	0.137	LOAEL	reproductive	chronic	mink	Bleavins et al., 1984	Sample et.al., 1996
BHC (mixed isomers)	2.25	LOAEL	reproductive	chronic	Japanese quail	Vos et al., 1971	Sample et.al., 1996
BHC (mixed isomers)	0.563	NOAEL	reproductive	chronic	Japanese quail	Vos et al., 1971	Sample et.al., 1996
Chlordane	10.7	LOAEL	mortality	chronic	red-winged blackbird	Stickel et al., 1983	Sample et.al., 1996
Chlordane	9.16	LOAEL	reproduction	chronic	mouse	WHO, 1984	Sample et.al., 1996
Chlordane	2.14	NOAEL	mortality	chronic	red-winged blackbird	Stickel et al., 1983	Sample et.al., 1996
Chlordane	4.58	NOAEL	reproduction	chronic	mouse	WHO, 1984	Sample et.al., 1996
gamma-BHC (lindane)	20	LOAEL	reproductive	chronic	mallard duck	Chakravarty and Lahiri, 1986	Sample et.al., 1996
gamma-BHC (lindane)	8	NOAEL	reproductive	chronic	rat	Palmer et al., 1978	Sample et.al., 1996
Methoxychlor	8	LOAEL	reproduction	chronic	rat	Gray et al., 1988	Sample et.al., 1996
Methoxychlor	4	NOAEL	reproduction	chronic	rat	Gray et al., 1988	Sample et.al., 1996
Inorganics							
Lead	9.7	LOAEL	reproduction & growth	chronic	birds	Spec Pro, Inc and Exponent, Inc., 2009	
Lead	30.2	LOAEL	reproduction & growth	chronic	mammals	Spec Pro, Inc and Exponent, Inc., 2009	
Lead	1.63	NOAEL	reproduction & growth	chronic	chicken	USEPA, 2005	
Lead	4.7	NOAEL	reproduction & growth	chronic	rat	USEPA, 2005	
Mercury	0.064	LOAEL	reproductive	chronic	mallard duck	Heinz, 1979	Sample et.al., 1996
Mercury	0.16	LOAEL	reproductive	chronic	rat	Verschuuren et al., 1976	Sample et.al., 1996
Mercury	0.032	NOAEL	reproductive	chronic	rat	Verschuuren et al., 1976	Sample et.al., 1996
Selenium	0.819	LOAEL	reproduction & growth	chronic	birds	USEPA, 2007	
Selenium	0.661	LOAEL	reproduction & growth	chronic	mammals	USEPA, 2007	
Selenium	0.29	NOAEL	reproduction & growth	chronic	chicken	USEPA, 2007	
Selenium	0.143	NOAEL	reproduction & growth	chronic	pig	USEPA, 2007	
Vanadium	1.686	LOAEL	reproduction & growth	chronic	birds	USEPA, 2005	
Vanadium	9.436	LOAEL	reproduction & growth	chronic	mammals	USEPA, 2005	
Vanadium	0.344	NOAEL	reproduction & growth	chronic	chicken	USEPA, 2005	
Vanadium	4.16	NOAEL	reproduction & growth	chronic	mouse	USEPA, 2005	
Zinc	297.58	LOAEL	reproduction & growth	chronic	mammals	USEPA, 2007	
Zinc	171.44	LOAEL	reproduction & growth	chronic	birds	USEPA, 2007	
Zinc	75.4	NOAEL	reproduction & growth	chronic	mammals	USEPA, 2007	
Zinc	66.1	NOAEL	reproduction & growth	chronic	birds	USEPA, 2007	

Notes:
NOAEL = No Observed Adverse Effects Level
LOAEL = Lowest Observed Adverse Effects Level
The NOAELS and LOAELS for the following PAHs are based on the Low Molecular Weight PAH values: acenapthylene, acenaphthene, anthracene, fluoranthene, fluorene,

TABLE H.6

SOURCES AND ENDPOINTS FOR NOAELS AND LOAELS FOR TERRESTRIAL WILDLIFE
SWMU 11- OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Parameters	Concentration (mg/kg-day)	Endpoint	Effect	Chronic/ Subchronic	Species	Primary Reference	Source of Reference

phenanthrene, 2-methylnaphthalene, and naphthalene.

The NOAELS and LOAELS for the following PAHs are based on the High Molecular Weight PAH values: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, dibenzofuran, indeno(1,2,3-c,d)pyrene, and pyrene.

The NOAELS and LOAELS for the PAHs for birds were based on 7,12-dimethylbenz(a)anthracene.

The LOAELs used for several metals were calculated as the geometric mean of growth and reproduction data from the Ecological Soil Screening Levels (U.S. EPA, 2005, 2007).

References for the NOAELS and LOAELs are presented in this Attachment and Titled "TRV Source and Endpoint References".

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APPENDIX H

CHEMICAL CONCENTRATIONS IN SURFACE SOIL AND TISSUE - SWMU 11
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Chemical	Surface Soil Concentrations (mg/kg)				Earthworm Bioaccumulation Factors		Earthworm Concentrations (mg/kg)		Plant Bioaccumulation Factors		Plant Concentrations (mg/kg)	
	Maximum Detection	Average of All Results	Average of Positive Results	Average [1]	Conservative	Average	Maximum Detection	Average	Conservative	Average	Maximum Detection	Average
DIOXINS/FURANS												
2,3,7,8-TCDD Equivalents (mammal)	1.99E-05	4.21E-06	4.21E-06	4.21E-06	2.22E+01	1.10E+01	4.42E-04	4.63E-05	4.38E-03	4.38E-03	8.72E-08	1.84E-08
2,3,7,8-TCDD Equivalents (bird)	1.04E-05	5.73E-06	5.73E-06	5.73E-06	2.22E+01	1.10E+01	2.31E-04	6.30E-05	4.38E-03	4.38E-03	4.55E-08	2.51E-08
METALS												
LEAD	2.77E+01	1.48E+01	1.48E+01	1.48E+01	Regression equation from Eco SSL		1.17E+01	7.06E+00	Regression equation from Eco SSL		1.71E+00	1.20E+00
MERCURY	6.45E-02	4.28E-02	4.49E-02	4.28E-02	Regression - Sample et al., (1998)		4.29E-01	3.74E-01	5.00E+00	6.52E-01	3.23E-01	2.79E-02
SELENIUM	6.70E-01	3.96E-01	5.74E-01	3.96E-01	Regression equation from Eco SSL		6.92E-01	4.71E-01	Regression equation from Eco SSL		3.27E-01	1.83E-01
VANADIUM	3.96E+01	2.91E+01	2.91E+01	2.91E+01	4.20E-02	4.20E-02	1.66E+00	1.22E+00	4.85E-03	4.85E-03	1.92E-01	1.41E-01
ZINC	4.69E+01	3.70E+01	3.70E+01	3.70E+01	Regression equation from Eco SSL		3.02E+02	2.80E+02	Regression equation from Eco SSL		4.07E+01	3.57E+01
PESTICIDES												
ALPHA-BHC	9.30E-04	2.51E-04	5.78E-04	2.51E-04	1.00E+00	1.00E+00	9.30E-04	2.51E-04	2.41E-01	2.41E-01	2.24E-04	6.06E-05
GAMMA-BHC (LINDANE)	2.27E-03	3.36E-04	2.27E-03	3.36E-04	1.80E+01	1.80E+01	4.09E-02	6.04E-03	2.68E-01	2.68E-01	6.08E-04	8.99E-05
GAMMA-CHLORDANE	1.25E-03	4.48E-04	8.47E-04	4.48E-04	5.00E+00	5.00E+00	6.25E-03	2.24E-03	9.50E-03	9.50E-03	1.19E-05	4.25E-06
METHOXYCHLOR	1.01E-03	2.57E-04	1.01E-03	2.57E-04	1.00E+00	1.00E+00	1.01E-03	2.57E-04	4.36E-02	4.36E-02	4.40E-05	1.12E-05
POLYCYCLIC AROMATIC HYDROCARBONS												
ACENAPHTHENE	1.72E-02	3.94E-03	1.72E-02	3.94E-03	1.47E+00	1.47E+00	2.53E-02	5.79E-03	Regression equation from Eco SSL		1.24E-01	4.38E-01
ACENAPHTHYLENE	8.69E-02	9.93E-03	3.36E-02	9.93E-03	2.29E+01	2.29E+01	1.99E+00	2.27E-01	Regression equation from Eco SSL		4.61E-02	8.29E-03
ANTHRACENE	5.23E-02	8.61E-03	2.83E-02	8.61E-03	2.42E+00	2.42E+00	1.27E-01	2.08E-02	Regression equation from Eco SSL		3.74E-02	9.18E-03
BENZO(A)ANTHRACENE	3.22E-01	4.22E-02	1.23E-01	4.22E-02	1.59E+00	1.59E+00	5.12E-01	6.72E-02	Regression equation from Eco SSL		3.40E-02	1.02E-02
BENZO(A)PYRENE	3.48E-01	4.49E-02	1.31E-01	4.49E-02	1.33E+00	1.33E+00	4.63E-01	5.97E-02	Regression equation from Eco SSL		4.55E-02	6.18E-03
BENZO(B)FLUORANTHENE	4.54E-01	5.99E-02	1.41E-01	5.99E-02	2.60E+00	2.60E+00	1.18E+00	1.56E-01	3.10E-01	3.10E-01	1.41E-01	1.86E-02
BENZO(G,H,I)PERYLENE	2.34E-01	3.35E-02	7.75E-02	3.35E-02	2.94E+00	2.94E+00	6.88E-01	9.84E-02	Regression equation from Eco SSL		7.07E-02	7.09E-03
BENZO(K)FLUORANTHENE	2.02E-01	2.76E-02	7.86E-02	2.76E-02	2.60E+00	2.60E+00	5.25E-01	7.17E-02	Regression equation from Eco SSL		2.92E-02	5.28E-03
CHRYSENE	4.27E-01	5.39E-02	1.26E-01	5.39E-02	2.29E+00	2.29E+00	9.78E-01	1.23E-01	Regression equation from Eco SSL		4.02E-02	1.18E-02
DIBENZO(A,H)ANTHRACENE	8.21E-02	1.12E-02	3.88E-02	1.12E-02	2.31E+00	2.31E+00	1.90E-01	2.59E-02	1.30E-01	1.30E-01	1.07E-02	1.46E-03
FLUORANTHENE	4.54E-01	7.71E-02	1.82E-01	7.71E-02	3.04E+00	3.04E+00	1.38E+00	2.34E-01	5.00E-01	5.00E-01	2.27E-01	3.85E-02
FLUORENE	1.61E-02	4.08E-03	1.43E-02	4.08E-03	9.57E+00	9.57E+00	1.54E-01	3.91E-02	Regression equation from Eco SSL		1.31E-01	4.25E-01
INDENO(1,2,3-CD)PYRENE	1.87E-01	2.71E-02	6.22E-02	2.71E-02	2.86E+00	2.86E+00	5.35E-01	7.75E-02	1.10E-01	1.10E-01	2.06E-02	2.98E-03
PHENANTHRENE	3.01E-01	4.01E-02	9.35E-02	4.01E-02	1.72E+00	1.72E+00	5.18E-01	6.91E-02	Regression equation from Eco SSL		4.02E-01	1.15E-01
PYRENE	4.17E-01	6.54E-02	1.29E-01	6.54E-02	1.75E+00	1.75E+00	7.30E-01	1.14E-01	7.20E-01	7.20E-01	3.00E-01	4.71E-02

1 - Average concentration is the mean concentration of all samples, using 1/2 the detection limit for non-detects, unless the value is greater than the maximum concentration. In that case, the average concentration is the mean of the positive detections.

APPENDIX H

MEADOW VOLE - TIER 1 INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION - SURFACE SOIL, SWMU 11
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Chemical	Max Soil Conc. (mg/kg)	Vegetation Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Dose (mg/kg/d) from: Veget.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	Hazard Quotients LOAEL
DIOXINS/FURANS									
2,3,7,8-TCDD Equivalents (mammal)	1.99E-05	8.72E-08	3.72E-08	5.09E-09	4.22E-08	1.00E-06	1.00E-05	4.22E-02	4.22E-03
2,3,7,8-TCDD Equivalents (bird)	1.04E-05	4.55E-08	1.94E-08	2.66E-09	2.21E-08	1.00E-06	1.00E-05	2.21E-02	2.21E-03
METALS									
LEAD	2.77E+01	1.71E+00	5.17E-02	9.97E-02	1.51E-01	4.70E+00	3.02E+01	3.22E-02	5.01E-03
MERCURY	6.45E-02	3.23E-01	1.20E-04	1.88E-02	1.89E-02	3.20E-02	1.60E-01	5.92E-01	1.18E-01
SELENIUM	6.70E-01	3.27E-01	1.25E-03	1.91E-02	2.03E-02	1.43E-01	6.61E-01	1.42E-01	3.07E-02
VANADIUM	3.96E+01	1.92E-01	7.40E-02	1.12E-02	8.52E-02	4.16E+00	9.44E+00	2.05E-02	9.02E-03
ZINC	4.69E+01	4.07E+01	8.76E-02	2.38E+00	2.46E+00	7.54E+01	2.98E+02	3.27E-02	8.28E-03
PESTICIDES									
ALPHA-BHC	9.30E-04	2.24E-04	1.74E-06	1.31E-05	1.48E-05	1.40E-02	1.40E-01	1.06E-03	1.06E-04
GAMMA-BHC (LINDANE)	2.27E-03	6.08E-04	4.24E-06	3.55E-05	3.97E-05	8.00E+00	8.00E+01	4.97E-06	4.97E-07
GAMMA-CHLORDANE	1.25E-03	1.19E-05	2.33E-06	6.93E-07	3.03E-06	4.58E+00	9.16E+00	6.61E-07	3.30E-07
METHOXYCHLOR	1.01E-03	4.40E-05	1.89E-06	2.57E-06	4.46E-06	4.00E+00	8.00E+00	1.11E-06	5.57E-07
POLYCYCLIC AROMATIC HYDROCARBONS									
ACENAPHTHENE	1.72E-02	1.24E-01	3.21E-05	7.25E-03	7.28E-03	6.56E+01	3.56E+02	1.11E-04	2.05E-05
ACENAPHTHYLENE	8.69E-02	4.61E-02	1.62E-04	2.69E-03	2.85E-03	6.56E+01	3.56E+02	4.35E-05	8.02E-06
ANTHRACENE	5.23E-02	3.74E-02	9.77E-05	2.18E-03	2.28E-03	6.56E+01	3.56E+02	3.48E-05	6.41E-06
BENZO(A)ANTHRACENE	3.22E-01	3.40E-02	6.01E-04	1.98E-03	2.59E-03	6.15E-01	3.84E+01	4.20E-03	6.73E-05
BENZO(A)PYRENE	3.48E-01	4.55E-02	6.50E-04	2.65E-03	3.30E-03	6.15E-01	3.84E+01	5.37E-03	8.60E-05
BENZO(B)FLUORANTHENE	4.54E-01	1.41E-01	8.48E-04	8.21E-03	9.06E-03	6.15E-01	3.84E+01	1.47E-02	2.36E-04
BENZO(G,H,I)PERYLENE	2.34E-01	7.07E-02	4.37E-04	4.13E-03	4.56E-03	6.15E-01	3.84E+01	7.42E-03	1.19E-04
BENZO(K)FLUORANTHENE	2.02E-01	2.92E-02	3.77E-04	1.71E-03	2.08E-03	6.15E-01	3.84E+01	3.39E-03	5.42E-05
CHRYSENE	4.27E-01	4.02E-02	7.97E-04	2.35E-03	3.14E-03	6.15E-01	3.84E+01	5.11E-03	8.19E-05
DIBENZO(A,H)ANTHRACENE	8.21E-02	1.07E-02	1.53E-04	6.23E-04	7.76E-04	6.15E-01	3.84E+01	1.26E-03	2.02E-05
FLUORANTHENE	4.54E-01	2.27E-01	8.48E-04	1.32E-02	1.41E-02	6.56E+01	3.56E+02	2.15E-04	3.96E-05
FLUORENE	1.61E-02	1.31E-01	3.01E-05	7.67E-03	7.70E-03	6.56E+01	3.56E+02	1.17E-04	2.16E-05
INDENO(1,2,3-CD)PYRENE	1.87E-01	2.06E-02	3.49E-04	1.20E-03	1.55E-03	6.15E-01	3.84E+01	2.52E-03	4.04E-05
PHENANTHRENE	3.01E-01	4.02E-01	5.62E-04	2.35E-02	2.40E-02	6.56E+01	3.56E+02	3.66E-04	6.75E-05
PYRENE	4.17E-01	3.00E-01	7.79E-04	1.75E-02	1.83E-02	6.15E-01	3.84E+01	2.98E-02	4.77E-04

