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Monitored Natural Attenuation Report for Mine Fill A (SWMU 12)

Round No. 7

Naval Surface Warfare Center Crane
Crane, Indiana

Contract Task Order 0377

November 2007

 **NAVFAC**
Naval Facilities Engineering Command
Southeast
2155 Eagle Drive
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TETRA TECH

PITT-11-7-046

November 16, 2007

Project No. 112G00041

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Reference: CLEAN Contract No. N62467-94-D-0888
Contract Task Order No. 0377

Subject: NSWC Crane
Mine Fill B (SWMU 12)
Monitored Natural Attenuation Report for Round 7

Dear Mr. Hickey:

Enclosed you will find one copy of the SWMU 12 (Mine Fill A) Monitored Natural Attenuation Report for Round 7.

Please contact me at (412) 921-8308 (e-mail: Ralph.Basinski@ttnus.com) or Joe Lucas at (412) 921-8882 (e-mail: Joe.Lucas@ttnus.com) regarding any questions or comments.

Sincerely,

Ralph R. Basinski
Task Order Manager

RRB/mlg
Enclosure

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REVISION 0
NOVEMBER 2007

**MONITORED NATURAL ATTENUATION
REPORT
FOR
MINE FILL A (SWMU 12)**

ROUND NO. 7

**NAVAL SURFACE WARFARE CENTER, CRANE
CRANE, INDIANA**

**COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT**

**Submitted to:
Naval Facilities Engineering Command
Southeast
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North Charleston, South Carolina 29406**

**Submitted by:
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**CONTRACT NUMBER N62467-94-D-0888
CONTRACT TASK ORDER 0377**

NOVEMBER 2007

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LIST OF ACRONYMS

µg/L	micrograms per liter
asml	above mean sea level
CMS	Corrective Measures Study
DNX	hexahydro-1,3-dinitroso-5-nitro-1,3,5-triazine
DO	Dissolved Oxygen
IRA	Interim Removal Action
MFA	Mine Fill A
mL	milliliters
Mgd	Mississippi Glen Dean Water Bearing Zone
MNA	Monitored natural attenuation
MNX	hexahydro-1-nitroso-3,5-dinitro-1,3,5-triazine
NSWC	Naval Surface Warfare Center
ORP	Oxidation-reduction potential
Puz	Pennsylvanian Upper Water Bearing Zone
Pmz	Pennsylvanian Middle Water Bearing Zone
QAPP	Quality Assurance Project Plan
RCRA	Resource Conservation and Recovery Act
RDX	Hexahydro-1,3,5-trinitro-1,3,5-triazine
RFI	RCRA Facility Investigation
SOPs	Standard operating procedures
SVOC	Semivolatile organic compound
SWMU	Solid waste management unit
TNX	hexahydro-1,3,5-trinitroso-1,3,5-triazine
TiNUS	Tetra Tech NUS
U.S. EPA	United States Environmental Protection Agency
VOC	Volatile organic compound

1.0 INTRODUCTION

A Phase III Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) has been conducted at the Naval Surface Warfare Center (NSWC) Crane Mine Fill A (MFA), also known as solid waste management unit (SWMU) 12. The purpose of the RFI was to determine whether explosives in groundwater, surface water, or sediment present unacceptable risk, or if any residual explosives in soil present unacceptable levels of risk to human health and the environment. The RFI was conducted at SWMU 12 in accordance with applicable RCRA corrective action requirements and provides data on the nature and extent of select explosive, metals, miscellaneous semivolatile organic compound (SVOC), and volatile organic compound (VOC) concentrations in surface soils, subsurface soils, sediment, surface water and groundwater. The RFI indicates that explosives contamination remains in soil around buildings and that explosives have migrated to groundwater and unacceptable levels of risk remain for various combinations of human and ecological receptors, with the majority of risk attributable to the use of groundwater by select human receptors.

MFA was used for the production of large mines, depth charges, rocket heads, aerial bombs, and projectiles in buildings. MFA also includes battery and soil disposal areas that are located at the extreme south end of the SWMU. In the past, explosives powders discharged from production building roof vents that accumulated on the roofs were washed down to the ground by precipitation, resulting in the contamination of soils. In addition, wastewaters containing explosives were discharged into nearby ditches. The battery area was used to dispose of AA household type batteries on the ground surface. The soil disposal area was used to dump soil and construction debris on the ground surface. During the period 1997 to 2000, an interim removal action (IRA) was conducted in which explosive-contaminated soils were removed for treatment via bioremediation. Treated soils were then placed into the excavations from which the contaminated soils were removed. Just prior to the MFA battery area IRA, the batteries were all but unrecognizable, and only their inner cores were visible on the ground surface. MFA is currently used as a renovation facility for explosives-loaded bombs, demilitarized gas generators, and paint bombs.

A corrective measures study (CMS) will be conducted at SWMU 12. Among the remedial alternatives expected to be evaluated will be the potential for natural attenuation to reduce concentrations of explosives in the groundwater. The United States Environmental Protection Agency (U.S. EPA) Region 5 has established a framework entitled "Region 5 Framework for Monitored Natural Attenuation Decisions for Groundwater" (U.S. EPA, 2000). This framework provides technical direction for the collection of adequate monitoring data to support evaluations of the effectiveness of monitored natural attenuation

(MNA). In order to determine whether residual explosives are naturally degrading at SWMU 12, a long-term groundwater monitoring plan for explosives and explosives degradation products is being conducted. The long-term monitoring program, as planned, consists of nine rounds of sampling to provide information on trends in groundwater concentrations of explosives and explosives degradation by-products. Recently, six rounds of quarterly groundwater, soils, sediments, seeps, and surface water sampling and analyses were completed at SWMU 12. Information regarding the results of Rounds 1 and 2 is presented in the SWMU 12 RFI (Tetra Tech NUS, Inc. [TtNUS], 2005a). The results for Rounds 3 through 6 were reported in the prior SWMU 12 MNA reports (TtNUS, 2005b; TtNUS, 2006a; TtNUS, 2006b, and TtNUS, 2007).

The purpose of this report is to present the results of groundwater and surface water monitoring activities in Round 7, including field documentation, and to provide the framework for evaluation of data once all nine rounds have been completed. Field documentation associated with Round 7 is provided in Appendices A, B, and C of this report. Appendices D and E present analytical results for Round 7 and potentiometric surface maps for groundwater elevations obtained in Round 6, respectively. The final monitoring report (Round 9) will contain an evaluation as to whether residual explosives may be naturally degrading and whether MNA is a viable remedial option for contaminated groundwater and surface water at SWMU 12. Information obtained from the long term monitoring program will be used in the CMS to evaluate the effectiveness of MNA. The MNA program being conducted at SWMU 12 meets the U.S. EPA Region V MNA requirements.

2.0 FIELD INVESTIGATION

This section presents sampling activities, procedures, and documentation utilized during Round 7 field operations performed in 2007 for NSWC Crane SWMU 12.

2.1 OVERVIEW

Field activities were conducted in April and May 2007. All work performed for Round 7 was conducted in accordance with the procedures and methodologies described in the U.S. EPA-approved QAPP Addendum No. 2 to the approved QAPP (TiNUS, 2004). Standard operating procedures (SOPs) that governed the field work are included in Appendix C of Addendum No. 2 to the approved QAPP (TiNUS, 2004).

All field activities were electronically recorded and copies of all field forms, records, daily activities, and health and safety documentation associated with the Round 7 field investigation are provided in Appendices A through C of this document.

2.2 SAMPLING OPERATIONS

This section discusses the methodology for groundwater and surface water sampling activities performed at SWMU 12 during Round 7. Table 2-1 contains well construction information and water level/elevation data for Rounds 1 through 7. A listing of all SWMU 12 sample analytical fractions conducted for groundwater and surface water samples in Round 7 is provided in Table 2-2. Further discussion of the specific target analytes for each fraction is discussed in Section 3 of the QAPP Addendum No. 2. Instruments used in the field were calibrated daily prior to use according to manufacturer's requirements and in accordance with all applicable standard operating procedures (SOPs). Table 2-2 also provides a summary of all proposed versus actual samples collected, the analyses performed, and if necessary, the reasoning why a sample was not collected.

During a National Pollutant Discharge Elimination System monitoring event, the results showed the presence of perchlorate. There are no known sources of perchlorate at SWMU 12; however, perchlorate was added to the monitoring program for one round to determine if there is perchlorate contamination in groundwater or surface water at SWMU 12. Collection of the perchlorate sample utilized a 0.2-micron in-line filter.

2.2.1 Groundwater Purging and Sampling

During Round 7, the groundwater wells were sampled using dedicated bladder pumps. Groundwater quality parameters including pH, specific conductance, temperature, dissolved oxygen (DO), and oxidation reduction potential (ORP) were measured during purging at 5- to 10-minute intervals using a multi-parameter water quality meter and flow-through cell. Longer intervals were used for slower pumping wells. Water levels and pumping rates were also measured during purging at 5- to 10-minute intervals. Purging continued until a minimum of one well volume was removed and the above parameters stabilized, or until the well had been purged for 4 hours, in accordance with SOP CTO166-15 and SOP CTO166-16. To the extent possible, the pumping rates were adjusted to prevent drawdown from exceeding 0.3 foot during purging. Immediately following the purging process and before sampling, the temperature, pH, specific conductance, dissolved oxygen (DO), oxidation reduction potential (ORP), and turbidity were measured and recorded on the groundwater sample log sheets.

Sample containers were filled by allowing the pump discharge to flow gently down the inside of the container with minimal turbulence. All pertinent field data, including sampling methods, purge information, pump intake depths, and locations were recorded electronically on low-flow purge data forms and groundwater sample log forms (see Appendix A.1). See Figure 2-1 for all groundwater sampling locations.

Twenty of the proposed 21 groundwater samples were collected at SWMU 12 during Round 7 (See Table 2-2). As in previous sampling rounds, well 12MWT30 was dry during this sampling period.

2.2.2 Surface Water Sampling

Surface water samples were collected from intermittent streams, drainage ditches, and surface runoff locations throughout SWMU 12. All samples were collected at previously sampled locations which had been marked with a labeled, wooden survey stake. Fluorescent flagging had been tied to the stake and to a nearby tree (if available) to facilitate relocation of the sample location for future sampling. Round 7 surface water samples were collected in accordance with Addendum No. 2 to the approved QAPP (TtNUS, 2004). All pertinent field data, including water quality parameters, sampling methods, and locations were recorded electronically on a surface water sample log sheet (see Appendix A.2). See Figure 2-2 for all surface water sampling locations.

Six of the eight proposed surface water samples were collected at SWMU 12 during Round 7. Locations 12SW/SD14 and 31 were found to be dry during this round of sampling (See Table 2-2).

2.3 FIELD SAMPLE DOCUMENTATION

Sample documentation consisted of the completion of matrix-specific sample log sheets, sample bottle tags, chain-of-custody records, equipment calibration log sheets, field logbooks, and health and safety documentation. Field documentation was completed as per SOP CTO 166-03. The sample log sheets contain information such as sample location and sample ID, container requirements and analyses to be performed, sample type, time, date, and method of sample collection. Any unusual circumstances encountered during sample collection were noted on the form. Sample log sheets can be found in Appendix A of this document. Chain-of-custody records (see Appendix A.3) were used to track each sample from collection to receipt and analysis at the laboratory. Equipment calibration log sheets are discussed in Section 2.7.1 and can be found in Appendix A.5 of this document.

2.4 SAMPLE HANDLING, PACKAGING, AND SHIPPING

Sample handling activities included field-related considerations concerning the selection of sample containers, preservatives, allowable holding times, sample custody, and maintaining samples at the appropriate storage temperature. Samples were cooled in the field immediately after collection with ice placed over the sample containers. Glass sampling containers were wrapped in plastic bubble wrap and placed in Ziploc® plastic bags to minimize the possibility of breakage during transport. The sample containers were then placed in a cooler lined with a large plastic garbage bag. The cooler was then packed with ice. A temperature blank was placed in each cooler prior to shipment. The plastic garbage bag was sealed with a knot, and 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. A Federal Express® airbill was applied to the shipping cooler. TtNUS maintained custody of the samples until they were relinquished to Federal Express®. The Federal Express® tracking number (airbill number) was recorded on the chain-of-custody form, and the sender's copy of the airbill was maintained for shipment tracking, if needed. All samples were shipped to the laboratory for overnight delivery and were received within sample holding times. Sample bottle tags will be removed from each sample bottle by laboratory personnel and forwarded to the NSWEC EPD.

2.5 QUALITY CONTROL SAMPLES

Quality assurance (QA)/quality control (QC) samples were generated and collected during sampling activities to monitor both field and laboratory procedures. These procedures are detailed in the approved

QAPP addendum. QA/QC samples collected during this round of sampling included field duplicates and temperature blanks. These two types of QA/QC samples are briefly described below.

- Field Duplicates - Field duplicates consisted of two samples collected either independently at a sampling location at approximately the same time in the case of soil or sediment VOC samples, groundwater, and surface water or as a single sample split into two portions in the case of non-VOC soil and sediment samples. Field duplicates were collected at the rate of 1 in 20 per medium and were used to assess the overall precision of the sampling and analysis program.
- Temperature blanks - Temperature blanks were used to determine if samples were adequately cooled during shipment. Temperature blanks consisted of analyte-free water poured into a clean sample container at the site or supplied by the fixed-based laboratory. One temperature blank was submitted to the laboratory in each cooler, and the temperature was checked upon receipt at the laboratory.

2.6 FIELD INSTRUMENT MEASUREMENTS

Field measurements taken and recorded during field sampling operations included water temperature, pH, specific conductance, ORP, DO, turbidity, and groundwater 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 and well casings. Several instruments were used during field activities to obtain these measurements including the following:

- Multi-parameter water-quality meter
- LaMotte 2020 turbidity meter
- M-scope water level indicator

2.6.1 Equipment Calibration

Instruments used in the field were calibrated daily prior to use according to manufacturers' requirements and in accordance with applicable SOPs. Equipment calibration logs can be found in Appendix A.5.

2.6.2 Field Investigation Preventive Maintenance Procedures/Schedule

Field instruments for this project included the Horiba water-quality meter, LaMotte 2020 turbidity meter, and water level indicator. The specific preventive maintenance procedures followed for field equipment were those recommended by the equipment manufacturers.

An appropriate maintenance check was performed daily on each piece of equipment. If damaged or defective parts were identified during the maintenance check, and it was determined that the damage could have an impact on the instrument's performance, the instrument was removed from service until the defective parts were repaired or replaced. Critical spare parts were kept on site to reduce downtime. Spare parts included batteries and a DO probe membrane kit (membranes and a bottle of solution). Back-up instruments and equipment were available on site or were shipped within 1 day via overnight courier to avoid delays in the field schedule.

2.7 DECONTAMINATION

Any nondedicated, nondisposable equipment involved in field sampling activities was decontaminated before beginning work, during sampling activities, and at the completion of the field activities in accordance with SOP CTO166-16.

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. Water level measurement devices were rinsed with DI water.