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	3.29E-02	kg
Food Ingestion Rate = (If)	1.92E-03	kg/day
Soil Ingestion Rate = (Is)	6.14E-05	kg/day
Home Range = (HR)	Assume 100% on site	
Contaminated Area = (CA)	Assume equal to home range	

Dose (soil) = (Cs * Is)(H)/BW
Dose (vegetation) = (Cv * If)(H)/BW

Cv = Contaminant concentration in vegetation
Cs = Contaminant concentration in soil
Total Dose = Dose (soil) + Dose (vegetation)
H=CA/HR (Assume = to 1)

Conc = Concentration
LOAEL = Lowest Observed Adverse Effects Concentration
NOAEL = No Observed Adverse Effects Concentration

APPENDIX H

MEADOW VOLE - TIER 2, STEP 3A INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION - SURFACE SOIL, SWMU 11
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Chemical	Average Soil Conc. (mg/kg)	Vegetation Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Dose (mg/kg/d) from: Veget.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	Hazard Quotients LOAEL
DIOXINS/FURANS									
2,3,7,8-TCDD Equivalents (mammal	4.21E-06	1.84E-08	2.46E-09	8.99E-10	3.36E-09	1.00E-06	1.00E-05	3.36E-03	3.36E-04
2,3,7,8-TCDD Equivalents (bird)	5.73E-06	2.51E-08	3.35E-09	1.22E-09	4.57E-09	1.00E-06	1.00E-05	4.57E-03	4.57E-04
METALS									
LEAD	1.48E+01	1.20E+00	8.64E-03	5.85E-02	6.71E-02	4.70E+00	3.02E+01	1.43E-02	2.22E-03
MERCURY	4.28E-02	2.79E-02	2.50E-05	1.36E-03	1.38E-03	3.20E-02	1.60E-01	4.33E-02	8.65E-03
SELENIUM	3.96E-01	1.83E-01	2.32E-04	8.91E-03	9.14E-03	1.43E-01	6.61E-01	6.39E-02	1.38E-02
VANADIUM	2.91E+01	1.41E-01	1.70E-02	6.89E-03	2.39E-02	4.16E+00	9.44E+00	5.75E-03	2.53E-03
ZINC	3.70E+01	3.57E+01	2.16E-02	1.74E+00	1.76E+00	7.54E+01	2.98E+02	2.34E-02	5.92E-03
PESTICIDES									
ALPHA-BHC	2.51E-04	6.06E-05	1.47E-07	2.95E-06	3.10E-06	1.40E-02	1.40E-01	2.21E-04	2.21E-05
GAMMA-BHC (LINDANE)	3.36E-04	8.99E-05	1.96E-07	4.38E-06	4.58E-06	8.00E+00	8.00E+01	5.72E-07	5.72E-08
GAMMA-CHLORDANE	4.48E-04	4.25E-06	2.62E-07	2.07E-07	4.69E-07	4.58E+00	9.16E+00	1.02E-07	5.12E-08
METHOXYCHLOR	2.57E-04	1.12E-05	1.51E-07	5.47E-07	6.98E-07	4.00E+00	8.00E+00	1.74E-07	8.72E-08
POLYCYCLIC AROMATIC HYDROCARBONS									
ACENAPHTHENE	3.94E-03	4.38E-01	2.30E-06	2.14E-02	2.14E-02	6.56E+01	3.56E+02	3.26E-04	6.00E-05
ACENAPHTHYLENE	9.93E-03	8.29E-03	5.81E-06	4.04E-04	4.10E-04	6.56E+01	3.56E+02	6.25E-06	1.15E-06
ANTHRACENE	8.61E-03	9.18E-03	5.03E-06	4.48E-04	4.53E-04	6.56E+01	3.56E+02	6.90E-06	1.27E-06
BENZO(A)ANTHRACENE	4.22E-02	1.02E-02	2.47E-05	4.95E-04	5.20E-04	6.15E-01	3.84E+01	8.46E-04	1.35E-05
BENZO(A)PYRENE	4.49E-02	6.18E-03	2.63E-05	3.01E-04	3.27E-04	6.15E-01	3.84E+01	5.32E-04	8.52E-06
BENZO(B)FLUORANTHENE	5.99E-02	1.86E-02	3.50E-05	9.05E-04	9.40E-04	6.15E-01	3.84E+01	1.53E-03	2.45E-05
BENZO(G,H,I)PERYLENE	3.35E-02	7.09E-03	1.96E-05	3.45E-04	3.65E-04	6.15E-01	3.84E+01	5.93E-04	9.50E-06
BENZO(K)FLUORANTHENE	2.76E-02	5.28E-03	1.61E-05	2.57E-04	2.73E-04	6.15E-01	3.84E+01	4.45E-04	7.12E-06
CHRYSENE	5.39E-02	1.18E-02	3.15E-05	5.73E-04	6.04E-04	6.15E-01	3.84E+01	9.82E-04	1.57E-05
DIBENZO(A,H)ANTHRACENE	1.12E-02	1.46E-03	6.56E-06	7.11E-05	7.77E-05	6.15E-01	3.84E+01	1.26E-04	2.02E-06
FLUORANTHENE	7.71E-02	3.85E-02	4.51E-05	1.88E-03	1.92E-03	6.56E+01	3.56E+02	2.93E-05	5.40E-06
FLUORENE	4.08E-03	4.25E-01	2.39E-06	2.07E-02	2.07E-02	6.56E+01	3.56E+02	3.16E-04	5.82E-05
INDENO(1,2,3-CD)PYRENE	2.71E-02	2.98E-03	1.59E-05	1.45E-04	1.61E-04	6.15E-01	3.84E+01	2.62E-04	4.20E-06
PHENANTHRENE	4.01E-02	1.15E-01	2.35E-05	5.61E-03	5.64E-03	6.56E+01	3.56E+02	8.59E-05	1.58E-05
PYRENE	6.54E-02	4.71E-02	3.82E-05	2.29E-03	2.33E-03	6.15E-01	3.84E+01	3.79E-03	6.08E-05

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	3.66E-02	kg
Food Ingestion Rate = (If)	1.79E-03	kg/day
Soil Ingestion Rate = (Is)	2.14E-05	kg/day
Home Range = (HR)	1.64E-01	acres
Contaminated Area = (CA)	Assume equal to home range	

Dose (soil) = (Cs * Is)(H)/BW
Dose (vegetation) = (Cv * If)(H)/BW

Cv = Contaminant concentration in vegetation
Cs = Contaminant concentration in soil
Total Dose = Dose (soil) + Dose (vegetation)
H=CA/HR (Assume = to 1)

Conc = Concentration
LOAEL = Lowest Observed Adverse Effects Concentration
NOAEL = No Observed Adverse Effects Concentration

APPENDIX H

BOBWHITE QUAIL - TIER 1 INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION - SURFACE SOIL, SWMU 11
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Chemical	Max Soil Conc. (mg/kg)	Vegetation Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Dose (mg/kg/d) from: Veget.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	Hazard Quotients LOAEL
DIOXINS/FURANS									
2,3,7,8-TCDD Equivalents (mammal)	1.99E-05	8.72E-08	2.80E-07	8.82E-09	2.89E-07	1.40E-05	1.40E-04	2.1E-02	2.1E-03
2,3,7,8-TCDD Equivalents (bird)	1.04E-05	4.55E-08	1.46E-07	4.61E-09	1.51E-07	1.40E-05	1.40E-04	1.1E-02	1.1E-03
METALS									
LEAD	2.77E+01	1.71E+00	3.90E-01	1.73E-01	5.63E-01	1.63E+00	9.70E+00	3.5E-01	5.8E-02
MERCURY	6.45E-02	3.23E-01	9.08E-04	3.26E-02	3.36E-02	6.40E-03	6.40E-02	5.2E+00	5.2E-01
SELENIUM	6.70E-01	3.27E-01	9.43E-03	3.31E-02	4.25E-02	2.90E-01	8.19E-01	1.5E-01	5.2E-02
VANADIUM	3.96E+01	1.92E-01	5.57E-01	1.94E-02	5.77E-01	3.44E-01	1.69E+00	1.7E+00	3.4E-01
ZINC	4.69E+01	4.07E+01	6.60E-01	4.12E+00	4.78E+00	6.61E+01	1.71E+02	7.2E-02	2.8E-02
PESTICIDES									
ALPHA-BHC	9.30E-04	2.24E-04	1.31E-05	2.27E-05	3.58E-05	5.60E-01	2.25E+00	6.4E-05	1.6E-05
GAMMA-BHC (LINDANE)	2.27E-03	6.08E-04	3.19E-05	6.16E-05	9.35E-05	2.00E+00	2.00E+01	4.7E-05	4.7E-06
GAMMA-CHLORDANE	1.25E-03	1.19E-05	1.76E-05	1.20E-06	1.88E-05	2.14E+00	1.07E+01	8.8E-06	1.8E-06
METHOXYCHLOR	1.01E-03	4.40E-05	1.42E-05	4.46E-06	1.87E-05	NV	NV	NV	NV
POLYCYCLIC AROMATIC HYDROCARBONS									
ACENAPHTHENE	1.72E-02	1.24E-01	2.42E-04	1.26E-02	1.28E-02	2.00E+00	2.00E+01	6.4E-03	6.4E-04
ACENAPHTHYLENE	8.69E-02	4.61E-02	1.22E-03	4.67E-03	5.89E-03	2.00E+00	2.00E+01	2.9E-03	2.9E-04
ANTHRACENE	5.23E-02	3.74E-02	7.36E-04	3.79E-03	4.52E-03	2.00E+00	2.00E+01	2.3E-03	2.3E-04
BENZO(A)ANTHRACENE	3.22E-01	3.40E-02	4.53E-03	3.44E-03	7.97E-03	2.00E+00	2.00E+01	4.0E-03	4.0E-04
BENZO(A)PYRENE	3.48E-01	4.55E-02	4.90E-03	4.60E-03	9.50E-03	2.00E+00	2.00E+01	4.8E-03	4.8E-04
BENZO(B)FLUORANTHENE	4.54E-01	1.41E-01	6.39E-03	1.42E-02	2.06E-02	2.00E+00	2.00E+01	1.0E-02	1.0E-03
BENZO(G,H,I)PERYLENE	2.34E-01	7.07E-02	3.29E-03	7.16E-03	1.04E-02	2.00E+00	2.00E+01	5.2E-03	5.2E-04
BENZO(K)FLUORANTHENE	2.02E-01	2.92E-02	2.84E-03	2.96E-03	5.80E-03	2.00E+00	2.00E+01	2.9E-03	2.9E-04
CHRYSENE	4.27E-01	4.02E-02	6.01E-03	4.07E-03	1.01E-02	2.00E+00	2.00E+01	5.0E-03	5.0E-04
DIBENZO(A,H)ANTHRACENE	8.21E-02	1.07E-02	1.16E-03	1.08E-03	2.24E-03	2.00E+00	2.00E+01	1.1E-03	1.1E-04
FLUORANTHENE	4.54E-01	2.27E-01	6.39E-03	2.30E-02	2.94E-02	2.00E+00	2.00E+01	1.5E-02	1.5E-03
FLUORENE	1.61E-02	1.31E-01	2.27E-04	1.33E-02	1.35E-02	2.00E+00	2.00E+01	6.8E-03	6.8E-04
INDENO(1,2,3-CD)PYRENE	1.87E-01	2.06E-02	2.63E-03	2.08E-03	4.71E-03	2.00E+00	2.00E+01	2.4E-03	2.4E-04
PHENANTHRENE	3.01E-01	4.02E-01	4.24E-03	4.07E-02	4.49E-02	2.00E+00	2.00E+01	2.2E-02	2.2E-03
PYRENE	4.17E-01	3.00E-01	5.87E-03	3.04E-02	3.63E-02	2.00E+00	2.00E+01	1.8E-02	1.8E-03

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	1.62E-01	kg	Dose (soil) = (Cs * Is)(H)/BW	Conc = Concentration
Food Ingestion Rate = (If)	1.64E-02	kg/day	Dose (vegetation) = (Cv * If)(H)/BW	LOAEL = Lowest Observed Adverse Effects Concentration
Soil Ingestion Rate = (Is)	2.28E-03	kg/day		NOAEL = No Observed Adverse Effects Concentration
Home Range = (HR)	Assume 100% on site			NV = No Value
Contaminated Area = (CA)	Assume equal to home range			

Cv = Contaminant concentration in vegetation
Cs = Contaminant concentration in soil
Total Dose = Dose (soil) + Dose (vegetation)
H=CA/HR (Assume = to 1)

APPENDIX H

BOBWHITE QUAIL - TIER 2, STEP 3A INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION - SURFACE SOIL, SWMU 11
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Chemical	Average Soil Conc. (mg/kg)	Vegetation Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Dose (mg/kg/d) from: Veget.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	Hazard Quotients LOAEL
DIOXINS/FURANS									
2,3,7,8-TCDD Equivalents (mammal)	4.21E-06	1.84E-08	2.09E-08	1.50E-09	2.24E-08	1.40E-05	1.40E-04	1.6E-03	1.6E-04
2,3,7,8-TCDD Equivalents (bird)	5.73E-06	2.51E-08	2.84E-08	2.04E-09	3.05E-08	1.40E-05	1.40E-04	2.2E-03	2.2E-04
METALS									
LEAD	1.48E+01	1.20E+00	7.33E-02	9.77E-02	1.71E-01	1.63E+00	9.70E+00	1.0E-01	1.8E-02
MERCURY	4.28E-02	2.79E-02	2.12E-04	2.27E-03	2.48E-03	6.40E-03	6.40E-02	3.9E-01	3.9E-02
SELENIUM	3.96E-01	1.83E-01	1.97E-03	1.49E-02	1.68E-02	2.90E-01	8.19E-01	5.8E-02	2.1E-02
VANADIUM	2.91E+01	1.41E-01	1.45E-01	1.15E-02	1.56E-01	3.44E-01	1.69E+00	4.5E-01	9.3E-02
ZINC	3.70E+01	3.57E+01	1.83E-01	2.90E+00	3.09E+00	6.61E+01	1.71E+02	4.7E-02	1.8E-02
PESTICIDES									
ALPHA-BHC	2.51E-04	6.06E-05	1.25E-06	4.93E-06	6.17E-06	5.60E-01	2.25E+00	1.1E-05	2.7E-06
GAMMA-BHC (LINDANE)	3.36E-04	8.99E-05	1.67E-06	7.32E-06	8.98E-06	2.00E+00	2.00E+01	4.5E-06	4.5E-07
GAMMA-CHLORDANE	4.48E-04	4.25E-06	2.22E-06	3.46E-07	2.57E-06	2.14E+00	1.07E+01	1.2E-06	2.4E-07
METHOXYCHLOR	2.57E-04	1.12E-05	1.28E-06	9.13E-07	2.19E-06	NV	NV	NV	NV
POLYCYCLIC AROMATIC HYDROCARBONS									
ACENAPHTHENE	3.94E-03	4.38E-01	1.96E-05	3.57E-02	3.57E-02	2.00E+00	2.00E+01	1.8E-02	1.8E-03
ACENAPHTHYLENE	9.93E-03	8.29E-03	4.93E-05	6.75E-04	7.24E-04	2.00E+00	2.00E+01	3.6E-04	3.6E-05
ANTHRACENE	8.61E-03	9.18E-03	4.27E-05	7.47E-04	7.90E-04	2.00E+00	2.00E+01	3.9E-04	3.9E-05
BENZO(A)ANTHRACENE	4.22E-02	1.02E-02	2.10E-04	8.27E-04	1.04E-03	2.00E+00	2.00E+01	5.2E-04	5.2E-05
BENZO(A)PYRENE	4.49E-02	6.18E-03	2.23E-04	5.02E-04	7.25E-04	2.00E+00	2.00E+01	3.6E-04	3.6E-05
BENZO(B)FLUORANTHENE	5.99E-02	1.86E-02	2.97E-04	1.51E-03	1.81E-03	2.00E+00	2.00E+01	9.0E-04	9.0E-05
BENZO(G,H,I)PERYLENE	3.35E-02	7.09E-03	1.66E-04	5.77E-04	7.43E-04	2.00E+00	2.00E+01	3.7E-04	3.7E-05
BENZO(K)FLUORANTHENE	2.76E-02	5.28E-03	1.37E-04	4.30E-04	5.66E-04	2.00E+00	2.00E+01	2.8E-04	2.8E-05
CHRYSENE	5.39E-02	1.18E-02	2.68E-04	9.56E-04	1.22E-03	2.00E+00	2.00E+01	6.1E-04	6.1E-05
DIBENZO(A,H)ANTHRACENE	1.12E-02	1.46E-03	5.57E-05	1.19E-04	1.74E-04	2.00E+00	2.00E+01	8.7E-05	8.7E-06
FLUORANTHENE	7.71E-02	3.85E-02	3.82E-04	3.13E-03	3.52E-03	2.00E+00	2.00E+01	1.8E-03	1.8E-04
FLUORENE	4.08E-03	4.25E-01	2.03E-05	3.46E-02	3.46E-02	2.00E+00	2.00E+01	1.7E-02	1.7E-03
INDENO(1,2,3-CD)PYRENE	2.71E-02	2.98E-03	1.35E-04	2.43E-04	3.77E-04	2.00E+00	2.00E+01	1.9E-04	1.9E-05
PHENANTHRENE	4.01E-02	1.15E-01	1.99E-04	9.37E-03	9.57E-03	2.00E+00	2.00E+01	4.8E-03	4.8E-04
PYRENE	6.54E-02	4.71E-02	3.25E-04	3.83E-03	4.16E-03	2.00E+00	2.00E+01	2.1E-03	2.1E-04

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	1.77E-01	kg
Food Ingestion Rate = (If)	1.44E-02	kg/day
Soil Ingestion Rate = (Is)	8.78E-04	kg/day
Home Range = (HR)	2.86E+01	acres
Contaminated Area = (CA)	Assume equal to home range	

Dose (soil) = (Cs * Is)(H)/BW
Dose (vegetation) = (Cv * If)(H)/BW

Cv = Contaminant concentration in vegetation
Cs = Contaminant concentration in soil
Total Dose = Dose (soil) + Dose (vegetation)
H=CA/HR (Assume = to 1)

Conc = Concentration
LOAEL = Lowest Observed Adverse Effects Concentration
NOAEL = No Observed Adverse Effects Concentration
NV = No Value

APPENDIX H

SHORT-TAILED SHREW - TIER 1 INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION - SURFACE SOIL, SWMU 11
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Chemical	Max Soil Conc. (mg/kg)	Invertebrate Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Dose (mg/kg/d) from: Invert.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	Hazard Quotients LOAEL
DIOXINS/FURANS									
2,3,7,8-TCDD Equivalents (mammal)	1.99E-05	4.42E-04	1.01E-07	7.51E-05	7.52E-05	1.00E-06	1.00E-05	7.5E+01	7.5E+00
2,3,7,8-TCDD Equivalents (bird)	1.04E-05	2.31E-04	5.30E-08	3.92E-05	3.93E-05	1.00E-06	1.00E-05	3.9E+01	3.9E+00
METALS									
LEAD	2.77E+01	1.17E+01	1.41E-01	1.99E+00	2.14E+00	4.70E+00	3.02E+01	4.5E-01	7.1E-02
MERCURY	6.45E-02	4.29E-01	3.29E-04	7.30E-02	7.33E-02	3.20E-02	1.60E-01	2.3E+00	4.6E-01
SELENIUM	6.70E-01	6.92E-01	3.42E-03	1.18E-01	1.21E-01	1.43E-01	6.61E-01	8.5E-01	1.8E-01
VANADIUM	3.96E+01	1.66E+00	2.02E-01	2.83E-01	4.85E-01	4.16E+00	9.44E+00	1.2E-01	5.1E-02
ZINC	4.69E+01	3.02E+02	2.39E-01	5.14E+01	5.16E+01	7.54E+01	2.98E+02	6.8E-01	1.7E-01
PESTICIDES									
ALPHA-BHC	9.30E-04	9.30E-04	4.74E-06	1.58E-04	1.63E-04	1.40E-02	1.40E-01	1.2E-02	1.2E-03
GAMMA-BHC (LINDANE)	2.27E-03	4.09E-02	1.16E-05	6.94E-03	6.96E-03	8.00E+00	8.00E+01	8.7E-04	8.7E-05
GAMMA-CHLORDANE	1.25E-03	6.25E-03	6.37E-06	1.06E-03	1.07E-03	4.58E+00	9.16E+00	2.3E-04	1.2E-04
METHOXYCHLOR	1.01E-03	1.01E-03	5.15E-06	1.72E-04	1.77E-04	4.00E+00	8.00E+00	4.4E-05	2.2E-05
POLYCYCLIC AROMATIC HYDROCARBONS									
ACENAPHTHENE	1.72E-02	2.53E-02	8.77E-05	4.30E-03	4.39E-03	6.56E+01	3.56E+02	6.7E-05	1.2E-05
ACENAPHTHYLENE	8.69E-02	1.99E+00	4.43E-04	3.38E-01	3.39E-01	6.56E+01	3.56E+02	5.2E-03	9.5E-04
ANTHRACENE	5.23E-02	1.27E-01	2.67E-04	2.15E-02	2.18E-02	6.56E+01	3.56E+02	3.3E-04	6.1E-05
BENZO(A)ANTHRACENE	3.22E-01	5.12E-01	1.64E-03	8.70E-02	8.87E-02	6.15E-01	3.84E+01	1.4E-01	2.3E-03
BENZO(A)PYRENE	3.48E-01	4.63E-01	1.77E-03	7.87E-02	8.04E-02	6.15E-01	3.84E+01	1.3E-01	2.1E-03
BENZO(B)FLUORANTHENE	4.54E-01	1.18E+00	2.31E-03	2.01E-01	2.03E-01	6.15E-01	3.84E+01	3.3E-01	5.3E-03
BENZO(G,H,I)PERYLENE	2.34E-01	6.88E-01	1.19E-03	1.17E-01	1.18E-01	6.15E-01	3.84E+01	1.9E-01	3.1E-03
BENZO(K)FLUORANTHENE	2.02E-01	5.25E-01	1.03E-03	8.93E-02	9.03E-02	6.15E-01	3.84E+01	1.5E-01	2.4E-03
CHRYSENE	4.27E-01	9.78E-01	2.18E-03	1.66E-01	1.68E-01	6.15E-01	3.84E+01	2.7E-01	4.4E-03
DIBENZO(A,H)ANTHRACENE	8.21E-02	1.90E-01	4.19E-04	3.22E-02	3.27E-02	6.15E-01	3.84E+01	5.3E-02	8.5E-04
FLUORANTHENE	4.54E-01	1.38E+00	2.31E-03	2.35E-01	2.37E-01	6.56E+01	3.56E+02	3.6E-03	6.7E-04
FLUORENE	1.61E-02	1.54E-01	8.21E-05	2.62E-02	2.63E-02	6.56E+01	3.56E+02	4.0E-04	7.4E-05
INDENO(1,2,3-CD)PYRENE	1.87E-01	5.35E-01	9.54E-04	9.09E-02	9.19E-02	6.15E-01	3.84E+01	1.5E-01	2.4E-03
PHENANTHRENE	3.01E-01	5.18E-01	1.53E-03	8.80E-02	8.95E-02	6.56E+01	3.56E+02	1.4E-03	2.5E-04
PYRENE	4.17E-01	7.30E-01	2.13E-03	1.24E-01	1.26E-01	6.15E-01	3.84E+01	2.1E-01	3.3E-03

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	1.53E-02	kg	Dose (soil) = (Cs * Is)(H)/BW	Conc = Concentration
Food Ingestion Rate = (If)	2.59E-03	kg/day	Dose (invertebrate) = (Ci * If)(H)/BW	LOAEL = Lowest Observed Adverse Effects Concentration
Soil Ingestion Rate = (Is)	7.78E-05	kg/day		NOAEL = No Observed Adverse Effects Concentration
Home Range = (HR)	Assume 100% on site		Ci = Contaminant concentration in invertebrate	
Contaminated Area = (CA)	Assume equal to home range		Cs = Contaminant concentration in soil	
			Total Dose = Dose (soil) + Dose (vegetation)	
			H=CA/HR (Assume = to 1)	

APPENDIX H

SHORT-TAILED SHREW - TIER 2, STEP 3A INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION - SURFACE SOIL, SWMU 11
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Chemical	Average Soil Conc. (mg/kg)	Invertebrate Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Dose (mg/kg/d) from: Invert.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	Hazard Quotients LOAEL
DIOXINS/FURANS									
2,3,7,8-TCDD Equivalents (mammal)	4.21E-06	4.63E-05	3.70E-09	4.53E-06	4.53E-06	1.00E-06	1.00E-05	4.5E+00	4.5E-01
2,3,7,8-TCDD Equivalents (bird)	5.73E-06	6.30E-05	5.03E-09	6.15E-06	6.16E-06	1.00E-06	1.00E-05	6.2E+00	6.2E-01
METALS									
LEAD	1.48E+01	7.06E+00	1.30E-02	6.90E-01	7.03E-01	4.70E+00	3.02E+01	1.5E-01	2.3E-02
MERCURY	4.28E-02	3.74E-01	3.76E-05	3.65E-02	3.66E-02	3.20E-02	1.60E-01	1.1E+00	2.3E-01
SELENIUM	3.96E-01	4.71E-01	3.48E-04	4.60E-02	4.63E-02	1.43E-01	6.61E-01	3.2E-01	7.0E-02
VANADIUM	2.91E+01	1.22E+00	2.56E-02	1.20E-01	1.45E-01	4.16E+00	9.44E+00	3.5E-02	1.5E-02
ZINC	3.70E+01	2.80E+02	3.25E-02	2.73E+01	2.73E+01	7.54E+01	2.98E+02	3.6E-01	9.2E-02
PESTICIDES									
ALPHA-BHC	2.51E-04	2.51E-04	2.21E-07	2.45E-05	2.48E-05	1.40E-02	1.40E-01	1.8E-03	1.8E-04
GAMMA-BHC (LINDANE)	3.36E-04	6.04E-03	2.95E-07	5.90E-04	5.90E-04	8.00E+00	8.00E+01	7.4E-05	7.4E-06
GAMMA-CHLORDANE	4.48E-04	2.24E-03	3.94E-07	2.19E-04	2.19E-04	4.58E+00	9.16E+00	4.8E-05	2.4E-05
METHOXYCHLOR	2.57E-04	2.57E-04	2.26E-07	2.52E-05	2.54E-05	4.00E+00	8.00E+00	6.3E-06	3.2E-06
POLYCYCLIC AROMATIC HYDROCARBONS									
ACENAPHTHENE	3.94E-03	5.79E-03	3.46E-06	5.66E-04	5.69E-04	6.56E+01	3.56E+02	8.7E-06	1.6E-06
ACENAPHTHYLENE	9.93E-03	2.27E-01	8.73E-06	2.22E-02	2.22E-02	6.56E+01	3.56E+02	3.4E-04	6.2E-05
ANTHRACENE	8.61E-03	2.08E-02	7.57E-06	2.03E-03	2.04E-03	6.56E+01	3.56E+02	3.1E-05	5.7E-06
BENZO(A)ANTHRACENE	4.22E-02	6.72E-02	3.71E-05	6.56E-03	6.60E-03	6.15E-01	3.84E+01	1.1E-02	1.7E-04
BENZO(A)PYRENE	4.49E-02	5.97E-02	3.95E-05	5.83E-03	5.87E-03	6.15E-01	3.84E+01	9.5E-03	1.5E-04
BENZO(B)FLUORANTHENE	5.99E-02	1.56E-01	5.27E-05	1.52E-02	1.53E-02	6.15E-01	3.84E+01	2.5E-02	4.0E-04
BENZO(G,H,I)PERYLENE	3.35E-02	9.84E-02	2.94E-05	9.61E-03	9.64E-03	6.15E-01	3.84E+01	1.6E-02	2.5E-04
BENZO(K)FLUORANTHENE	2.76E-02	7.17E-02	2.43E-05	7.01E-03	7.03E-03	6.15E-01	3.84E+01	1.1E-02	1.8E-04
CHRYSENE	5.39E-02	1.23E-01	4.74E-05	1.21E-02	1.21E-02	6.15E-01	3.84E+01	2.0E-02	3.2E-04
DIBENZO(A,H)ANTHRACENE	1.12E-02	2.59E-02	9.87E-06	2.53E-03	2.54E-03	6.15E-01	3.84E+01	4.1E-03	6.6E-05
FLUORANTHENE	7.71E-02	2.34E-01	6.78E-05	2.29E-02	2.30E-02	6.56E+01	3.56E+02	3.5E-04	6.4E-05
FLUORENE	4.08E-03	3.91E-02	3.59E-06	3.82E-03	3.82E-03	6.56E+01	3.56E+02	5.8E-05	1.1E-05
INDENO(1,2,3-CD)PYRENE	2.71E-02	7.75E-02	2.38E-05	7.57E-03	7.60E-03	6.15E-01	3.84E+01	1.2E-02	2.0E-04
PHENANTHRENE	4.01E-02	6.91E-02	3.53E-05	6.75E-03	6.78E-03	6.56E+01	3.56E+02	1.0E-04	1.9E-05
PYRENE	6.54E-02	1.14E-01	5.75E-05	1.12E-02	1.12E-02	6.15E-01	3.84E+01	1.8E-02	2.9E-04

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	1.69E-02	kg
Food Ingestion Rate = (If)	1.65E-03	kg/day
Soil Ingestion Rate = (Is)	1.48E-05	kg/day
Home Range = (HR)	9.70E-01	acres
Contaminated Area = (CA)	Assume equal to home range	

Dose (soil) = (Cs * Is)(H)/BW
Dose (invertebrate) = (Ci * If)(H)/BW

Ci = Contaminant concentration in invertebrate
Cs = Contaminant concentration in soil
Total Dose = Dose (soil) + Dose (vegetation)
H=CA/HR (Assume = to 1)

Conc = Concentration
LOAEL = Lowest Observed Adverse Effects Concentration
NOAEL = No Observed Adverse Effects Concentration