2.8 WATER LEVEL MEASUREMENTS AND AQUIFER TESTING

2.8.1 Groundwater Level Measurements

A complete synoptic round of water levels from all the wells was taken prior to any groundwater monitoring well sampling activity. The synoptic water level measurements were obtained within a 24-hour time period. Measurements were taken with an electrical water level indicator (M-scope), using the top of the riser pipe as the reference point to determine water depth for monitoring wells and using a surveyed mark for staff gauge measurements. All measurements were taken in accordance with the specific SOP contained in the QAPP addendum. A mark was placed at the top of the riser pipe to ensure that measurements were taken from a consistent reference point. Water level measurements and staff gauge measurements were recorded to the nearest 0.01 foot on groundwater level measurement forms. Table 2-1 contains water level/elevation data.

2.9 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.

Corrective action in the field resulted when substantive changes were made to the sampling network (i.e., more/fewer samples collected, sampling locations other than those specified, etc.) and when sampling procedures or field analytical procedures required modification. Project personnel reported all suspected technical or QA nonconformance or suspected deficiencies of any activity or issued document to the FOL or designee. The Task Order Manager (TOM) was responsible for assessing the suspected problems in consultation with the project QA/QC Manager and for making a decision based on the potential for the situation to affect the quality of the resulting data. If it was determined that the situation warranted a reportable nonconformance requiring corrective action, a nonconformance report was initiated by the TOM.

No nonconformances or suspected deficiencies occurred during this round of field investigations.

2.10 INVESTIGATION-DERIVED WASTE HANDLING

The field investigation generated limited potentially contaminated wastes including personal protective equipment (PPE), purge water, and sampling equipment decontamination fluids.

All wastes were handled in accordance with the requirements for investigation-derived waste (IDW) found in the specific IDW SOP contained in Appendix C of the approved QAPP Addendum No.2 (TINUS, 2004).

2.11 SITE MANAGEMENT AND FACILITY SUPPORT

The FOL was designated as the lead in coordinating all day-to-day activities during the investigation. The FOL was responsible for ensuring that all field team members were familiar with the Addendum No. 2 to the approved QAPP and the HASP. Additionally, the FOL was responsible for all sampling operations, QA/QC, field documentation requirements, and field change orders. The FOL reported to the TOM on a daily basis regarding the status of fieldwork.

All site preparation, mobilization/demobilization, and sampling activities were coordinated through NSWC Crane personnel through pre-visit communication and daily meetings during field work.

2.12 RECORDKEEPING

All field activities were recorded electronically on daily activity logs in accordance with SOP CTO166-03. The Daily Activity Record served as the overall record of field activities. Information recorded in the Daily Activity Record included daily field activities, weather conditions, identity and arrival and departure times of personnel, management issues, etc. A copy of the Daily Activities Record is included in Appendix B.

All field forms and records were maintained electronically and eventually were docketed and incorporated in the central project file for CTO 0357.

TABLE 2-1
 MONITORING WELL CONSTRUCTION INFORMATION AND WATER LEVEL MEASUREMENTS
 SWMU 12 - MINE FILL A
 ROUND 7
 NSWC CRANE
 CRANE, INDIANA
 PAGE 1 OF 3

Well or Gauge Number	Install Date	Northing (feet)	Easting (feet)	Ground Elevation (feet amsl)	Top of Riser or Reference Point Elevation (feet amsl)	Total Depth (feet bgs) ⁽¹⁾	Screened Interval				Water-Bearing Zone	October 17, 2004		December 15, 2004		January 18, 2005		May 18, 2005		August 10, 2005		November 29, 2005		May 5, 2006		April 10, 2007			
							Top (feet bgs)	Bottom (feet bgs)	Top (feet amsl)	Bottom (feet amsl)		Depth to Water (feet btor)	Water Elevation (feet amsl)	Depth to Water (feet btor)	Water Elevation (feet amsl)	Depth to Water (feet btor)	Water Elevation (feet amsl)	Depth to Water (feet btor)	Water Elevation (feet amsl)	Depth to Water (feet btor)	Water Elevation (feet amsl)	Depth to Water (feet btor)	Water Elevation (feet amsl)	Depth to Water (feet btor)	Water Elevation (feet amsl)	Depth to Water (feet btor)	Water Elevation (feet amsl)	Depth to Water (feet btor)	Water Elevation (feet amsl)
							MONITORING WELLS																						
12MWT01	7/24/04	1312852.79	3026150.48	724.06	726.87	35.0	24.00	34.00	700.06	690.06	Puz	11.10	715.77	9.68	717.19	9.34	717.53	9.27	717.60	11.15	715.72	10.91	715.96	9.54	717.33	9.67	717.20		
12MWT02	7/25/04	1312701.31	3026218.56	723.57	725.64	29.0	18.00	28.00	705.57	695.57	Puz	10.02	715.62	8.63	717.01	8.32	717.32	8.25	717.39	10.19	715.45	9.85	715.79	8.53	717.11	8.66	716.98		
12MWT03	8/31/04	1312747.34	3026026.90	732.39	734.44	26.0	15.00	25.00	717.39	707.39	Puz	16.91	717.53	16.21	718.23	16.00	718.44	15.29	719.15	15.82	718.62	16.06	718.38	15.13	719.31	15.00	719.44		
12MWT04	9/10/04	1312647.57	3026082.64	728.62	730.74	25.0	14.00	24.00	714.62	704.62	Puz	14.94	715.80	13.67	717.07	13.35	717.39	13.29	717.45	15.14	715.60	14.91	715.83	13.56	717.18	13.60	717.14		
12MWT05	9/8/04	1312511.09	3026137.13	722.90	725.36	25.0	14.00	24.00	708.90	698.90	Puz	10.12	715.24	8.72	716.64	8.41	716.95	8.41	716.95	10.39	714.97	9.91	715.45	8.70	716.66	8.88	716.48		
12MWT06	8/15/04	1311833.50	3026562.65	724.59	726.70	24.0	13.00	23.00	711.59	701.59	Puz	9.54	717.16	10.51	716.19	10.75	715.95	10.18	716.52	9.50	717.20	9.92	716.78	9.94	716.76	9.90	716.80		
12MWT07	8/27/04	1311707.13	3026615.62	726.03	728.40	25.0	14.00	24.00	712.03	702.03	Puz	11.80	716.60	13.05	715.35	13.42	714.98	12.62	715.78	11.86	716.54	12.16	716.24	12.37	716.03	12.50	715.90		
12MWT08	7/25/04	1311609.35	3026660.10	726.73	728.83	24.0	13.00	23.00	713.73	703.73	Puz	12.03	716.80	13.05	715.78	13.19	715.64	12.71	716.12	12.05	716.78	12.36	716.47	12.72	716.11	12.85	715.98		
12MWT09	8/29/04	1311595.76	3026580.09	725.78	728.00	25.0	14.00	24.00	711.78	701.78	Puz	13.44	714.56	13.60	714.40	13.40	714.60	12.37	715.63	12.43	715.57	13.17	714.83	12.26	715.74	12.20	715.80		
12MWT10	8/11/04	1311456.81	3026649.95	723.84	726.68	25.0	14.00	24.00	709.84	699.84	Puz	15.17	711.51	14.67	712.01	14.19	712.49	13.17	713.51	14.08	712.60	15.07	711.61	13.19	713.49	13.43	713.25		
12MWT11	8/14/04	1313014.33	3026776.15	738.45	740.79	25.0	14.00	24.00	724.45	714.45	Puz	15.55	725.24	12.96	727.83	12.88	727.91	13.01	727.78	15.25	725.54	14.23	726.56	12.39	728.40	11.25	729.54		
12MWT12	8/14/04	1312972.30	3026791.19	739.51	741.66	25.0	14.00	24.00	725.51	715.51	Puz	13.03	728.63	10.61	731.05	9.95	731.71	10.18	731.48	12.47	729.19	11.48	730.18	10.09	731.57	10.00	731.66		
12MWT13	7/31/04	1313060.01	3026835.37	733.55	735.81	21.0	10.00	20.00	723.55	713.55	Puz	8.21	727.60	5.30	730.51	4.63	731.18	4.83	730.98	7.33	728.48	5.85	729.96	4.93	730.88	5.01	730.80		
12MWT14	8/31/04	1312965.79	3026875.34	734.54	736.67	26.0	15.00	25.00	719.54	709.54	Puz	19.51	717.16	20.05	716.62	20.75	715.92	21.28	715.39	20.30	716.37	19.42	717.25	21.22	715.45	21.30	715.37		
12MWT15	8/31/04	1312876.08	3026906.85	734.40	736.74	25.0	14.00	24.00	720.40	710.40	Puz	16.32	720.42	18.52	718.22	19.17	717.57	18.24	718.50	16.63	720.11	16.39	720.35	18.37	718.37	18.67	718.07		
12MWT16	8/14/04	1312096.13	3027182.94	743.63	745.97	25.0	14.00	24.00	729.63	719.63	Puz	20.97	725.00	21.95	724.02	22.13	723.84	21.62	724.35	21.37	724.60	22.10	723.87	21.63	724.34	21.50	724.47		
12MWT17	8/15/04	1312047.38	3027205.14	744.84	747.23	26.0	15.00	25.00	729.84	719.84	Puz	22.79	724.44	24.11	723.12	24.63	722.60	23.73	723.50	23.05	724.18	23.02	724.21	23.78	723.45	23.90	723.33		
12MWT18	8/27/04	1312114.82	3027253.63	743.93	745.94	26.0	15.00	25.00	728.93	718.93	Puz	21.55	724.39	22.61	723.33	23.06	722.88	22.68	723.26	21.80	724.14	21.80	724.14	22.52	723.42	22.23	723.71		
12MWT19	8/28/04	1312026.45	3027292.38	744.55	746.89	27.0	16.00	26.00	728.55	718.55	Puz	25.83	721.06	27.06	719.83	27.77	719.12	27.68	719.21	26.66	720.23	25.66	721.23	27.68	719.21	27.55	719.34		
12MWT20	9/1/04	1311919.40	3027337.61	744.40	746.56	26.0	15.00	25.00	729.40	719.40	Puz	23.86	722.70	24.97	721.59	25.35	721.21	25.45	721.11	24.47	722.09	23.89	722.67	25.35	721.21	24.42	722.14		
12MWT21	9/12/04	1312878.00	3026436.50	735.16	737.72	25.0	14.00	24.00	721.16	711.16	Puz	21.42	716.30	19.92	717.80	19.54	718.18	19.46	718.26	21.49	716.23	22.30	715.42	19.74	717.98	19.70	718.02		
12MWT22	9/11/04	1311937.84	3026901.94	737.50	739.74	25.0	14.00	24.00	723.50	713.50	Puz	16.56	723.18	17.40	722.34	17.71	722.03	17.10	722.64	16.60	723.14	16.61	723.13	17.13	722.61	17.20	722.54		
12MWT23	8/10/04	1311150.87	3027466.57	737.29	739.75	31.0	20.00	30.00	717.29	707.29	Puz	27.20	712.55	28.22	711.53	28.65	711.10	21.89	717.86	27.52	712.23	27.00	712.75	28.09	711.66	28.10	711.65		
12MWT24	8/10/04	1310974.75	3027184.02	738.28	740.60	31.0	20.00	30.00	718.28	708.28	Puz	32.07	708.53	32.38	708.22	32.34	708.26	32.35	708.25	32.36	708.24	31.98	708.62	32.33	708.27	32.38	708.22		
12MWT24A	8/16/04	1310968.91	3027192.97	737.99	740.53	54.0	44.00	54.00	693.99	683.99	Puz	34.68	705.85	35.00	705.53	35.23	705.30	34.93	705.60	35.13	705.40	34.07	706.46	34.87	705.66	34.51	706.02		
12MWT25	9/12/04	1313924.59	3026269.42	746.55	748.66	26.0	15.00	25.00	731.55	721.55	Puz	17.80	730.86	17.35	731.31	17.35	731.31	16.55	732.11	16.81	731.85	16.87	731.79	16.59	732.07	16.70	731.96		
12MWT26	9/12/04	1313638.57	3025981.12	741.64	743.72	25.0	14.00	24.00	727.64	717.64	Puz	10.56	733.16	10.91	732.81	11.01	732.71	10.02	733.70	9.79	733.93	10.31	733.41	10.10	733.62	10.10	733.62		
12MWT27	9/2/04	1313736.63	3026477.23	738.42	740.52	26.0	15.00	25.00	723.42	713.42	Puz	10.96	729.56	9.35	731.17	9.24	731.28	9.18	731.34	10.02	730.50	9.81	730.71	9.15	731.37	9.21	731.31		