APPENDIX H

AMERICAN WOODCOCK - TIER 1 INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION - SURFACE SOIL, SWMU 11
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Chemical	Max Soil Conc. (mg/kg)	Invertebrate Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Dose (mg/kg/d) from: Invert.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	Hazard Quotients LOAEL
DIOXINS/FURANS									
2,3,7,8-TCDD Equivalents (mammal)	1.99E-05	4.42E-04	5.96E-07	8.07E-05	8.13E-05	1.40E-05	1.40E-04	5.8E+00	5.8E-01
2,3,7,8-TCDD Equivalents (bird)	1.04E-05	2.31E-04	3.11E-07	4.21E-05	4.25E-05	1.40E-05	1.40E-04	3.0E+00	3.0E-01
METALS									
LEAD	2.77E+01	1.17E+01	8.30E-01	2.14E+00	2.97E+00	1.63E+00	9.70E+00	1.8E+00	3.1E-01
MERCURY	6.45E-02	4.29E-01	1.93E-03	7.84E-02	8.04E-02	6.40E-03	6.40E-02	1.3E+01	1.3E+00
SELENIUM	6.70E-01	6.92E-01	2.01E-02	1.26E-01	1.46E-01	2.90E-01	8.19E-01	5.0E-01	1.8E-01
VANADIUM	3.96E+01	1.66E+00	1.19E+00	3.04E-01	1.49E+00	3.44E-01	1.69E+00	4.3E+00	8.8E-01
ZINC	4.69E+01	3.02E+02	1.40E+00	5.52E+01	5.66E+01	6.61E+01	1.71E+02	8.6E-01	3.3E-01
PESTICIDES									
ALPHA-BHC	9.30E-04	9.30E-04	2.79E-05	1.70E-04	1.98E-04	5.60E-01	2.25E+00	3.5E-04	8.8E-05
GAMMA-BHC (LINDANE)	2.27E-03	4.09E-02	6.80E-05	7.46E-03	7.53E-03	2.00E+00	2.00E+01	3.8E-03	3.8E-04
GAMMA-CHLORDANE	1.25E-03	6.25E-03	3.74E-05	1.14E-03	1.18E-03	2.14E+00	1.07E+01	5.5E-04	1.1E-04
METHOXYCHLOR	1.01E-03	1.01E-03	3.03E-05	1.84E-04	2.15E-04	NV	NV	NV	NV
POLYCYCLIC AROMATIC HYDROCARBONS									
ACENAPHTHENE	1.72E-02	2.53E-02	5.15E-04	4.62E-03	5.13E-03	2.00E+00	2.00E+01	2.6E-03	2.6E-04
ACENAPHTHYLENE	8.69E-02	1.99E+00	2.60E-03	3.63E-01	3.66E-01	2.00E+00	2.00E+01	1.8E-01	1.8E-02
ANTHRACENE	5.23E-02	1.27E-01	1.57E-03	2.31E-02	2.47E-02	2.00E+00	2.00E+01	1.2E-02	1.2E-03
BENZO(A)ANTHRACENE	3.22E-01	5.12E-01	9.65E-03	9.35E-02	1.03E-01	2.00E+00	2.00E+01	5.2E-02	5.2E-03
BENZO(A)PYRENE	3.48E-01	4.63E-01	1.04E-02	8.45E-02	9.50E-02	2.00E+00	2.00E+01	4.7E-02	4.7E-03
BENZO(B)FLUORANTHENE	4.54E-01	1.18E+00	1.36E-02	2.16E-01	2.29E-01	2.00E+00	2.00E+01	1.1E-01	1.1E-02
BENZO(G,H,I)PERYLENE	2.34E-01	6.88E-01	7.01E-03	1.26E-01	1.33E-01	2.00E+00	2.00E+01	6.6E-02	6.6E-03
BENZO(K)FLUORANTHENE	2.02E-01	5.25E-01	6.05E-03	9.59E-02	1.02E-01	2.00E+00	2.00E+01	5.1E-02	5.1E-03
CHRYSENE	4.27E-01	9.78E-01	1.28E-02	1.79E-01	1.91E-01	2.00E+00	2.00E+01	9.6E-02	9.6E-03
DIBENZO(A,H)ANTHRACENE	8.21E-02	1.90E-01	2.46E-03	3.46E-02	3.71E-02	2.00E+00	2.00E+01	1.9E-02	1.9E-03
FLUORANTHENE	4.54E-01	1.38E+00	1.36E-02	2.52E-01	2.66E-01	2.00E+00	2.00E+01	1.3E-01	1.3E-02
FLUORENE	1.61E-02	1.54E-01	4.82E-04	2.81E-02	2.86E-02	2.00E+00	2.00E+01	1.4E-02	1.4E-03
INDENO(1,2,3-CD)PYRENE	1.87E-01	5.35E-01	5.60E-03	9.77E-02	1.03E-01	2.00E+00	2.00E+01	5.2E-02	5.2E-03
PHENANTHRENE	3.01E-01	5.18E-01	9.02E-03	9.46E-02	1.04E-01	2.00E+00	2.00E+01	5.2E-02	5.2E-03
PYRENE	4.17E-01	7.30E-01	1.25E-02	1.33E-01	1.46E-01	2.00E+00	2.00E+01	7.3E-02	7.3E-03

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	1.66E-01	kg	Dose (soil) = (Cs * Is)(H)/BW	Conc = Concentration
Food Ingestion Rate = (If)	3.03E-02	kg/day	Dose (invertebrate) = (Ci * If)(H)/BW	LOAEL = Lowest Observed Adverse Effects Concentration
Soil Ingestion Rate = (Is)	4.97E-03	kg/day		NOAEL = No Observed Adverse Effects Concentration
Home Range = (HR)	Assume 100% on site		Ci = Contaminant concentration in invertebrate	NV = No Value
Contaminated Area = (CA)	Assume equal to home range		Cs = Contaminant concentration in soil	
			Total Dose = Dose (soil) + Dose (vegetation)	

APPENDIX H

AMERICAN WOODCOCK - TIER 2, STEP 3A INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION - SURFACE SOIL, SWMU 11
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Chemical	Average Soil Conc. (mg/kg)	Invertebrate Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Dose (mg/kg/d) from: Invert.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	Hazard Quotients LOAEL
DIOXINS/FURANS									
2,3,7,8-TCDD Equivalents (mammal)	4.21E-06	4.63E-05	3.59E-08	6.18E-06	6.21E-06	1.40E-05	1.40E-04	4.4E-01	4.4E-02
2,3,7,8-TCDD Equivalents (bird)	5.73E-06	6.30E-05	4.89E-08	8.40E-06	8.45E-06	1.40E-05	1.40E-04	6.0E-01	6.0E-02
METALS									
LEAD	1.48E+01	7.06E+00	1.26E-01	9.42E-01	1.07E+00	1.63E+00	9.70E+00	6.6E-01	1.1E-01
MERCURY	4.28E-02	3.74E-01	3.65E-04	4.99E-02	5.02E-02	6.40E-03	6.40E-02	7.8E+00	7.8E-01
SELENIUM	3.96E-01	4.71E-01	3.38E-03	6.28E-02	6.61E-02	2.90E-01	8.19E-01	2.3E-01	8.1E-02
VANADIUM	2.91E+01	1.22E+00	2.49E-01	1.63E-01	4.12E-01	3.44E-01	1.69E+00	1.2E+00	2.4E-01
ZINC	3.70E+01	2.80E+02	3.15E-01	3.73E+01	3.76E+01	6.61E+01	1.71E+02	5.7E-01	2.2E-01
PESTICIDES									
ALPHA-BHC	2.51E-04	2.51E-04	2.14E-06	3.35E-05	3.56E-05	5.60E-01	2.25E+00	6.4E-05	1.6E-05
GAMMA-BHC (LINDANE)	3.36E-04	6.04E-03	2.86E-06	8.05E-04	8.08E-04	2.00E+00	2.00E+01	4.0E-04	4.0E-05
GAMMA-CHLORDANE	4.48E-04	2.24E-03	3.82E-06	2.98E-04	3.02E-04	2.14E+00	1.07E+01	1.4E-04	2.8E-05
METHOXYCHLOR	2.57E-04	2.57E-04	2.20E-06	3.43E-05	3.65E-05	NV	NV	NV	NV
POLYCYCLIC AROMATIC HYDROCARBONS									
ACENAPHTHENE	3.94E-03	5.79E-03	3.36E-05	7.72E-04	8.06E-04	2.00E+00	2.00E+01	4.0E-04	4.0E-05
ACENAPHTHYLENE	9.93E-03	2.27E-01	8.47E-05	3.03E-02	3.04E-02	2.00E+00	2.00E+01	1.5E-02	1.5E-03
ANTHRACENE	8.61E-03	2.08E-02	7.34E-05	2.78E-03	2.85E-03	2.00E+00	2.00E+01	1.4E-03	1.4E-04
BENZO(A)ANTHRACENE	4.22E-02	6.72E-02	3.60E-04	8.96E-03	9.32E-03	2.00E+00	2.00E+01	4.7E-03	4.7E-04
BENZO(A)PYRENE	4.49E-02	5.97E-02	3.83E-04	7.96E-03	8.34E-03	2.00E+00	2.00E+01	4.2E-03	4.2E-04
BENZO(B)FLUORANTHENE	5.99E-02	1.56E-01	5.11E-04	2.08E-02	2.13E-02	2.00E+00	2.00E+01	1.1E-02	1.1E-03
BENZO(G,H,I)PERYLENE	3.35E-02	9.84E-02	2.86E-04	1.31E-02	1.34E-02	2.00E+00	2.00E+01	6.7E-03	6.7E-04
BENZO(K)FLUORANTHENE	2.76E-02	7.17E-02	2.35E-04	9.56E-03	9.80E-03	2.00E+00	2.00E+01	4.9E-03	4.9E-04
CHRYSENE	5.39E-02	1.23E-01	4.60E-04	1.65E-02	1.69E-02	2.00E+00	2.00E+01	8.5E-03	8.5E-04
DIBENZO(A,H)ANTHRACENE	1.12E-02	2.59E-02	9.58E-05	3.46E-03	3.55E-03	2.00E+00	2.00E+01	1.8E-03	1.8E-04
FLUORANTHENE	7.71E-02	2.34E-01	6.58E-04	3.12E-02	3.19E-02	2.00E+00	2.00E+01	1.6E-02	1.6E-03
FLUORENE	4.08E-03	3.91E-02	3.48E-05	5.21E-03	5.24E-03	2.00E+00	2.00E+01	2.6E-03	2.6E-04
INDENO(1,2,3-CD)PYRENE	2.71E-02	7.75E-02	2.31E-04	1.03E-02	1.06E-02	2.00E+00	2.00E+01	5.3E-03	5.3E-04
PHENANTHRENE	4.01E-02	6.91E-02	3.43E-04	9.21E-03	9.55E-03	2.00E+00	2.00E+01	4.8E-03	4.8E-04
PYRENE	6.54E-02	1.14E-01	5.58E-04	1.53E-02	1.58E-02	2.00E+00	2.00E+01	7.9E-03	7.9E-04

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	1.90E-01	kg
Food Ingestion Rate = (If)	2.53E-02	kg/day
Soil Ingestion Rate = (Is)	1.62E-03	kg/day
Home Range = (HR)	6.13E+01	acres
Contaminated Area = (CA)	Assume equal to home range	

Dose (soil) = (Cs * Is)(H)/BW
Dose (invertebrate) = (Ci * If)(H)/BW

Ci = Contaminant concentration in invertebrate
Cs = Contaminant concentration in soil
Total Dose = Dose (soil) + Dose (vegetation)

Conc = Concentration
LOAEL = Lowest Observed Adverse Effects Concentration
NOAEL = No Observed Adverse Effects Concentration
NV = No Value

APPENDIX H

CHEMICAL CONCENTRATIONS IN SURFACE SOIL AND TISSUE - IA-6
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Chemical	Surface Soil Concentrations (mg/kg)				Earthworm Bioaccumulation Factors		Earthworm Concentrations (mg/kg)		Plant Bioaccumulation Factors		Plant Concentrations (mg/kg)	
	Maximum Detection	Average of All Results	Average of Positive Results	Average [1]	Conservative	Average	Maximum Detection	Average	Conservative	Average	Maximum Detection	Average
METALS												
LEAD	1.92E+01	1.31E+01	1.31E+01	1.31E+01	Regression equation from Eco SSL		8.73E+00	6.40E+00	Regression equation from Eco SSL		1.39E+00	1.12E+00
MERCURY	4.48E-02	3.07E-02	3.42E-02	3.07E-02	Regression - Sample et al., (1998)		3.80E-01	3.34E-01	5.00E+00	6.52E-01	2.24E-01	2.00E-02
VANADIUM	3.60E+01	2.50E+01	2.50E+01	2.50E+01	4.20E-02	4.20E-02	1.51E+00	1.05E+00	4.85E-03	4.85E-03	1.75E-01	1.21E-01
ZINC	5.02E+01	4.28E+01	4.28E+01	4.28E+01	Regression equation from Eco SSL		3.09E+02	2.93E+02	Regression equation from Eco SSL		4.23E+01	3.87E+01
POLYCYCLIC AROMATIC HYDROCARBONS												
ACENAPHTHENE	2.57E-03	2.17E-03	2.57E-03	2.17E-03	1.47E+00	1.47E+00	3.78E-03	3.19E-03	Regression equation from Eco SSL		6.32E-01	7.30E-01
ACENAPHTHYLENE	2.08E-02	1.44E-02	1.44E-02	1.44E-02	2.29E+01	2.29E+01	4.76E-01	3.31E-01	Regression equation from Eco SSL		1.49E-02	1.12E-02
ANTHRACENE	1.83E-02	1.15E-02	1.47E-02	1.15E-02	2.42E+00	2.42E+00	4.43E-02	2.79E-02	Regression equation from Eco SSL		1.65E-02	1.15E-02
BENZO(A)ANTHRACENE	1.07E-01	6.34E-02	6.34E-02	6.34E-02	1.59E+00	1.59E+00	1.70E-01	1.01E-01	Regression equation from Eco SSL		1.77E-02	1.29E-02
BENZO(A)PYRENE	1.30E-01	8.21E-02	8.21E-02	8.21E-02	1.33E+00	1.33E+00	1.73E-01	1.09E-01	Regression equation from Eco SSL		1.74E-02	1.11E-02
BENZO(B)FLUORANTHENE	1.70E-01	1.06E-01	1.06E-01	1.06E-01	2.60E+00	2.60E+00	4.42E-01	2.75E-01	3.10E-01	3.10E-01	5.27E-02	3.28E-02
BENZO(G,H,I)PERYLENE	1.04E-01	6.82E-02	6.82E-02	6.82E-02	2.94E+00	2.94E+00	3.06E-01	2.00E-01	Regression equation from Eco SSL		2.71E-02	1.64E-02
BENZO(K)FLUORANTHENE	6.42E-02	4.24E-02	4.24E-02	4.24E-02	2.60E+00	2.60E+00	1.67E-01	1.10E-01	Regression equation from Eco SSL		1.09E-02	7.64E-03
CHRYSENE	1.36E-01	8.40E-02	8.40E-02	8.40E-02	2.29E+00	2.29E+00	3.11E-01	1.92E-01	Regression equation from Eco SSL		2.04E-02	1.53E-02
DIBENZO(A,H)ANTHRACENE	3.08E-02	1.77E-02	2.29E-02	1.77E-02	2.31E+00	2.31E+00	7.11E-02	4.10E-02	1.30E-01	1.30E-01	4.00E-03	2.31E-03
FLUORANTHENE	2.21E-01	1.13E-01	1.13E-01	1.13E-01	3.04E+00	3.04E+00	6.72E-01	3.43E-01	5.00E-01	5.00E-01	1.11E-01	5.64E-02
FLUORENE	3.93E-03	2.83E-03	3.59E-03	2.83E-03	9.57E+00	9.57E+00	3.76E-02	2.71E-02	Regression equation from Eco SSL		4.39E-01	5.81E-01
INDENO(1,2,3-CD)PYRENE	7.94E-02	5.15E-02	5.15E-02	5.15E-02	2.86E+00	2.86E+00	2.27E-01	1.47E-01	1.10E-01	1.10E-01	8.73E-03	5.66E-03
PHENANTHRENE	7.27E-02	3.89E-02	3.89E-02	3.89E-02	1.72E+00	1.72E+00	1.25E-01	6.69E-02	Regression equation from Eco SSL		1.67E-01	1.13E-01
PYRENE	1.98E-01	1.09E-01	1.09E-01	1.09E-01	1.75E+00	1.75E+00	3.47E-01	1.91E-01	7.20E-01	7.20E-01	1.43E-01	7.84E-02

1 - Average concentration is the mean concentration of all samples, using 1/2 the detection limit for non-detects, unless the value is greater than the maximum concentration. In that case, the average concentration is the mean of the positive detections.