TABLE 2-1
MONITORING WELL CONSTRUCTION INFORMATION AND WATER LEVEL MEASUREMENTS
SWMU 12 - MINE FILL A
ROUND 7
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CRANE, INDIANA
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Well or Gauge Number	Install Date	Northing (feet)	Easting (feet)	Ground Elevation (feet amsl)	Top of Riser or Reference Point Elevation (feet amsl)	Total Depth (feet bgs) ⁽¹⁾	Screened Interval				Water-Bearing Zone	October 17, 2004		December 15, 2004		January 18, 2005		May 18, 2005		August 10, 2005		November 29, 2005		May 5, 2006		April 10, 2007			
							Top (feet bgs)	Bottom (feet bgs)	Top (feet amsl)	Bottom (feet amsl)		Depth to Water (feet btor)	Water Elevation (feet amsl)	Depth to Water (feet btor)	Water Elevation (feet amsl)	Depth to Water (feet btor)	Water Elevation (feet amsl)	Depth to Water (feet btor)	Water Elevation (feet amsl)	Depth to Water (feet btor)	Water Elevation (feet amsl)	Depth to Water (feet btor)	Water Elevation (feet amsl)	Depth to Water (feet btor)	Water Elevation (feet amsl)	Depth to Water (feet btor)	Water Elevation (feet amsl)	Depth to Water (feet btor)	Water Elevation (feet amsl)
12MWT28	8/30/04	1313506.96	3026352.09	743.27	745.53	26.0	15.00	25.00	728.27	718.27	Puz	12.96	732.57	12.78	732.75	12.78	732.75	11.8	733.73	12.10	733.43	12.61	732.92	12.04	733.49	11.90	733.63		
12MWT29	9/10/04	1312653.54	3026079.78	729.13	731.23	89.0	70.00	88.00	659.13	641.13	Pmz	59.97	671.26	61.20	670.03	61.34	669.89	59.83	671.40	58.83	672.40	59.00	672.23	58.98	672.25	59.12	672.11		
12MWT30	8/29/04	1311604.34	3026576.32	725.67	727.59	90.5	70.00	90.00	655.67	635.67	Pmz	92.71	634.88	92.74	634.85	92.69	634.90	92.56	635.03	92.59	635.00	92.76	634.83	92.67	634.92	92.59	635.00		
12MWT31	8/30/04	1312970.99	3026872.87	734.55	736.75	89.0	68.00	88.00	666.55	646.55	Pmz	85.17	651.58	68.86	667.89	68.72	668.03	67.87	668.88	61.18	675.57	68.40	668.35	67.80	668.95	67.75	669.00		
12MWT32	9/1/04	1312015.49	3027297.24	744.51	747.44	100.0	79.00	99.00	665.51	645.51	Pmz	68.55	678.89	85.93	661.51	86.11	661.33	84.75	662.69	84.99	662.45	85.31	662.13	84.60	662.84	84.50	662.94		
12MWT33	9/2/04	1313725.86	3026481.26	738.32	740.49	95.0	74.00	94.00	664.32	644.32	Pmz	44.99	695.50	42.44	698.05	41.80	698.69	41.34	699.15	43.30	697.19	43.31	697.18	41.26	699.23	40.91	699.58		
12MWT34	8/13/04	1310967.35	3027183.73	738.02	740.52	87.0	76.00	86.00	662.02	652.02	Pmz	88.42	652.10	88.32	652.20	88.12	652.40	87.98	652.54	87.95	652.57	88.09	652.43	88.00	652.52	87.90	652.62		
12MWT35	8/27/04	1312711.38	3027111.95	732.17	734.64	27.0	16.00	26.00	716.17	706.17	Puz	12.33	722.31	12.53	722.11	12.70	721.94	12.11	722.53	11.90	722.74	11.85	722.79	12.36	722.28	12.49	722.15		
12MWT36	8/27/04	1312466.54	3027186.16	736.51	738.63	26.0	15.00	25.00	721.51	711.51	Puz	13.15	725.48	14.19	724.44	14.58	724.05	14.12	724.51	13.17	725.46	13.39	725.24	14.19	724.44	14.20	724.43		
12MWT37	7/29/04	1311630.57	3027496.41	736.35	738.77	25.0	14.00	24.00	722.35	712.35	Puz	22.20	716.57	25.74	713.03	26.24	712.53	25.98	712.79	23.51	715.26	25.16	713.61	26.26	712.51	26.25	712.52		
12MWT38	9/11/04	1312353.89	3026531.17	726.05	728.03	25.0	14.00	24.00	712.05	702.05	Puz	10.03	718.00	10.64	717.39	10.63	717.40	9.69	718.34	9.46	718.57	9.95	718.08	9.62	718.41	9.50	718.53		
12MWT39	7/30/04	1311015.63	3027662.97	735.33	737.64	35.0	24.00	34.00	711.33	701.33	Puz	35.83	701.81	36.05	701.59	35.82	701.82	35.56	702.08	35.50	702.14	35.51	702.13	35.39	702.25	35.25	702.39		
12MWT40	8/12/04	1310616.56	3027037.67	725.37	727.50	29.0	18.00	28.00	707.37	697.37	Puz	22.23	705.27	23.11	704.39	23.18	704.32	23.04	704.46	23.83	703.67	24.50	703.00	24.00	703.50	23.15	704.35		
12MWT41	10/27/04	1310642.00	3026376.75	621.30	622.97	35.0	24.00	34.00	597.30	587.30	Mgd	NA	NA	20.33	602.64	20.42	602.55	19.75	603.22	20.10	602.87	20.07	602.90	19.55	603.42	19.51	603.46		
12MWT42	9/1/04	1312364.70	3026127.28	717.93	720.22	29.0	13.00	28.00	704.93	689.93	Puz	15.03	705.19	13.02	707.20	12.13	708.09	11.69	708.53	13.67	706.55	14.07	706.15	11.88	708.34	11.73	708.49		
12MWT43	11/12/04	1310955.52	3026125.55	677.03	679.01	81.0	65.00	80.00	612.03	597.03	Plz	NA	NA	78.15	600.86	78.56	600.45	78.19	600.82	—	NA	78.12	600.89	78.28	600.73	78.35	600.66		
12MWT44	10/27/04	1310276.64	3026617.87	624.81	626.69	35.5	25.00	35.00	599.81	589.81	Mgd	NA	NA	26.25	600.44	26.58	600.11	26.14	600.55	26.60	600.09	26.45	600.24	26.22	600.47	26.15	600.54		
12MWT45	10/29/04	1313384.30	3027614.01	688.37	691.07	25.0	14.00	24.00	674.37	664.37	Pmz	NA	NA	17.07	674.00	16.03	675.04	15.62	675.45	19.97	671.10	20.31	670.76	14.79	676.28	15.05	676.02		
12MWT46	10/30/04	1312828.63	3027864.12	673.31	675.67	24.5	14.00	24.00	659.31	649.31	Pmz	NA	NA	16.07	659.60	16.02	659.65	15.80	659.87	21.66	654.01	18.51	657.16	17.19	658.48	17.90	657.77		
12MWT47	10/31/04	1312455.99	3028025.00	660.79	663.12	25.0	14.00	24.00	646.79	636.79	Pmz	NA	NA	12.85	650.27	12.67	650.45	14.00	649.12	16.02	647.10	15.68	647.44	12.97	650.15	12.45	650.67		
12MWT48	11/9/04	1312052.61	3028122.50	647.84	650.05	30.0	19.00	29.00	628.84	618.84	Pmz	NA	NA	30.50	619.55	30.41	619.64	30.36	619.69	30.34	619.71	30.27	619.78	30.34	619.71	30.32	619.73		
12MWT49	11/10/04	1310956.27	3028138.17	616.96	619.25	30.0	19.00	29.00	597.96	587.96	Mgd	NA	NA	30.03	589.22	25.66	593.59	26.24	593.01	27.92	591.33	27.04	592.21	26.24	593.01	25.40	593.85		
12MWT50	10/29/04	1310582.27	3028100.87	606.85	609.01	35.0	24.00	34.00	582.85	572.85	Mgd	NA	NA	DRY	NA	35.34	573.67	34.76	574.25	34.60	574.41	35.30	573.71	35.15	573.86	35.35	573.66		
WES-7-1-81	—	1309481.87	3026477.49	628.95	631.95	41.5	27.02	36.20	601.93	592.75	Plz	NA	NA	NA	NA	20.41	611.54	19.86	612.09	23.70	608.25	NA	NA	NA	NA	NA	NA		
WES-7-2-81	—	1309501.85	3026589.93	601.72	604.72	35.0	20.27	29.62	581.45	572.10	Mgd	NA	NA	NA	NA	34.26	570.46	33.93	570.79	35.99	568.73	NA	NA	NA	NA	NA	NA		
WES-7-3-81	—	1309677.40	3026457.16	596.22	599.22	38.0	23.40	32.72	572.82	563.50	Mgd	NA	NA	NA	NA	28.82	570.40	27.11	572.11	29.15	570.07	NA	NA	NA	NA	NA	NA		
WES-7-4-81	—	1309586.54	3026531.10	595.22	598.22	39.0	24.31	33.64	570.91	561.58	Mgd	NA	NA	NA	NA	26.53	571.69	26.23	571.99	NA	NA	NA	NA	NA	NA	NA	NA		
WES-7-5-81	—	1309640.94	3026503.16	593.50	596.50	39.0	24.30	33.65	569.20	559.85	Mgd	NA	NA	NA	NA	24.25	572.25	23.98	572.52	26.14	570.36	NA	NA	NA	NA	NA	NA		