APPENDIX H

MEADOW VOLE - TIER 1 INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION - SURFACE SOIL, IA-6
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Chemical	Max Soil Conc. (mg/kg)	Vegetation Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Dose (mg/kg/d) from: Veget.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	Hazard Quotients LOAEL
METALS									
LEAD	1.92E+01	1.39E+00	3.59E-02	8.12E-02	1.17E-01	4.70E+00	3.02E+01	2.49E-02	3.87E-03
MERCURY	4.48E-02	2.24E-01	8.37E-05	1.31E-02	1.32E-02	3.20E-02	1.60E-01	4.11E-01	8.22E-02
VANADIUM	3.60E+01	1.75E-01	6.72E-02	1.02E-02	7.74E-02	4.16E+00	9.44E+00	1.86E-02	8.20E-03
ZINC	5.02E+01	4.23E+01	9.37E-02	2.47E+00	2.56E+00	7.54E+01	2.98E+02	3.40E-02	8.61E-03
POLYCYCLIC AROMATIC HYDROCARBONS									
ACENAPHTHENE	2.57E-03	6.32E-01	4.80E-06	3.69E-02	3.69E-02	6.56E+01	3.56E+02	5.62E-04	1.04E-04
ACENAPHTHYLENE	2.08E-02	1.49E-02	3.88E-05	8.69E-04	9.08E-04	6.56E+01	3.56E+02	1.38E-05	2.55E-06
ANTHRACENE	1.83E-02	1.65E-02	3.42E-05	9.64E-04	9.98E-04	6.56E+01	3.56E+02	1.52E-05	2.80E-06
BENZO(A)ANTHRACENE	1.07E-01	1.77E-02	2.00E-04	1.03E-03	1.23E-03	6.15E-01	3.84E+01	2.00E-03	3.20E-05
BENZO(A)PYRENE	1.30E-01	1.74E-02	2.43E-04	1.02E-03	1.26E-03	6.15E-01	3.84E+01	2.05E-03	3.28E-05
BENZO(B)FLUORANTHENE	1.70E-01	5.27E-02	3.17E-04	3.08E-03	3.39E-03	6.15E-01	3.84E+01	5.52E-03	8.84E-05
BENZO(G,H,I)PERYLENE	1.04E-01	2.71E-02	1.94E-04	1.58E-03	1.78E-03	6.15E-01	3.84E+01	2.89E-03	4.62E-05
BENZO(K)FLUORANTHENE	6.42E-02	1.09E-02	1.20E-04	6.37E-04	7.57E-04	6.15E-01	3.84E+01	1.23E-03	1.97E-05
CHRYSENE	1.36E-01	2.04E-02	2.54E-04	1.19E-03	1.44E-03	6.15E-01	3.84E+01	2.35E-03	3.76E-05
DIBENZO(A,H)ANTHRACENE	3.08E-02	4.00E-03	5.75E-05	2.34E-04	2.91E-04	6.15E-01	3.84E+01	4.73E-04	7.58E-06
FLUORANTHENE	2.21E-01	1.11E-01	4.13E-04	6.45E-03	6.86E-03	6.56E+01	3.56E+02	1.05E-04	1.93E-05
FLUORENE	3.93E-03	4.39E-01	7.34E-06	2.56E-02	2.56E-02	6.56E+01	3.56E+02	3.91E-04	7.20E-05
INDENO(1,2,3-CD)PYRENE	7.94E-02	8.73E-03	1.48E-04	5.10E-04	6.58E-04	6.15E-01	3.84E+01	1.07E-03	1.71E-05
PHENANTHRENE	7.27E-02	1.67E-01	1.36E-04	9.72E-03	9.85E-03	6.56E+01	3.56E+02	1.50E-04	2.77E-05
PYRENE	1.98E-01	1.43E-01	3.70E-04	8.32E-03	8.69E-03	6.15E-01	3.84E+01	1.41E-02	2.26E-04

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	3.29E-02	kg
Food Ingestion Rate = (If)	1.92E-03	kg/day
Soil Ingestion Rate = (Is)	6.14E-05	kg/day
Home Range = (HR)	Assume 100% on site	
Contaminated Area = (CA)	Assume equal to home range	

Dose (soil) = (Cs * Is)(H)/BW
Dose (vegetation) = (Cv * If)(H)/BW

Cv = Contaminant concentration in vegetation
Cs = Contaminant concentration in soil
Total Dose = Dose (soil) + Dose (vegetation)
H=CA/HR (Assume = to 1)

Conc = Concentration
LOAEL = Lowest Observed Adverse Effects Concentration
NOAEL = No Observed Adverse Effects Concentration

APPENDIX H

MEADOW VOLE - TIER 2, STEP 3A INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION - SURFACE SOIL, IA-6
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Chemical	Average Soil Conc. (mg/kg)	Vegetation Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Dose (mg/kg/d) from: Veget.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	Hazard Quotients LOAEL
METALS									
LEAD	1.31E+01	1.12E+00	7.65E-03	5.46E-02	6.23E-02	4.70E+00	3.02E+01	1.33E-02	2.06E-03
MERCURY	3.07E-02	2.00E-02	1.80E-05	9.75E-04	9.93E-04	3.20E-02	1.60E-01	3.10E-02	6.21E-03
VANADIUM	2.50E+01	1.21E-01	1.46E-02	5.90E-03	2.05E-02	4.16E+00	9.44E+00	4.93E-03	2.17E-03
ZINC	4.28E+01	3.87E+01	2.50E-02	1.89E+00	1.91E+00	7.54E+01	2.98E+02	2.53E-02	6.42E-03
POLYCYCLIC AROMATIC HYDROCARBONS									
ACENAPHTHENE	2.17E-03	7.30E-01	1.27E-06	3.56E-02	3.56E-02	6.56E+01	3.56E+02	5.43E-04	1.00E-04
ACENAPHTHYLENE	1.44E-02	1.12E-02	8.45E-06	5.44E-04	5.52E-04	6.56E+01	3.56E+02	8.42E-06	1.55E-06
ANTHRACENE	1.15E-02	1.15E-02	6.74E-06	5.62E-04	5.69E-04	6.56E+01	3.56E+02	8.67E-06	1.60E-06
BENZO(A)ANTHRACENE	6.34E-02	1.29E-02	3.70E-05	6.30E-04	6.67E-04	6.15E-01	3.84E+01	1.09E-03	1.74E-05
BENZO(A)PYRENE	8.21E-02	1.11E-02	4.80E-05	5.42E-04	5.90E-04	6.15E-01	3.84E+01	9.59E-04	1.54E-05
BENZO(B)FLUORANTHENE	1.06E-01	3.28E-02	6.19E-05	1.60E-03	1.66E-03	6.15E-01	3.84E+01	2.70E-03	4.32E-05
BENZO(G,H,I)PERYLENE	6.82E-02	1.64E-02	3.99E-05	8.01E-04	8.41E-04	6.15E-01	3.84E+01	1.37E-03	2.19E-05
BENZO(K)FLUORANTHENE	4.24E-02	7.64E-03	2.48E-05	3.72E-04	3.97E-04	6.15E-01	3.84E+01	6.45E-04	1.03E-05
CHRYSENE	8.40E-02	1.53E-02	4.91E-05	7.45E-04	7.94E-04	6.15E-01	3.84E+01	1.29E-03	2.07E-05
DIBENZO(A,H)ANTHRACENE	1.77E-02	2.31E-03	1.04E-05	1.12E-04	1.23E-04	6.15E-01	3.84E+01	2.00E-04	3.20E-06
FLUORANTHENE	1.13E-01	5.64E-02	6.59E-05	2.75E-03	2.81E-03	6.56E+01	3.56E+02	4.29E-05	7.90E-06
FLUORENE	2.83E-03	5.81E-01	1.66E-06	2.83E-02	2.83E-02	6.56E+01	3.56E+02	4.32E-04	7.96E-05
INDENO(1,2,3-CD)PYRENE	5.15E-02	5.66E-03	3.01E-05	2.76E-04	3.06E-04	6.15E-01	3.84E+01	4.97E-04	7.97E-06
PHENANTHRENE	3.89E-02	1.13E-01	2.27E-05	5.50E-03	5.53E-03	6.56E+01	3.56E+02	8.43E-05	1.55E-05
PYRENE	1.09E-01	7.84E-02	6.37E-05	3.82E-03	3.89E-03	6.15E-01	3.84E+01	6.32E-03	1.01E-04

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	3.66E-02	kg
Food Ingestion Rate = (If)	1.79E-03	kg/day
Soil Ingestion Rate = (Is)	2.14E-05	kg/day
Home Range = (HR)	1.64E-01	acres
Contaminated Area = (CA)	Assume equal to home range	

Dose (soil) = (Cs * Is)(H)/BW
Dose (vegetation) = (Cv * If)(H)/BW

Cv = Contaminant concentration in vegetation
Cs = Contaminant concentration in soil
Total Dose = Dose (soil) + Dose (vegetation)
H=CA/HR (Assume = to 1)

Conc = Concentration
LOAEL = Lowest Observed Adverse Effects Concentration
NOAEL = No Observed Adverse Effects Concentration

APPENDIX H

BOBWHITE QUAIL - TIER 1 INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION - SURFACE SOIL, IA-6
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Chemical	Max Soil Conc. (mg/kg)	Vegetation Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Dose (mg/kg/d) from: Veget.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	Hazard Quotients LOAEL
METALS									
LEAD	1.92E+01	1.39E+00	2.70E-01	1.41E-01	4.11E-01	1.63E+00	9.70E+00	2.5E-01	4.2E-02
MERCURY	4.48E-02	2.24E-01	6.30E-04	2.27E-02	2.33E-02	6.40E-03	6.40E-02	3.6E+00	3.6E-01
VANADIUM	3.60E+01	1.75E-01	5.07E-01	1.77E-02	5.24E-01	3.44E-01	1.69E+00	1.5E+00	3.1E-01
ZINC	5.02E+01	4.23E+01	7.06E-01	4.28E+00	4.99E+00	6.61E+01	1.71E+02	7.5E-02	2.9E-02
POLYCYCLIC AROMATIC HYDROCARBONS									
ACENAPHTHENE	2.57E-03	6.32E-01	3.62E-05	6.40E-02	6.40E-02	2.00E+00	2.00E+01	3.2E-02	3.2E-03
ACENAPHTHYLENE	2.08E-02	1.49E-02	2.93E-04	1.51E-03	1.80E-03	2.00E+00	2.00E+01	9.0E-04	9.0E-05
ANTHRACENE	1.83E-02	1.65E-02	2.58E-04	1.67E-03	1.93E-03	2.00E+00	2.00E+01	9.7E-04	9.7E-05
BENZO(A)ANTHRACENE	1.07E-01	1.77E-02	1.51E-03	1.79E-03	3.29E-03	2.00E+00	2.00E+01	1.6E-03	1.6E-04
BENZO(A)PYRENE	1.30E-01	1.74E-02	1.83E-03	1.76E-03	3.59E-03	2.00E+00	2.00E+01	1.8E-03	1.8E-04
BENZO(B)FLUORANTHENE	1.70E-01	5.27E-02	2.39E-03	5.34E-03	7.73E-03	2.00E+00	2.00E+01	3.9E-03	3.9E-04
BENZO(G,H,I)PERYLENE	1.04E-01	2.71E-02	1.46E-03	2.74E-03	4.21E-03	2.00E+00	2.00E+01	2.1E-03	2.1E-04
BENZO(K)FLUORANTHENE	6.42E-02	1.09E-02	9.03E-04	1.10E-03	2.01E-03	2.00E+00	2.00E+01	1.0E-03	1.0E-04
CHRYSENE	1.36E-01	2.04E-02	1.91E-03	2.06E-03	3.98E-03	2.00E+00	2.00E+01	2.0E-03	2.0E-04
DIBENZO(A,H)ANTHRACENE	3.08E-02	4.00E-03	4.33E-04	4.05E-04	8.39E-04	2.00E+00	2.00E+01	4.2E-04	4.2E-05
FLUORANTHENE	2.21E-01	1.11E-01	3.11E-03	1.12E-02	1.43E-02	2.00E+00	2.00E+01	7.1E-03	7.1E-04
FLUORENE	3.93E-03	4.39E-01	5.53E-05	4.45E-02	4.45E-02	2.00E+00	2.00E+01	2.2E-02	2.2E-03
INDENO(1,2,3-CD)PYRENE	7.94E-02	8.73E-03	1.12E-03	8.84E-04	2.00E-03	2.00E+00	2.00E+01	1.0E-03	1.0E-04
PHENANTHRENE	7.27E-02	1.67E-01	1.02E-03	1.69E-02	1.79E-02	2.00E+00	2.00E+01	8.9E-03	8.9E-04
PYRENE	1.98E-01	1.43E-01	2.79E-03	1.44E-02	1.72E-02	2.00E+00	2.00E+01	8.6E-03	8.6E-04

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	1.62E-01	kg
Food Ingestion Rate = (If)	1.64E-02	kg/day
Soil Ingestion Rate = (Is)	2.28E-03	kg/day
Home Range = (HR)	Assume 100% on site	
Contaminated Area = (CA)	Assume equal to home range	

Dose (soil) = (Cs * Is)(H)/BW
Dose (vegetation) = (Cv * If)(H)/BW

Cv = Contaminant concentration in vegetation
Cs = Contaminant concentration in soil
Total Dose = Dose (soil) + Dose (vegetation)
H=CA/HR (Assume = to 1)

Conc = Concentration
LOAEL = Lowest Observed Adverse Effects Concentration
NOAEL = No Observed Adverse Effects Concentration

APPENDIX H

BOBWHITE QUAIL - TIER 2, STEP 3A INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION - SURFACE SOIL, IA-6
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Chemical	Average Soil Conc. (mg/kg)	Vegetation Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Dose (mg/kg/d) from: Veget.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	Hazard Quotients LOAEL
METALS									
LEAD	1.31E+01	1.12E+00	6.49E-02	9.12E-02	1.56E-01	1.63E+00	9.70E+00	9.6E-02	1.6E-02
MERCURY	3.07E-02	2.00E-02	1.52E-04	1.63E-03	1.78E-03	6.40E-03	6.40E-02	2.8E-01	2.8E-02
VANADIUM	2.50E+01	1.21E-01	1.24E-01	9.85E-03	1.34E-01	3.44E-01	1.69E+00	3.9E-01	7.9E-02
ZINC	4.28E+01	3.87E+01	2.12E-01	3.15E+00	3.36E+00	6.61E+01	1.71E+02	5.1E-02	2.0E-02
POLYCYCLIC AROMATIC HYDROCARBONS									
ACENAPHTHENE	2.17E-03	7.30E-01	1.08E-05	5.94E-02	5.94E-02	2.00E+00	2.00E+01	3.0E-02	3.0E-03
ACENAPHTHYLENE	1.44E-02	1.12E-02	7.17E-05	9.08E-04	9.79E-04	2.00E+00	2.00E+01	4.9E-04	4.9E-05
ANTHRACENE	1.15E-02	1.15E-02	5.72E-05	9.38E-04	9.95E-04	2.00E+00	2.00E+01	5.0E-04	5.0E-05
BENZO(A)ANTHRACENE	6.34E-02	1.29E-02	3.14E-04	1.05E-03	1.37E-03	2.00E+00	2.00E+01	6.8E-04	6.8E-05
BENZO(A)PYRENE	8.21E-02	1.11E-02	4.07E-04	9.05E-04	1.31E-03	2.00E+00	2.00E+01	6.6E-04	6.6E-05
BENZO(B)FLUORANTHENE	1.06E-01	3.28E-02	5.25E-04	2.67E-03	3.19E-03	2.00E+00	2.00E+01	1.6E-03	1.6E-04
BENZO(G,H,I)PERYLENE	6.82E-02	1.64E-02	3.38E-04	1.34E-03	1.67E-03	2.00E+00	2.00E+01	8.4E-04	8.4E-05
BENZO(K)FLUORANTHENE	4.24E-02	7.64E-03	2.10E-04	6.21E-04	8.32E-04	2.00E+00	2.00E+01	4.2E-04	4.2E-05
CHRYSENE	8.40E-02	1.53E-02	4.17E-04	1.24E-03	1.66E-03	2.00E+00	2.00E+01	8.3E-04	8.3E-05
DIBENZO(A,H)ANTHRACENE	1.77E-02	2.31E-03	8.80E-05	1.88E-04	2.76E-04	2.00E+00	2.00E+01	1.4E-04	1.4E-05
FLUORANTHENE	1.13E-01	5.64E-02	5.60E-04	4.59E-03	5.15E-03	2.00E+00	2.00E+01	2.6E-03	2.6E-04
FLUORENE	2.83E-03	5.81E-01	1.41E-05	4.73E-02	4.73E-02	2.00E+00	2.00E+01	2.4E-02	2.4E-03
INDENO(1,2,3-CD)PYRENE	5.15E-02	5.66E-03	2.55E-04	4.60E-04	7.16E-04	2.00E+00	2.00E+01	3.6E-04	3.6E-05
PHENANTHRENE	3.89E-02	1.13E-01	1.93E-04	9.19E-03	9.38E-03	2.00E+00	2.00E+01	4.7E-03	4.7E-04
PYRENE	1.09E-01	7.84E-02	5.41E-04	6.38E-03	6.92E-03	2.00E+00	2.00E+01	3.5E-03	3.5E-04

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	1.77E-01	kg
Food Ingestion Rate = (If)	1.44E-02	kg/day
Soil Ingestion Rate = (Is)	8.78E-04	kg/day
Home Range = (HR)	2.86E+01	acres
Contaminated Area = (CA)	Assume equal to home range	

Dose (soil) = (Cs * Is)(H)/BW
Dose (vegetation) = (Cv * If)(H)/BW

Cv = Contaminant concentration in vegetation
Cs = Contaminant concentration in soil
Total Dose = Dose (soil) + Dose (vegetation)
H=CA/HR (Assume = to 1)

Conc = Concentration
LOAEL = Lowest Observed Adverse Effects Concentration
NOAEL = No Observed Adverse Effects Concentration