TABLE 2-1
 MONITORING WELL CONSTRUCTION INFORMATION AND WATER LEVEL MEASUREMENTS
 SWMU 12 - MINE FILL A
 ROUND 7
 NSWC CRANE
 CRANE, INDIANA
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Well or Gauge Number	Install Date	Northing (feet)	Easting (feet)	Ground Elevation (feet amsl)	Top of Riser or Reference Point Elevation (feet amsl)	Total Depth (feet bgs) ⁽¹⁾	Screened Interval				Water-Bearing Zone	October 17, 2004		December 15, 2004		January 18, 2005		May 18, 2005		August 10, 2005		November 29, 2005		May 5, 2006		April 10, 2007	
							Top (feet bgs)	Bottom (feet bgs)	Top (feet amsl)	Bottom (feet amsl)		Depth to Water (feet btor)	Water Elevation (feet amsl)	Depth to Water (feet btor)	Water Elevation (feet amsl)	Depth to Water (feet btor)	Water Elevation (feet amsl)	Depth to Water (feet btor)	Water Elevation (feet amsl)	Depth to Water (feet btor)	Water Elevation (feet amsl)	Depth to Water (feet btor)	Water Elevation (feet amsl)	Depth to Water (feet btor)	Water Elevation (feet amsl)	Depth to Water (feet btor)	Water Elevation (feet amsl)
							STAFF GAUGES																				
12SG01	10/14/04	1313149.25	3026817.59	NA	730.97	NA	NA	NA	NA	NA	NA	NA	NA	3.19	NA	Dry	NA	Dry	NA	Dry	NA	3.20	727.77	Dry	NA	Dry	NA
12SG02	10/14/04	1312731.07	3027125.37	NA	731.64	NA	NA	NA	NA	NA	NA	NA	NA	Dry	NA												
12SG03	10/14/04	1312335.43	3027317.19	NA	735.03	NA	NA	NA	NA	NA	NA	NA	NA	1.87	NA	Dry	NA	1.92	733.11	Dry	NA	1.85	733.18	1.10	733.93	1.90	733.13
12SG04	10/14/04	1311657.15	3027481.28	NA	736.72	NA	NA	NA	NA	NA	NA	NA	NA	4.50	NA	Dry	NA	4.11	732.61	Dry	NA	4.11	732.61	4.12	732.60	4.10	732.62
12SG05	10/14/04	1310844.41	3026971.44	NA	724.28	NA	NA	NA	NA	NA	NA	NA	NA	Dry	NA	Dry	NA	Dry	NA	Dry	NA	2.50	721.78	Dry	NA	Dry	NA
12SG06	10/14/04	1312141.14	3026445.52	NA	713.38	NA	NA	NA	NA	NA	NA	NA	NA	3.75	NA	3.95	NA	Dry	NA	Dry	NA	3.50	709.88	Dry	NA	3.27	710.11
12SG07	10/14/04	1312447.98	3026302.90	NA	713.45	NA	NA	NA	NA	NA	NA	NA	NA	4.28	NA	4.26	NA	4.27	709.18	Dry	NA	4.24	709.21	3.87	709.58	4.25	709.20
12SG08	10/14/04	1316378.17	3028951.05	NA	668.56	NA	NA	NA	NA	NA	NA	NA	NA	5.05	NA	5.23	NA	5.74	662.82	Dry	NA	6.45	662.11	5.86	662.70	6.08	662.48
12SG09	10/14/04	1308584.68	3028722.93	NA	529.35	NA	NA	NA	NA	NA	NA	NA	NA	17.24	NA	17.40	NA	17.40	511.95	17.55	511.80	17.48	511.87	17.43	511.92	17.23	512.12
12SG10	10/14/04	1307698.34	3029600.29	NA	517.21	NA	NA	NA	NA	NA	NA	NA	NA	14.58	NA	14.69	NA	14.69	502.52	15.05	502.16	14.25	502.96	14.52	502.69	14.54	502.67
12SG11	10/14/04	1305640.98	3027744.30	NA	513.47	NA	NA	NA	NA	NA	NA	NA	NA	20.00	NA	19.94	NA	19.90	493.57	20.05	493.42	19.71	493.76	19.95	493.52	19.68	493.79
12SG12	10/14/04	1308475.83	3027438.49	NA	538.45	NA	NA	NA	NA	NA	NA	NA	NA	6.02	NA	6.05	NA	6.06	532.39	Dry	NA	6.05	532.40	6.05	532.40	5.98	532.47