APPENDIX H

SHORT-TAILED SHREW - TIER 1 INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION - SURFACE SOIL, IA-6
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Chemical	Max Soil Conc. (mg/kg)	Invertebrate Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Dose (mg/kg/d) from: Invert.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	Hazard Quotients LOAEL
METALS									
LEAD	1.92E+01	8.73E+00	9.79E-02	1.48E+00	1.58E+00	4.70E+00	3.02E+01	3.4E-01	5.2E-02
MERCURY	4.48E-02	3.80E-01	2.28E-04	6.46E-02	6.48E-02	3.20E-02	1.60E-01	2.0E+00	4.0E-01
VANADIUM	3.60E+01	1.51E+00	1.84E-01	2.57E-01	4.41E-01	4.16E+00	9.44E+00	1.1E-01	4.7E-02
ZINC	5.02E+01	3.09E+02	2.56E-01	5.25E+01	5.28E+01	7.54E+01	2.98E+02	7.0E-01	1.8E-01
POLYCYCLIC AROMATIC HYDROCARBONS									
ACENAPHTHENE	2.57E-03	3.78E-03	1.31E-05	6.42E-04	6.55E-04	6.56E+01	3.56E+02	1.0E-05	1.8E-06
ACENAPHTHYLENE	2.08E-02	4.76E-01	1.06E-04	8.10E-02	8.11E-02	6.56E+01	3.56E+02	1.2E-03	2.3E-04
ANTHRACENE	1.83E-02	4.43E-02	9.33E-05	7.53E-03	7.62E-03	6.56E+01	3.56E+02	1.2E-04	2.1E-05
BENZO(A)ANTHRACENE	1.07E-01	1.70E-01	5.46E-04	2.89E-02	2.95E-02	6.15E-01	3.84E+01	4.8E-02	7.7E-04
BENZO(A)PYRENE	1.30E-01	1.73E-01	6.63E-04	2.94E-02	3.01E-02	6.15E-01	3.84E+01	4.9E-02	7.8E-04
BENZO(B)FLUORANTHENE	1.70E-01	4.42E-01	8.67E-04	7.51E-02	7.60E-02	6.15E-01	3.84E+01	1.2E-01	2.0E-03
BENZO(G,H,I)PERYLENE	1.04E-01	3.06E-01	5.30E-04	5.20E-02	5.25E-02	6.15E-01	3.84E+01	8.5E-02	1.4E-03
BENZO(K)FLUORANTHENE	6.42E-02	1.67E-01	3.27E-04	2.84E-02	2.87E-02	6.15E-01	3.84E+01	4.7E-02	7.5E-04
CHRYSENE	1.36E-01	3.11E-01	6.93E-04	5.29E-02	5.36E-02	6.15E-01	3.84E+01	8.7E-02	1.4E-03
DIBENZO(A,H)ANTHRACENE	3.08E-02	7.11E-02	1.57E-04	1.21E-02	1.22E-02	6.15E-01	3.84E+01	2.0E-02	3.2E-04
FLUORANTHENE	2.21E-01	6.72E-01	1.13E-03	1.14E-01	1.15E-01	6.56E+01	3.56E+02	1.8E-03	3.2E-04
FLUORENE	3.93E-03	3.76E-02	2.00E-05	6.39E-03	6.41E-03	6.56E+01	3.56E+02	9.8E-05	1.8E-05
INDENO(1,2,3-CD)PYRENE	7.94E-02	2.27E-01	4.05E-04	3.86E-02	3.90E-02	6.15E-01	3.84E+01	6.3E-02	1.0E-03
PHENANTHRENE	7.27E-02	1.25E-01	3.71E-04	2.13E-02	2.16E-02	6.56E+01	3.56E+02	3.3E-04	6.1E-05
PYRENE	1.98E-01	3.47E-01	1.01E-03	5.89E-02	5.99E-02	6.15E-01	3.84E+01	9.7E-02	1.6E-03

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	1.53E-02	kg	Dose (soil) = (Cs * Is)(H)/BW	Conc = Concentration
Food Ingestion Rate = (If)	2.59E-03	kg/day	Dose (invertebrate) = (Ci * If)(H)/BW	LOAEL = Lowest Observed Adverse Effects Concentration
Soil Ingestion Rate = (Is)	7.78E-05	kg/day		NOAEL = No Observed Adverse Effects Concentration
Home Range = (HR)	Assume 100% on site		Ci = Contaminant concentration in invertebrate	
Contaminated Area = (CA)	Assume equal to home range		Cs = Contaminant concentration in soil	
			Total Dose = Dose (soil) + Dose (vegetation)	
			H=CA/HR (Assume = to 1)	

APPENDIX H

SHORT-TAILED SHREW - TIER 2, STEP 3A INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION - SURFACE SOIL, IA-6
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Chemical	Average Soil Conc. (mg/kg)	Invertebrate Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Dose (mg/kg/d) from: Invert.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	Hazard Quotients LOAEL
METALS									
LEAD	1.31E+01	6.40E+00	1.15E-02	6.25E-01	6.37E-01	4.70E+00	3.02E+01	1.4E-01	2.1E-02
MERCURY	3.07E-02	3.34E-01	2.70E-05	3.27E-02	3.27E-02	3.20E-02	1.60E-01	1.0E+00	2.0E-01
VANADIUM	2.50E+01	1.05E+00	2.20E-02	1.02E-01	1.24E-01	4.16E+00	9.44E+00	3.0E-02	1.3E-02
ZINC	4.28E+01	2.93E+02	3.76E-02	2.86E+01	2.87E+01	7.54E+01	2.98E+02	3.8E-01	9.6E-02
POLYCYCLIC AROMATIC HYDROCARBONS									
ACENAPHTHENE	2.17E-03	3.19E-03	1.91E-06	3.11E-04	3.13E-04	6.56E+01	3.56E+02	4.8E-06	8.8E-07
ACENAPHTHYLENE	1.44E-02	3.31E-01	1.27E-05	3.23E-02	3.23E-02	6.56E+01	3.56E+02	4.9E-04	9.1E-05
ANTHRACENE	1.15E-02	2.79E-02	1.01E-05	2.72E-03	2.74E-03	6.56E+01	3.56E+02	4.2E-05	7.7E-06
BENZO(A)ANTHRACENE	6.34E-02	1.01E-01	5.57E-05	9.84E-03	9.90E-03	6.15E-01	3.84E+01	1.6E-02	2.6E-04
BENZO(A)PYRENE	8.21E-02	1.09E-01	7.22E-05	1.07E-02	1.07E-02	6.15E-01	3.84E+01	1.7E-02	2.8E-04
BENZO(B)FLUORANTHENE	1.06E-01	2.75E-01	9.30E-05	2.69E-02	2.70E-02	6.15E-01	3.84E+01	4.4E-02	7.0E-04
BENZO(G,H,I)PERYLENE	6.82E-02	2.00E-01	5.99E-05	1.96E-02	1.96E-02	6.15E-01	3.84E+01	3.2E-02	5.1E-04
BENZO(K)FLUORANTHENE	4.24E-02	1.10E-01	3.73E-05	1.08E-02	1.08E-02	6.15E-01	3.84E+01	1.8E-02	2.8E-04
CHRYSENE	8.40E-02	1.92E-01	7.38E-05	1.88E-02	1.89E-02	6.15E-01	3.84E+01	3.1E-02	4.9E-04
DIBENZO(A,H)ANTHRACENE	1.77E-02	4.10E-02	1.56E-05	4.00E-03	4.02E-03	6.15E-01	3.84E+01	6.5E-03	1.0E-04
FLUORANTHENE	1.13E-01	3.43E-01	9.92E-05	3.35E-02	3.36E-02	6.56E+01	3.56E+02	5.1E-04	9.4E-05
FLUORENE	2.83E-03	2.71E-02	2.49E-06	2.65E-03	2.65E-03	6.56E+01	3.56E+02	4.0E-05	7.4E-06
INDENO(1,2,3-CD)PYRENE	5.15E-02	1.47E-01	4.52E-05	1.44E-02	1.44E-02	6.15E-01	3.84E+01	2.3E-02	3.8E-04
PHENANTHRENE	3.89E-02	6.69E-02	3.42E-05	6.53E-03	6.57E-03	6.56E+01	3.56E+02	1.0E-04	1.8E-05
PYRENE	1.09E-01	1.91E-01	9.58E-05	1.86E-02	1.87E-02	6.15E-01	3.84E+01	3.0E-02	4.9E-04

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	1.69E-02	kg
Food Ingestion Rate = (If)	1.65E-03	kg/day
Soil Ingestion Rate = (Is)	1.48E-05	kg/day
Home Range = (HR)	9.70E-01	acres
Contaminated Area = (CA)	Assume equal to home range	

Dose (soil) = (Cs * Is)(H)/BW
Dose (invertebrate) = (Ci * If)(H)/BW

Ci = Contaminant concentration in invertebrate
Cs = Contaminant concentration in soil
Total Dose = Dose (soil) + Dose (vegetation)
H=CA/HR (Assume = to 1)

Conc = Concentration
LOAEL = Lowest Observed Adverse Effects Concentration
NOAEL = No Observed Adverse Effects Concentration

APPENDIX H

AMERICAN WOODCOCK - TIER 1 INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION - SURFACE SOIL, IA-6
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Chemical	Max Soil Conc. (mg/kg)	Invertebrate Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Dose (mg/kg/d) from: Invert.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	Hazard Quotients LOAEL
METALS									
LEAD	1.92E+01	8.73E+00	5.75E-01	1.59E+00	2.17E+00	1.63E+00	9.70E+00	1.3E+00	2.2E-01
MERCURY	4.48E-02	3.80E-01	1.34E-03	6.94E-02	7.07E-02	6.40E-03	6.40E-02	1.1E+01	1.1E+00
VANADIUM	3.60E+01	1.51E+00	1.08E+00	2.76E-01	1.35E+00	3.44E-01	1.69E+00	3.9E+00	8.0E-01
ZINC	5.02E+01	3.09E+02	1.50E+00	5.64E+01	5.79E+01	6.61E+01	1.71E+02	8.8E-01	3.4E-01
POLYCYCLIC AROMATIC HYDROCARBONS									
ACENAPHTHENE	2.57E-03	3.78E-03	7.70E-05	6.90E-04	7.67E-04	2.00E+00	2.00E+01	3.8E-04	3.8E-05
ACENAPHTHYLENE	2.08E-02	4.76E-01	6.23E-04	8.70E-02	8.76E-02	2.00E+00	2.00E+01	4.4E-02	4.4E-03
ANTHRACENE	1.83E-02	4.43E-02	5.48E-04	8.09E-03	8.64E-03	2.00E+00	2.00E+01	4.3E-03	4.3E-04
BENZO(A)ANTHRACENE	1.07E-01	1.70E-01	3.21E-03	3.11E-02	3.43E-02	2.00E+00	2.00E+01	1.7E-02	1.7E-03
BENZO(A)PYRENE	1.30E-01	1.73E-01	3.89E-03	3.16E-02	3.55E-02	2.00E+00	2.00E+01	1.8E-02	1.8E-03
BENZO(B)FLUORANTHENE	1.70E-01	4.42E-01	5.09E-03	8.07E-02	8.58E-02	2.00E+00	2.00E+01	4.3E-02	4.3E-03
BENZO(G,H,I)PERYLENE	1.04E-01	3.06E-01	3.12E-03	5.58E-02	5.90E-02	2.00E+00	2.00E+01	2.9E-02	2.9E-03
BENZO(K)FLUORANTHENE	6.42E-02	1.67E-01	1.92E-03	3.05E-02	3.24E-02	2.00E+00	2.00E+01	1.6E-02	1.6E-03
CHRYSENE	1.36E-01	3.11E-01	4.07E-03	5.69E-02	6.10E-02	2.00E+00	2.00E+01	3.0E-02	3.0E-03
DIBENZO(A,H)ANTHRACENE	3.08E-02	7.11E-02	9.23E-04	1.30E-02	1.39E-02	2.00E+00	2.00E+01	7.0E-03	7.0E-04
FLUORANTHENE	2.21E-01	6.72E-01	6.62E-03	1.23E-01	1.29E-01	2.00E+00	2.00E+01	6.5E-02	6.5E-03
FLUORENE	3.93E-03	3.76E-02	1.18E-04	6.87E-03	6.99E-03	2.00E+00	2.00E+01	3.5E-03	3.5E-04
INDENO(1,2,3-CD)PYRENE	7.94E-02	2.27E-01	2.38E-03	4.15E-02	4.39E-02	2.00E+00	2.00E+01	2.2E-02	2.2E-03
PHENANTHRENE	7.27E-02	1.25E-01	2.18E-03	2.28E-02	2.50E-02	2.00E+00	2.00E+01	1.3E-02	1.3E-03
PYRENE	1.98E-01	3.47E-01	5.93E-03	6.33E-02	6.92E-02	2.00E+00	2.00E+01	3.5E-02	3.5E-03

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	1.66E-01	kg	Dose (soil) = (Cs * Is)(H)/BW	Conc = Concentration
Food Ingestion Rate = (If)	3.03E-02	kg/day	Dose (invertebrate) = (Ci * If)(H)/BW	LOAEL = Lowest Observed Adverse Effects Concentration
Soil Ingestion Rate = (Is)	4.97E-03	kg/day		NOAEL = No Observed Adverse Effects Concentration
Home Range = (HR)	Assume 100% on site		Ci = Contaminant concentration in invertebrate	
Contaminated Area = (CA)	Assume equal to home range		Cs = Contaminant concentration in soil	
			Total Dose = Dose (soil) + Dose (vegetation)	

APPENDIX H

AMERICAN WOODCOCK - TIER 2, STEP 3A INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION - SURFACE SOIL, IA-6
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Chemical	Average Soil Conc. (mg/kg)	Invertebrate Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Dose (mg/kg/d) from: Invert.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	Hazard Quotients LOAEL
METALS									
LEAD	1.31E+01	6.40E+00	1.12E-01	8.54E-01	9.65E-01	1.63E+00	9.70E+00	5.9E-01	1.0E-01
MERCURY	3.07E-02	3.34E-01	2.62E-04	4.46E-02	4.48E-02	6.40E-03	6.40E-02	7.0E+00	7.0E-01
VANADIUM	2.50E+01	1.05E+00	2.13E-01	1.40E-01	3.53E-01	3.44E-01	1.69E+00	1.0E+00	2.1E-01
ZINC	4.28E+01	2.93E+02	3.65E-01	3.91E+01	3.95E+01	6.61E+01	1.71E+02	6.0E-01	2.3E-01
POLYCYCLIC AROMATIC HYDROCARBONS									
ACENAPHTHENE	2.17E-03	3.19E-03	1.85E-05	4.25E-04	4.44E-04	2.00E+00	2.00E+01	2.2E-04	2.2E-05
ACENAPHTHYLENE	1.44E-02	3.31E-01	1.23E-04	4.41E-02	4.42E-02	2.00E+00	2.00E+01	2.2E-02	2.2E-03
ANTHRACENE	1.15E-02	2.79E-02	9.83E-05	3.72E-03	3.82E-03	2.00E+00	2.00E+01	1.9E-03	1.9E-04
BENZO(A)ANTHRACENE	6.34E-02	1.01E-01	5.41E-04	1.34E-02	1.40E-02	2.00E+00	2.00E+01	7.0E-03	7.0E-04
BENZO(A)PYRENE	8.21E-02	1.09E-01	7.00E-04	1.46E-02	1.53E-02	2.00E+00	2.00E+01	7.6E-03	7.6E-04
BENZO(B)FLUORANTHENE	1.06E-01	2.75E-01	9.03E-04	3.67E-02	3.76E-02	2.00E+00	2.00E+01	1.9E-02	1.9E-03
BENZO(G,H,I)PERYLENE	6.82E-02	2.00E-01	5.81E-04	2.67E-02	2.73E-02	2.00E+00	2.00E+01	1.4E-02	1.4E-03
BENZO(K)FLUORANTHENE	4.24E-02	1.10E-01	3.62E-04	1.47E-02	1.51E-02	2.00E+00	2.00E+01	7.5E-03	7.5E-04
CHRYSENE	8.40E-02	1.92E-01	7.17E-04	2.56E-02	2.64E-02	2.00E+00	2.00E+01	1.3E-02	1.3E-03
DIBENZO(A,H)ANTHRACENE	1.77E-02	4.10E-02	1.51E-04	5.46E-03	5.61E-03	2.00E+00	2.00E+01	2.8E-03	2.8E-04
FLUORANTHENE	1.13E-01	3.43E-01	9.62E-04	4.57E-02	4.67E-02	2.00E+00	2.00E+01	2.3E-02	2.3E-03
FLUORENE	2.83E-03	2.71E-02	2.42E-05	3.61E-03	3.64E-03	2.00E+00	2.00E+01	1.8E-03	1.8E-04
INDENO(1,2,3-CD)PYRENE	5.15E-02	1.47E-01	4.39E-04	1.96E-02	2.01E-02	2.00E+00	2.00E+01	1.0E-02	1.0E-03
PHENANTHRENE	3.89E-02	6.69E-02	3.32E-04	8.92E-03	9.25E-03	2.00E+00	2.00E+01	4.6E-03	4.6E-04
PYRENE	1.09E-01	1.91E-01	9.30E-04	2.54E-02	2.63E-02	2.00E+00	2.00E+01	1.3E-02	1.3E-03

Cells are shaded if the value is greater than 1.0

Body Weight = (BW)	1.90E-01	kg
Food Ingestion Rate = (If)	2.53E-02	kg/day
Soil Ingestion Rate = (Is)	1.62E-03	kg/day
Home Range = (HR)	6.13E+01	acres
Contaminated Area = (CA)	Assume equal to home range	

Dose (soil) = (Cs * Is)(H)/BW
Dose (invertebrate) = (Ci * If)(H)/BW

Ci = Contaminant concentration in invertebrate
Cs = Contaminant concentration in soil
Total Dose = Dose (soil) + Dose (vegetation)

Conc = Concentration
LOAEL = Lowest Observed Adverse Effects Concentration
NOAEL = No Observed Adverse Effects Concentration

APPENDIX I

RESPONSES TO IDEM COMMENTS AND IDEM APPROVAL

From:	Brent, Thomas CIV NAVFAC MIDLANT, PWD Crane
To:	GRIFFIN, DOUG
Cc:	Cole, Linda L CIV NAVFAC MIDLANT, IPTNE; Buel, Jennifer
Subject:	RE: SWMU 11 OSB B-225 RFI Report
Date:	Tuesday, August 18, 2015 9:46:58 AM
Attachments:	Responses to IDEM Comments on Draft Final SWMU 11 RFI_August 10 2015_wit....docx

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Doug,

Attached is the response to your comment on the Draft Final SWMU 11 RFI Report. The attachment also includes proposed changes made to the RFI report. Hopefully, the response and document changes satisfy your concerns. Please review and let us know if you have any further questions or comments.