Notes:

- 1 = Total depth of boring, total depth of well may be less.
- 2 = Staff gauge measured surface water level that appears to be perched above groundwater in the Pennsylvanian geologic unit immediately adjacent to or underlying the drainageway.
- amsl = Above mean sea level (NAVD88).
- bgs = Below ground surface.
- btor = Below top of riser/reference point.
- Mgd = Mississippi glen dean water-bearing zone
- NA = Not applicable.
- NAVD = North American Vertical Datum
- Puz = Upper Pennsylvanian water-bearing zone
- Plz = Lower Pennsylvanian water-bearing zone

TABLE 2-2

SUMMARY OF ENVIRONMENTAL SAMPLES AND LABORATORY ANALYSES
 SWMU 12 - MINE FILL A
 ROUND 7
 NSWC CRANE
 CRANE, INDIANA
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Sample Number	Analytical Fraction		Reasoning Why Sample Was Not Collected
	Explosives	Miscellaneous	
	Nitroaromatics and Nitramines SW-846 8330	Perchlorate SW-846 6850	

Groundwater (Round 7)

12GWT0307	X	X	
12GWT0607	X	X	
12GWT0907	X	X	
12GWT1007	X	X	
12GWT1107	X	X	
12GWT1207	X	X	
12GWT1607	X	X	
12GWT1707	X	X	
12GWT1807	X	X	
12GWT2007	X	X	
12GWT2207	X	X	
12GWT2307	X	X	
12GWT2807	X	X	
12GWT30	O	O	Dry Well
12GWT3107	X	X	
12GWT3207	X	X	
12GWT3607	X	X	
12GWT3807	X	X	
12GWT4107	X	X	
12GWT4207	X	X	
12GWT4707	X	X	
GW TOTALS	20	20	

Surface Water (Round 7)