Thanks,
Tom

-----Original Message-----
From: GRIFFIN, DOUG [mailto:DGRIFFIN@idem.IN.gov]
Sent: Wednesday, October 01, 2014 9:58 AM
To: Cole, Linda L CIV NAVFAC MIDLANT, IPTNE; Brent, Thomas CIV NAVFAC MIDLANT, PWD Crane
Subject: SWMU 11 OSB B-225 RFI Report

May 2015 RFI Report and proposal

The report uses Johnson-Ettinger modeling to dismiss concerns about vapor intrusion. Johnson-Ettinger modeling has not been accepted by IDEM for years and is no longer accepted by EPA. TCE concentrations in groundwater greater than 9.1 ppb for residential, or 38 ppb for industrial, require indoor air sampling (not very practical in this case) or an ERC that requires a vapor mitigation system.

The report recommends a CMS with an emphasis on MNA. This TCE contamination has been in place since at least 1976 and remains at high enough concentrations to represent a vapor intrusion concern. A plan for MNA will need to have a Plan B to take effect if the concentrations in groundwater don't attenuate to a preset goal within a reasonable time frame.

RESPONSE TO IDEM COMMENT DATED 10/1/2014
SWMU 11 DRAFT FINAL RFI REPORT
NSA CRANE, CRANE INDIANA

Comment: The report uses Johnson-Ettinger modeling to dismiss concerns about vapor intrusion. Johnson-Ettinger modeling has not been accepted by IDEM for years and is no longer accepted by EPA. TCE concentrations in groundwater greater than 9.1 ppb for residential, or 38 ppb for industrial, require indoor air sampling (not very practical in this case) or an ERC that requires a vapor mitigation system.

The report recommends a CMS with an emphasis on MNA. This TCE contamination has been in place since at least 1976 and remains at high enough concentrations to represent a vapor intrusion concern. A plan for MNA will need to have a Plan B to take effect if the concentrations in groundwater don't attenuate to a preset goal within a reasonable time frame.

Response: The vapor intrusion pathway will be retained as a future pathway of concern if land use changes such that a building is built over the former Building 225 location. The RFI Report text will be revised to recommend that this pathway proceed to a Corrective Measures Study (CMS) because 1) there are currently no buildings present at the site to evaluate indoor air concentrations 2) IDEM does not accept the use of the Johnson-Ettinger model to estimate indoor air concentrations, and 3) groundwater concentrations greater than the IDEM Vapor Exposure groundwater values have been detected at the site.

For the CMS Report, a statement will be included under the MNA alternative identifying that the Corrective Measures Implementation Plan (CMIP)/Quality Assurance Project Plan (QAPP) will identify preset goals for evaluating the long-term effectiveness of MNA to determine whether additional actions are required; the specific criteria to make these decisions will be identified in the CMIP/QAPP. Land use controls (LUCs) would prevent potential future exposure to unacceptable contamination at the site until the cleanup goals for the site are met.

The proposed modifications to the RFI Report text and tables based on this comment are attached to this response to comments.

EXECUTIVE SUMMARY

Tetra Tech, Inc. (Tetra Tech) prepared this Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Report for Solid Waste Management Unit (SWMU) 11 - Old Storage Building, B~~-~~225 ~~(site)~~ at Naval Support Activity (NSA) Crane, located in Crane, Indiana. This report summarizes RFI activities, including sampling and analysis results and human health and ecological risks posed by chemicals detected in soil, sediment and groundwater at the site.

SITE DESCRIPTION AND HISTORY

The site is located near the western boundary of NSA Crane, approximately midway between the northern and southern boundaries of the facility. The site was formerly occupied by Building 225 which was used for storage of chemicals, paints, dyes, solvents, and various other items. The building was destroyed by fire on July 13, 1976.

The site covers approximately 1 acre. It currently contains the former Building 225 concrete floor slab (approximately ~~100~~ 60 feet wide and ~~350~~ 200 feet long) the former loading dock, a railroad siding spur parallel to the loading dock, and a drainage ditch between the railroad spur and the active railroad tracks to the west.

Contamination at SWMU 11 is the result of the release of stored chemicals and combustion products during the 1976 fire and the large quantities of water that were used to fight the fire. The water likely flushed chemicals directly onto the surface soil where it had migrated to subsurface soil and groundwater. Additionally, water runoff from fire fighting activities entered the drainage ditch on the west side of the site, flowed through a drainage pipe under the railroad tracks and then into a drainage channel approximately 200 feet west of the site. Additional areas that may have been affected by the release of chemicals during the fire include areas downwind of Building 225 and the Building 2981 Concrete Storage Tank Area where water from firefighting activities was temporally stored prior to proper disposal.

RFI SAMPLING AND ANALYSIS

Surface soil, subsurface soil, sediment and groundwater samples were collected during the RFI. Surface and subsurface soil samples were analyzed for volatile organic compounds (VOCs); semivolatile organic compounds (SVOCs), including polycyclic aromatic hydrocarbons (PAHs); polychlorinated biphenyls (PCBs); pesticides; dioxins/furans; metals; and cyanide. Sediment samples were analyzed for SVOCs (including PAHs), PCBs, dioxins/furans, metals, cyanide, and total organic carbon. Groundwater was

analyzed for VOCs. During the RFI activities, a total of 28 surface soil, 83 subsurface soil, 10 sediment, and 11 groundwater samples were collected.

NATURE AND ~~/~~ EXTENT OF CONTAMINATION

While PAHs, pesticides, dioxin/furans and metals were detected in the surface soil at concentrations greater than human health or ecological project screening levels (PSLs), the most notable SWMU 11 contamination is the subsurface soil and the groundwater chlorinated VOC contamination. The subsurface soil contamination consists primarily of cis-1,2-dichloroethene (DCE), tetrachloroethene (PCE), trichloroethene (TCE), and the degradation product vinyl chloride (VC). The contamination was identified in the immediate vicinity of the Building 225 concrete slab and appears to have migrated to the west towards the railroad tracks and south of Building 2720. Low concentrations of chlorinated VOCs (cis-1,2-DCE and PCE) were detected in the surface soil below the Building 225 foundation; however, much greater concentrations are present in the subsurface soil demonstrating the downward migration tendency of this chemical class (i.e., halogenated aliphatics) in the environment.

The groundwater samples collected from the SWMU 11 monitoring wells show benzene and chlorinated VOC groundwater contamination. Only PCE and TCE were detected at concentrations greater than Federal Maximum Contaminant Levels (MCLs) for drinking water. Groundwater contamination was identified underneath the northern half of Building 225 slab and has migrated to the west/south west beyond the railroad tracks. The ground elevation decreases to the west and groundwater would be expected to be expressed as seeps before reaching the NSA Crane boundary. Decreases of chlorinated VOC concentrations would occur before the groundwater would be expressed as seeps. Additional decreases in chlorinated solvent concentrations would occur via volatilization once the groundwater seeps are exposed to air. Based on the analytical results from a deeper bedrock well installed underneath the Building 225 concrete slab, contamination has not migrated into the deeper groundwater. The subsurface soil concentrations for several of the chlorinated VOCs exceed their respected migration to groundwater values by at least an order of magnitude, indicating a potential continuing source of contamination to the groundwater. However, the presence of the degradation products cis-1,2-DCE and vinyl chloride shows that natural degradation is occurring.

HUMAN HEALTH RISK ASSESSMENT

An HHRA was conducted to estimate non-carcinogenic and carcinogenic risks [hazard index (HI) and incremental lifetime cancer risk (ILCR), respectively] for potential human receptors posed by the chemicals of potential concern (COPCs) in soil, sediment and groundwater at the site. A summary of risks for all receptors under current and future land use scenarios are presented on Table ES-1. Human health risk

under current land use was found to be acceptable. However, potential unacceptable human health risks for hypothetical future residents were identified associated with direct contact exposure to VOCs in groundwater (cis-~~,~~1,2-DCE, benzene, TCE and VC) as a result of using groundwater as a potable water supply.

Although no chemicals of concern (COCs) were identified for vapor intrusion from groundwater based on estimated indoor air concentrations using the Johnson-Ettinger model, TCE concentrations in groundwater under the Building 225 floor slab were greater than Indiana Department of Environmental Management (IDEM) Vapor Exposure groundwater screening levels. Therefore, potential future unacceptable risks were identified for the groundwater to indoor air pathway (i.e., vapor intrusion) for a future residential and commercial/industrial scenario. ~~. No unacceptable risks were identified for the groundwater to indoor air pathway (i.e., vapor intrusion).~~

Evaluation of the migration from soil to groundwater showed that benzene, cis-1,2-DCE, PCE, TCE, and VC in subsurface soil could represent a source of groundwater contamination. Arsenic and iron were also retained as COCs for the soil to groundwater pathway at SWMU 11 because of exceedance of soil to groundwater migration screening levels and groundwater data are not available to confirm whether migration has occurred.

ECOLOGICAL RISK ASSESSMENT

The ERA evaluated surface soil and sediment to determine the potential for adverse ecological impacts due to site-related contamination. No unacceptable risks for ecological receptors were identified, as summarized on Table ES-1.

CONCLUSIONS AND RECOMMENDATIONS

A summary of the receptor-specific human health risks and hazards, ecological risks, critical exposure pathways and COCs, and recommendations for SWMU 11 is presented in Table ES-1. In addition to COCs identified based on the risk assessments, PCE is also identified as a COC for groundwater because detected concentrations of PCE in groundwater exceeded the MCL. Based on the results of the RFI activities, this report recommends that the site proceed to a ~~focused~~ Corrective Measures Study (CMS) to address future unacceptable human health risks from ingestion of groundwater contaminated with chlorinated organics and the vapor intrusion pathway as identified in the HHRA. The CMS should focus on monitored natural attenuation of chlorinated organics in groundwater with land use controls to address potential future unacceptable risks. An active groundwater treatment action is not necessary because there are no current potential or likely future exposures to contaminated groundwater based on

current site use. Concentrations of VOCs and metals (arsenic and iron) in soil~~s~~ exceed IDEM soil screening levels for protection of groundwater; however, metals in groundwater were not analyzed in SWMU 11 monitoring wells. Therefore, the CMS should also provide for sampling to verify whether ~~metals~~ arsenic and iron are present in SWMU 11 groundwater at concentrations greater than MCLs or facility background.

TABLE ES-1

SUMMARY OF RECEPTOR-SPECIFIC HUMAN RISKS AND HAZARDS, ECOLOGICAL RISKS, AND RECOMMENDATIONS
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Receptor Population	Overall Carcinogenic Risk (Human)	Overall Hazard Index (Human)	Overall Risk (Ecological)	Critical Pathways and Chemicals of Concern	Recommendations
SWMU 11 SURFACE SOIL - BUILDING 225 AREA					
Current/Future Maintenance Worker (Adult)	1E-07	0.006	N/A	N/A	NFA
Current/Future Industrial Worker	1E-06	0.06	N/A	N/A	NFA
Current/Future Trespasser (Adolescent)	2E-07	0.01	N/A	N/A	NFA
Current/Future Construction Worker	8E-08	0.5	N/A	N/A	NFA
Future Child Recreational User	1E-06	0.06	N/A	N/A	NFA
Future Adult Recreational User	3E-07	0.007	N/A	N/A	NFA
Lifelong Recreational User	1E-06	N/A	N/A	N/A	NFA
Future Child Resident	1E-05	0.8	N/A	N/A	NFA
Future Adult Resident	2E-06	0.09	N/A	N/A	NFA
Lifelong Resident	1E-05	N/A	N/A	N/A	NFA
Terrestrial Plants	N/A	N/A	Acceptable	N/A	NFA
Terrestrial Invertebrates	N/A	N/A	Acceptable	N/A	NFA
Mammals and Birds	N/A	N/A	Acceptable	N/A	NFA
SWMU 11 SURFACE SOIL - BUILDING 2981 CONCRETE TANK AREA					
Current/Future Maintenance Worker (Adult)	9E-08	0.005	N/A	N/A	NFA
Current/Future Industrial Worker	9E-07	0.06	N/A	N/A	NFA
Current/Future Trespasser (Adolescent)	2E-07	0.01	N/A	N/A	NFA
Current/Future Construction Worker	6E-08	0.4	N/A	N/A	NFA
Future Child Recreational User	1E-06	0.05	N/A	N/A	NFA
Future Adult Recreational User	2E-07	0.006	N/A	N/A	NFA
Lifelong Recreational User	1E-06	N/A	N/A	N/A	NFA
Future Child Resident	1E-05	0.7	N/A	N/A	NFA
Future Adult Resident	2E-06	0.08	N/A	N/A	NFA
Lifelong Resident	1E-05	N/A	N/A	N/A	NFA
Terrestrial Plants	N/A	N/A	Acceptable	N/A	NFA
Terrestrial Invertebrates	N/A	N/A	Acceptable	N/A	NFA
Mammals and Birds	N/A	N/A	Acceptable	N/A	NFA

TABLE ES-1

SUMMARY OF RECEPTOR-SPECIFIC HUMAN RISKS AND HAZARDS, ECOLOGICAL RISKS, AND RECOMMENDATIONS
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Receptor Population	Overall Carcinogenic Risk (Human)	Overall Hazard Index (Human)	Overall Risk (Ecological)	Critical Pathways and Chemicals of Concern	Recommendations
SWMU 11 - SUBSURFACE SOIL					
Current/Future Maintenance Worker	2E-06	0.02	N/A	N/A	NFA
Current/Future Industrial Worker	2E-05	0.2	N/A	N/A	NFA
Current/Future Trespasser (Adolescent)	4E-06	0.03	N/A	N/A	NFA
Current/Future Construction Worker	1E-05	0.6	N/A	N/A	NFA
Future Child Recreational User	2E-05	0.2	N/A	N/A	NFA
Future Adult Recreational User	4E-06	0.02	N/A	N/A	NFA
Lifelong Recreational User	2E-05	N/A	N/A	N/A	NFA
Future Child Resident	2E-04 (3E-05)[2]	3[1] (2)[1,2]	N/A	Incidental ingestion and dermal contact with VC, arsenic, and chromium	NFA[3]
Future Adult Resident	5E-05	0.4	N/A	N/A	NFA
Lifelong Resident	3E-04 (4E-05)[2]	N/A	N/A	Incidental ingestion and dermal contact with VC, arsenic, and chromium	NFA[3]
Terrestrial Plants	N/A	N/A	N/A	N/A	N/A
Terrestrial Invertebrates	N/A	N/A	N/A	N/A	N/A
Mammals and Birds	N/A	N/A	N/A	N/A	N/A
SWMU 11 SEDIMENT					
Current/Future Trespasser (Adolescent)	4E-06	0.03	N/A	N/A	NFA
Future Child Recreational User	2E-05	0.1	N/A	N/A	NFA
Future Adult Recreational User	4E-06	0.02	N/A	N/A	NFA
Lifelong Recreational User	3E-05	N/A	N/A	N/A	NFA
Sediment Invertebrates	N/A	N/A	Acceptable	N/A	NFA
Mammals and Birds	N/A	N/A	Acceptable	N/A	NFA