12SW0907	X	X	
12SW1107	X	X	
12SW14	O	O	Dry
12SW2407	X	X	
12SW2507	X	X	

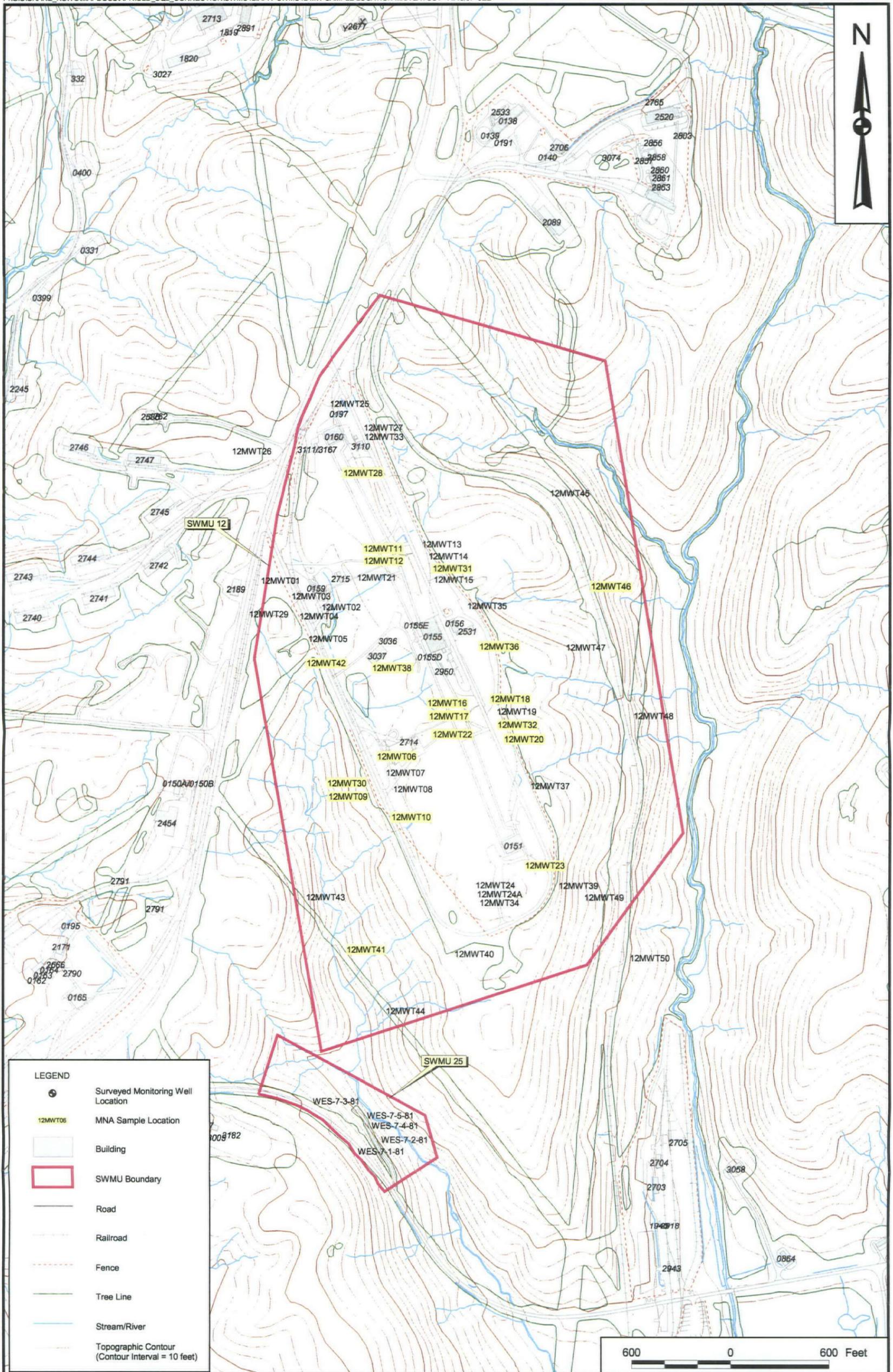
TABLE 2-2

SUMMARY OF ENVIRONMENTAL SAMPLES AND LABORATORY ANALYSES
 SWMU 12 - MINE FILL A
 ROUND 7
 NSWC CRANE
 CRANE, INDIANA
 PAGE 2 OF 2

Sample Number	Analytical Fraction		Reasoning Why Sample Was Not Collected
	Explosives	Miscellaneous	
	Nitroaromatics and Nitramines SW-846 8330	Perchlorate SW-846 6850	
12SW2707	X	X	
12SW31	O	O	Dry
12SW3406	X	X	
SW TOTALS	6	6	

X = Sample was collected as proposed.

O = Sample not collected.

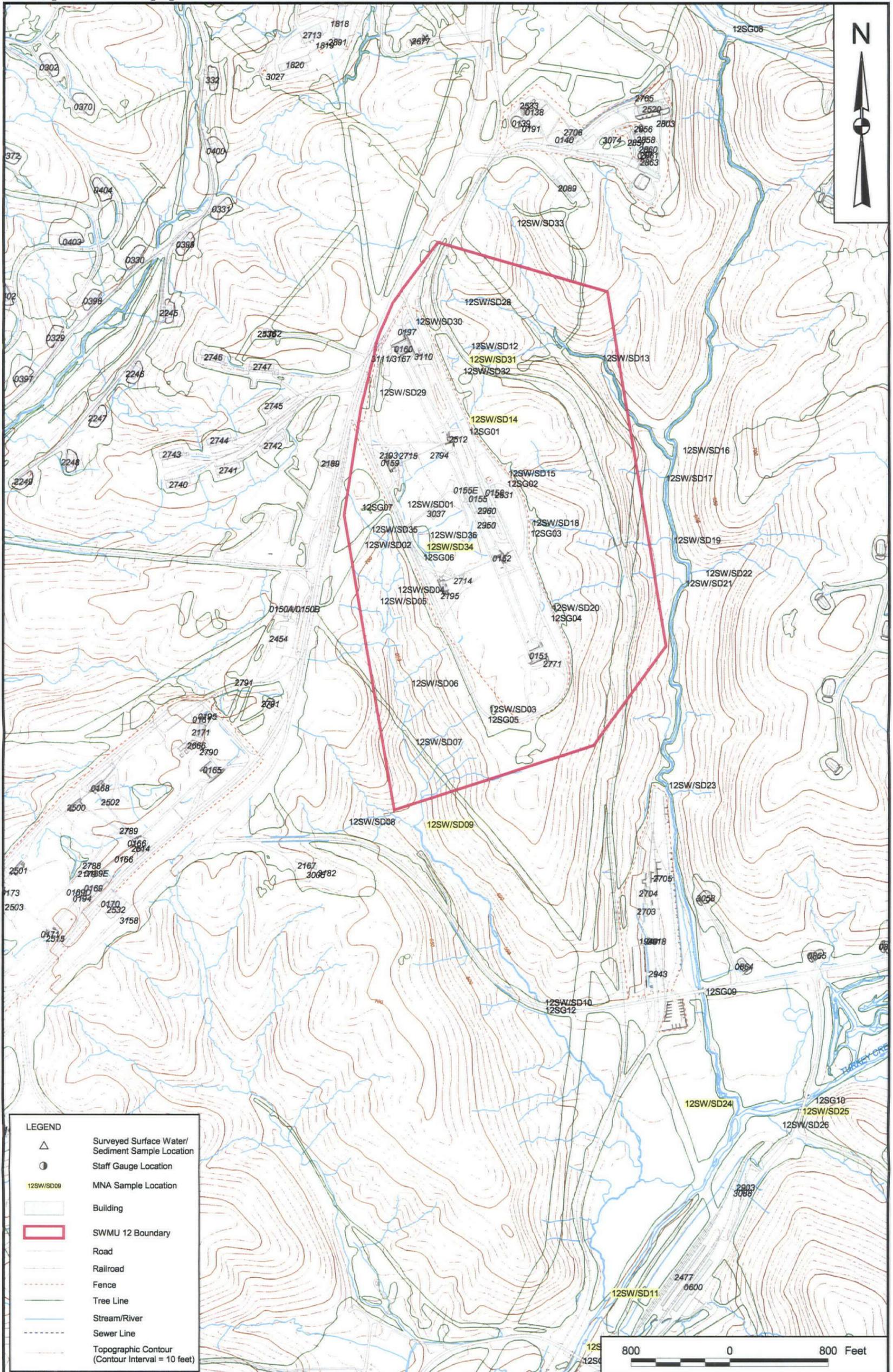


DRAWN BY A. JANOCHA	DATE 11/17/05
CHECKED BY J. LUCAS	DATE 11/13/07
COST/SCHEDULE-AREA	
SCALE AS NOTED	



SURVEYED MONITORING WELL LOCATIONS
 SWMU 12 - MINE FILL A AND SWMU 25 - HIGHWAY 58 DUMP SITE A
 NSWC CRANE
 CRANE, INDIANA

CONTRACT NUMBER CTO 0343	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO.	REV
FIGURE 2 - 1	0



LEGEND	
	Surveyed Surface Water/Sediment Sample Location
	Staff Gauge Location
	MNA Sample Location
	Building
	SWMU 12 Boundary
	Road
	Railroad
	Fence
	Tree Line
	Stream/River
	Sewer Line
	Topographic Contour (Contour Interval = 10 feet)



DRAWN BY A. JANOCHA	DATE 11/17/05
CHECKED BY J. LUCAS	DATE 11/13/07
COST/SCHEDULE-AREA	
SCALE AS NOTED	



**SURVEYED SURFACE WATER/SEDIMENT SAMPLE
 AND STAFF GAUGE LOCATIONS**
SWMU 12 - MINE FILL A
NAVAL SURFACE WARFARE CENTER
CRANE, INDIANA

CONTRACT NUMBER CTO 0343	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO.	REV
FIGURE 2 - 2	0

3.0 DATA PRESENTATION

This section presents the analytical results for groundwater and surface water sampling conducted in Round 7 at SWMU 12 (see Tables 3-1 to 3-6). Analytical results for Rounds 1 through 6 are also provided to support data evaluation which is discussed in Section 4. Appendix D contains a summary of analytical results for groundwater and surface water samples collected in Round 7.