TABLE ES-1

SUMMARY OF RECEPTOR-SPECIFIC HUMAN RISKS AND HAZARDS, ECOLOGICAL RISKS, AND RECOMMENDATIONS
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Receptor Population	Overall Carcinogenic Risk (Human)	Overall Hazard Index (Human)	Overall Risk (Ecological)	Critical Pathways and Chemicals of Concern	Recommendations
SWMU 11 GROUNDWATER					
Current/Future Construction Worker)	7E-08	0.2	N/A	N/A	NFA
Future Child Resident	1E-04	22	N/A	Incidental ingestion, dermal contact, and inhalation of TCE and cis-1,2-DCE and PCE based on MCL exceedance	Proceed to CMS
Future Adult Resident	9E-05	12	N/A	Incidental ingestion, dermal contact, and inhalation of TCE and cis-1,2-DCE and PCE based on MCL exceedance	Proceed to CMS
Lifelong Resident	2E-04	N/A	N/A	Incidental ingestion, dermal contact, and inhalation of benzene, TCE, and VC and PCE based on MCL exceedance	Proceed to CMS
SWMU 11 VAPOR INTRUSION					
Future Child Resident	1E-06	0.2	N/A	Inhalation of indoor air of TCE based on groundwater ~~exceedence~~exceedance of screening levels	Proceed to CMS[4]
Future Adult Resident	5E-07	0.2	N/A		
Future Lifelong Resident	2E-06	N/A	N/A		
Future ~~Commerical~~Commercial/Industrial Worker	N/A	N/A	N/A		
SWMU 11 SOIL TO GROUNDWATER PATHWAY					
Future Drinking Water Protection	N/A	N/A	N/A	Subsurface soil migration to groundwater; benzene, cis-1,2-DCE, PCE, TCE, and VC	Proceed to CMS[5]
Future Drinking Water Protection	N/A	N/A	N/A	Subsurface soil migration to groundwater; arsenic and iron	Proceed to CMS[6]

cis-1,2-DCE - cis-1,2-Dichloroethene
MCL - Maximum Contaminant Level
PCE - Tetrachloroethene
VC - Vinyl chloride
CMS - Corrective Measures Study
NFA - No Further Action
TCE - Trichloroethene.
N/A - Not Applicable. Risk were not calculated for the specified receptor/exposure pathway or the calculated risks were acceptable.

Hazard Indices (i.e., child + adult) are not summed for 'Lifelong' receptors because according to United States Environmental Protection Agency (USEPA) risk assessment guidance, it is not correct to sum noncancer risks for child and adult receptors.

1 - Target organs hazard index is less than 1.
2 - Chromium was evaluated in the human health risk assessment as hexavalent chromium. Value in parenthesis is cancer risk or hazard index if chromium is evaluated as trivalent chromium.
3 - NFA recommendation based on risks and HIs using trivalent chromium. The conceptual site model (CSM) does not support the presence of chromium in the hexavalent state.
4 - Recommendation based on site groundwater with concentrations greater than Indiana Department of Environmental Management (IDEM) Vapor Exposure Screening Levels for groundwater under future land use scenario (as per IDEM comments date 10/1/2014).
5 - Recommendation based on possibility that these chemicals are a continuing source of groundwater contamination.
6 - Recommendation to sample groundwater for arsenic and iron as part of CMS activities because of exceedances of the soil to groundwater migration screening levels for these chemicals in subsurface soil and groundwater data are not available to confirm whether migration occurred.

noncancer risks for several substances across different exposure pathways. This assumes that each substance has a similar effect and/or mode of action. Even when compounds affect the same target organs, they may have different mechanisms of action or differ in their fate in the body, so additivity may not have been an appropriate assumption. However, the assumption of additivity was considered acceptable because in most cases it represented a conservative estimate of risk.

Risks to any individual may also have been overestimated by summing multiple assumed exposure pathway risks for any single receptor. Although every effort was made to develop reasonable scenarios, not all individual receptors may have been exposed via all pathways considered.

Also, the risk characterization did not consider antagonistic or synergistic effects. Little or no information was available to determine the potential for antagonism or synergism for the COPCs. Because chemical-specific interactions could not be predicted, the likelihood for risks to be over predicted or under predicted could not be defined, but the methodology used was based on current USEPA guidance.

7.7 SUMMARY AND CONCLUSIONS

This section summarizes the results of the baseline HHRA for SWMU 11 which was performed to characterize the potential risks to likely human receptors under current and potential future land use. Potential receptors evaluated in the HHRA under current land use include maintenance workers, industrial workers, construction works, and adolescent trespassers. Potential receptors evaluated under a future land use include child and adult recreational users, and hypothetical child and adult residents. Although future land use is likely to be the same as current land use, the potential future receptors were evaluated in the baseline HHRA primarily for decision-making purposes.

The selected COPCs at SWMU 11 that were retained for further evaluation in the HHRA are summarized in Table 7-10. Quantitative estimates of noncarcinogenic hazards and carcinogenic risks (HIs and ILCRs, respectively) were developed for potential human receptors. When grouped by target organ, HIs for all receptors were less than or equal to unity (1) for exposures to surface soil, subsurface soil, and sediment at SWMU 11, indicating that adverse non-carcinogenic effects are not anticipated for receptors exposed to these environmental media under the defined exposure conditions. The HI for the construction worker exposed to groundwater during excavation work was less than 1 and the RME and CTE HIs for the hypothetical child resident and the adult resident exposed to groundwater, assuming it is used for domestic purposes, exceeded one. Under these groundwater use conditions, cis-1,2-DCE and TCE were the major contributors to the HIs under the RME scenario and TCE was the major contributor to the HIs under the CTE scenario.

ILCRs for all receptors exposed to surface soil and sediment at SWMU 11 under the RME and CTE scenarios were less than or within USEPA's and IDEM's target risk range of 10^{-4} to 10^{-6}.

ILCRs for all receptors exposed to subsurface soil under the RME scenario were less than or within USEPA's and IDEM's target risk range of 10^{-4} to 10^{-6} with the exception of the hypothetical child and lifelong resident. Vinyl chloride, arsenic, and hexavalent chromium were the major contributors to the ILCRs for exposures to subsurface soil. Chromium speciation was not performed on the subsurface soil samples; therefore, chromium was initially evaluated as hexavalent chromium. However, because the CSM does not support the presence of hexavalent chromium at the site, risks associated with trivalent chromium were also completed in this HHRA. If chromium is evaluated as trivalent chromium, then all ILCRs are within USEPA's and IDEM's target risk levels. ILCRs for all receptors exposed to subsurface soil under the CTE scenario were less than or within USEPA's and IDEM's target risk range.

ILCRs for construction workers and hypothetical adult residents exposed to groundwater under the RME scenario were less than or within USEPA's and IDEM's target risk range. The ILCR for hypothetical child residents was equal to the upper bound of USEPA's and IDEM's target risk range. The ILCR for hypothetical lifelong residents exceeded USEPA's and IDEM's target risk range. Benzene, TCE, and VC were the major contributors to the ILCR for hypothetical lifelong residents exposed to groundwater. ILCRs for all receptors exposed to groundwater under the CTE scenario were less than or within USEPA's and IDEM's target risk range.

At the Building 2981 Concrete Tank Area, HIs for all receptors exposed to surface soil under the RME and CTE scenarios were less than unity (1), indicating that adverse non-carcinogenic effects are not anticipated for these receptors under the defined exposure conditions. ILCRs for all receptors exposed to surface soil at IA 6 under the RME and CTE scenarios were less than or within USEPA's and IDEM's target risk range of 10^{-4} to 10^{-6}.

Based on the results of this HHRA, no COCs were identified for surface soil and sediment. VC, arsenic, and chromium were identified as COCs for direct contact with subsurface soil only if it is assumed that chromium is present in the hexavalent form. Based on the CSM for the site, chromium is expected to be present in the trivalent state and no direct contact COCs are identified for the subsurface soils when chromium is present in the trivalent form. Benzene, cis-1,2-DCE, and VC were identified as COCs for direct contact with groundwater (Table 7-27). While no ~~No~~ COCs were identified for vapor intrusion from groundwater based on estimated indoor air concentrations using the Johnson-Ettinger model, TCE in groundwater was retained as a COC for the groundwater to indoor air pathway because the site groundwater concentrations under the Building 225 slab were greater than the IDEM Vapor Exposure

Screening Levels for residential and commercial/industrial scenarios. IDEM does not accept the use of modeling to dismiss concerns regarding vapor intrusion (see Appendix I).. -

A qualitative analysis was completed to identify COCs for the migration to groundwater pathway (Table 7-28). While Tables 7-4 and 7-6 use the risk-based SSL to determine COPCs, these risk-based numbers are based on soil-to-groundwater prediction models designed to be conservative and typically over predict the extent of future groundwater impacts. For the qualitative evaluation of the soil to groundwater migration pathway, a multiple lines of evidence approach was used to identify chemicals that may migrate from the soil to groundwater in sufficient quantities to pose groundwater quality problems and these chemicals are retained as COCs for the soil to groundwater pathway. The multiple lines of evidence approach evaluated chemicals with consideration given to the following: exceedances of risk-based SSLs verses MCL-based SSLs (if available), frequency of detections/exceedances, magnitude of exceedances, background concentrations, chemical properties, and groundwater concentrations (when available.). As presented on Table 7-28, benzene, cis-1,2-DCE, PCE, TCE, and VC were retained as COCs for the soil to groundwater pathway at SWMU 11 because subsurface soil concentrations could represent a source of groundwater contamination (VOCs). Arsenic and iron were retained as COCs for the soil to groundwater pathway at SWMW 11 because of exceedance of soil to groundwater migration screening levels and groundwater data ~~is~~ are not available to confirm whether migration has occurred.

TABLE 7-27

CHEMICALS RETAINED AS CHEMICALS OF CONCERN FOR DIRECT CONTACT EXPOSURES
SWMU 11 - OLD STORAGE BUILDING 225
NSA CRANE
CRANE, INDIANA

Chemical	Receptor									
	Construction Workers	Industrial Workers	Maintenance Workers	Adolescent Trespassers	Child Recreational Users	Adult Recreational Users	Lifelong Recreational Users	Child Residents	Adult Residents	Lifelong Residents
Surface Soil										
No COCs identified for surface soil.										
Subsurface Soil										
Arsenic								X(1)		X(1)
Chromium								X(1)		X(1)
Vinyl Chloride								X(1)		X(1)
Groundwater - Direct Contact(2)										
Benzene										X
cis-1,2-Dichlroethene								X	X	
Trichloroethene								X	X	X
Vinyl Chloride										X
Groundwater - Vapor Intrusion(3)										
No COCs identified for vapor intrusion based on Johnson-Ettinger model; trichloroethene was retained as a COC based on groundwater screening level exceedance										
Sediment										
No COCs identified for sediment.										

X - Chemical is retained as a chemical of concern (COC).
A chemical is retained as a COC if it contributed to a total cancer risk greater than 1×10^{-4} or to a target organ hazard index greater than 1.
1 - Chemicals are only COCs if chromium is evaluated as hexavalent chromium. If chromium is evaluated as trivalent chromium than total cancer risk is less than 1×10^{-4}.
2 - Tetrachloroethene was not identified as contributing to direct contract risk; however, it is also a COC for ~~groundwtaer~~groundwater based on Maximum Contaminant Level (MCL) exceedances.
~~2~~3 ~~3~~ - Site groundwater concentrations of trichloroethene under Building 225 were greater than the Indiana Department of ~~Enviornmental~~Environmental Management (IDEM) Vapor Exposure Screening Levels for residential and commercial/industrial scenarios.

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9.0 CONCLUSIONS AND RECOMMENDATIONS

The RFI identified subsurface soil and groundwater contamination at SWMU 11 as a result of the 1976 Building 225 fire. The subsurface soil contamination consists primarily of chlorinated VOCs. The subsurface contamination was identified in the immediate vicinity of the Building 225 concrete slab and chlorinated VOC contamination appears to have migrated to the west towards the railroad tracks and south of Building 2720.

An HHRA and ERA were completed to evaluate potential risks associated the contamination at SWMU 11. Human health risk under current land use was found to be acceptable; however, potential unacceptable human health risks for hypothetical future residents were identified associated with direct contact exposure (i.e. potable water use) to VOCs in groundwater (cis-1,2-DCE, benzene, TCE and VC). There were no unacceptable risks identified for vapor intrusion from groundwater based on estimated indoor air concentrations using the Johnson-Ettinger model. Potential unacceptable risks were ~~also~~ identified for the groundwater to indoor air pathway (i.e., vapor intrusion) for TCE under a future residential and commercial/industrial scenario based on a comparison of groundwater concentrations to IDEM Vapor Exposure groundwater screening levels; IDEM does not accept the use of modeling (i.e., Johnson-Ettinger model) to dismiss concerns regarding vapor intrusion. Evaluation of the migration from soil to groundwater showed that benzene, cis-1,2-DCE, PCE, TCE, and VC in subsurface soil could represent a source of groundwater contamination. Arsenic and iron were also retained as COCs for the soil to groundwater pathway at SWMU 11 because of exceedance of soil to groundwater migration screening levels and groundwater data are not available to confirm whether migration has occurred. ~~No unacceptable risks were identified for the groundwater to indoor air pathway (i.e., vapor intrusion).~~ The ERA evaluated surface soil and sediment to determine the potential for adverse ecological impacts due to site-related contamination. No unacceptable risks for ecological receptors were identified.

A summary of the receptor-specific human health risks and hazards, ecological risks, critical exposure pathways and COCs, and recommendations for SWMU 11 is presented in Table ES-1. In addition to COCs identified based on the risk assessments, PCE is also identified as a COC for groundwater because detected concentrations of PCE in groundwater exceeded the MCL.

Based on the results of the RFI activities, it is recommended that the site proceed to a focused CMS to address future unacceptable human health risks from ingestion of groundwater contaminated with chlorinated organics and the vapor intrusion pathway as identified in the HHRA. The CMS should focus on monitored natural attenuation of chlorinated organics in groundwater with land use controls to address potential future unacceptable risks. An active groundwater treatment action is not necessary because

there are no current potential or likely future exposure to contaminated groundwater based on current site use. Concentrations of VOCs and metals (arsenic and iron) in soil~~s~~ exceed IDEM soil screening levels for protection of groundwater; however, metals in groundwater were not analyzed in SWMU 11 monitoring wells. Therefore, the CMS should also provide for sampling to verify whether ~~metals~~ arsenic and iron are present in SWMU 11 groundwater at concentrations greater than MCLs or facility background.

From: GRIFFIN, DOUG
To: Brent, Thomas CIV NAVFAC MIDLANT, PWD Crane
Cc: Cole, Linda L CIV NAVFAC MIDLANT, IPTNE; Buel, Jennifer
Subject: RE: SWMU 11 OSB B-225 RFI Report
Date: Thursday, August 27, 2015 9:26:41 AM

The changes are acceptable. Some things to consider for your CMS.

If there are no current completed pathways, and you have a requirement that vapor mitigation be designed into new structures (retro-fitting is expensive but designing it into new structures is not) then MNA is not the only option. If you can show the plume is stable then you're not going to be creating any new pathways in the future.

I would consider a plan that looks at both MNA and plume stability.

-----Original Message-----
From: Brent, Thomas CIV NAVFAC MIDLANT, PWD Crane [mailto:thomas.brent@navy.mil]
Sent: Tuesday, August 18, 2015 9:46 AM
To: GRIFFIN, DOUG
Cc: Cole, Linda L CIV NAVFAC MIDLANT, IPTNE; Buel, Jennifer (Jennifer.Buel@tetratech.com)
Subject: RE: SWMU 11 OSB B-225 RFI Report

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