The SWMU 12 RFI determined that explosives contamination remains in soil around SWMU 12 buildings and explosives have migrated to groundwater and surface water. RDX was identified as the most frequently detected explosive in groundwater and surface water. As a result, RDX is being considered as a parent compound for evaluating the effectiveness of natural attenuation at SWMU 12. Over time, natural attenuation will reduce the mass or concentration of the parent compound in soil and groundwater. During the natural attenuation process, the parent compound will decompose in stages to other well-defined intermediate products. In the case of RDX, degradation by-products are expected to include the nitroso derivatives hexahydro-1-nitroso-3,5-dinitro-1,3,5-triazine (MNX), hexahydro-1,3-dinitroso-5-nitro-1,3,5-triazine (DNX), and hexahydro-1,3,5-trinitroso-1,3,5-triazine (TNX). As a result, the presentation and interpretation of analytical results in Sections 3 and 4 for SWMU 12 monitoring will focus on RDX and its associated degradation by-products.

3.1 GROUNDWATER DATA

Groundwater analytical results for Rounds 1 through 7 at SWMU 12 are presented in Tables 3-1, 3-3, and 3-4 for select monitoring well locations in the Upper and Middle Pennsylvania, and the Mississippi Glen Dean Water Bearing Zones, respectively. These tables show a listing of concentrations for explosives, explosive degradation products, and miscellaneous field parameters. Groundwater samples were not analyzed for degradation by-products in Round 7. Descriptive statistics for Round 7 samples are presented in Table 3-2 for the Pennsylvania Upper Water Bearing Zone. There were no positive detections in the Pennsylvania Middle and Mississippi Glen Dean water bearing zones in Round 7. As a result, there are no descriptive statistics for these water bearing zones. Concentrations are presented in micrograms per liter ($\mu\text{g/L}$), along with data validation qualifiers, as applicable. Due to the staggered nature of the groundwater sampling, not all wells were sampled in each of the 7 rounds of sampling.

3.1.1 Pennsylvania Upper Water Bearing Zone (Puz)

Monitoring results for Round 7 groundwater sampling at the Pennsylvania Upper Water Bearing Zone (Puz) monitoring wells are presented in Table 3-1. As shown in Table 3-1, explosives were detected at all

PUZ wells (12MWT03, 12MWT06, 12MWT09, 12MWT10, 12MWT11, 12MWT12, 12MWT16, 12MWT17, 12MWT18, 12MWT20, 12MWT22, 12MWT23, 12MWT28, 12MWT36, 12MWT38, and 12MWT42) in Round 7. Well location 12MWT28 is considered to be upgradient of SWMU 12.

The most frequently detected explosives in Round 7 were RDX and HMX. Groundwater concentrations were highest for RDX and ranged from 0.32J µg/L in sample 12MWT2807 to 7,800 µg/L in sample 12MWT1607. Very high concentrations of RDX were also found in samples 12MWT0607 (5,500 µg/L), 12MWT1107 (4,000 µg/L), and 12MWT1707 (2,800 µg/L). HMX concentrations ranged from 0.98 µg/L in sample 12MWT03807 to 750 µg/L in sample 12MWT1607. HMX concentrations were also high in samples 12MWT0607 (450 µg/L), 12MWT1107 (450 µg/L), 12MWT1707 (150 µg/L), and 12MWT1207 (120 µg/L). In addition to RDX and HMX, several additional explosives were detected at monitoring wells 12MWT06, 12MWT09, 12MWT11, 12MWT12, 12MWT16, 12MWT17, and 12MWT22 including 1,3,5-trinitrobenzene, 2,4,6-trinitrotoluene, 2,4-dinitrotoluene, 2,6-dinitrotoluene, 1-3-dinitrobenzene, 2-amino-4,6-dinitrotoluene, and 4-amino-2,6-dinitrotoluene. Table 3-2 presents descriptive statistics for Puz monitoring results in Round 7.

3.1.2 Pennsylvania Middle Water Bearing Zone (Pmz)

Monitoring results for sampling at the Pennsylvania Middle Water Bearing Zone (Pmz) wells are presented in Table 3-3. There were no detections of explosives in Round 7.

3.1.3 Mississippi Glen Dean Water Bearing Zone (Mgd)

Round 7 monitoring results for sampling conducted in the Mississippi Glen Dean (Mgd) water bearing zone are presented in Table 3-5. There were no detections of explosives in Round 7.

3.2 SURFACE WATER DATA

Surface water analytical results for Round 7 are presented in Table 3-6., along with a statistical summary in Table 3-7. In Round 7, explosives were detected in samples 12SW0907, 12SW1107, and 12SW3406. RDX and HMX were the most frequently detected explosives. Samples were not collected at 12SW14 and 12SW31 because of dry conditions. Surface water samples were not analyzed for degradation by-products.

RDX concentrations ranged from 2.9J µg/L in sample 12SW1107 to 66 µg/L in sample 12SW3406. HMX concentrations ranged from 1.9 µg/L in sample 12SW1107 to 76 µg/L in sample 12SW3406. In addition

to RDX and HMX, other detections in surface water included 4-amino-2,6-dinitrotoluene (12SW0907 and 12SW3406), 2-amino-4,6-dinitrotoluene (12SW3406), and 3-nitrotoluene (12SW3406).

TABLE 3-1

SUMMARY OF CHEMICALS DETECTED, FIELD PARAMETERS, AND MISCELLANEOUS PARAMETERS FOR SWMU 12 GROUNDWATER
 ROUNDS 1 THROUGH 7 IN THE PENNSYLVANIA UPPER WATER BEARING ZONE
 NSWC CRANE
 CRANE, INDIANA
 PAGE 8 OF 8

		12MWT38							12MWT42						
		1	2	3	4	5	6	7	1	2	3	4	5	6	7
		10/09/2004	02/20/2005	05/19/2005	08/28/2005	12/01/2005	05/17/2006	04/14/2007	09/28/2004	02/19/2005	05/22/2005	08/25/2005	12/02/2005	05/18/2006	04/15/2007
Explosives	Units														
1,3,5-TRINITROBENZENE	UG/L	0.25 U	0.242 U	0.252 U	0.26 U	0.25 U	0.25 U	0.24 U	0.266 U	0.245 U	0.26 U	0.26 U	0.264 U	0.25 U	0.24 U
1,3-DINITROBENZENE		0.25 U	0.242 U	0.252 U	0.26 U	0.25 U	0.25 U	0.24 U	0.266 U	0.245 U	0.26 U	0.26 U	0.264 U	0.25 U	0.24 U
2,4,6-TRINITROTOLUENE		0.25 U	0.242 U	0.252 U	0.26 U	0.25 U	0.25 U	0.24 U	0.266 U	0.245 U	0.26 U	0.26 U	0.264 U	0.25 U	0.24 U
2,4-DIAMINO-6-NITROTOLUENE		0.25 U	0.242 U		0.26 U				0.266 U	0.245 U		0.26 U			
2,4-DINITROTOLUENE		0.25 U	0.242 U	0.252 U	0.26 U	0.25 U	0.25 U	0.24 U	0.266 U	0.245 U	0.26 U	0.26 U	0.264 U	0.25 U	0.24 U
2,6-DIAMINO-4-NITROTOLUENE		0.25 U	0.242 U		0.26 U				0.266 U	0.245 U		0.26 U			
2,6-DINITROTOLUENE		0.25 U	0.242 U	0.252 U	0.26 U	0.25 U	0.25 U	0.24 U	0.266 U	0.245 U	0.26 U	0.26 U	0.264 U	0.25 U	0.24 U
2-AMINO-4,6-DINITROTOLUENE		0.25 U	0.242 U	0.252 U	0.26 U	0.25 U	0.25 U	0.24 U	0.266 U	0.245 U	0.26 U	0.26 U	0.264 U	0.25 U	0.24 U
2-NITROTOLUENE		0.25 U	0.242 U	0.252 U	0.26 U	0.25 U	0.25 U	0.24 U	0.266 U	0.245 U	0.26 U	0.26 U	0.264 U	0.25 U	0.24 U
3,5-DINITROANILINE		0.25 U	0.242 U		0.26 U				0.266 U	0.245 U		0.26 U			
3-NITROTOLUENE		0.25 U	0.242 U	0.252 U	0.26 U	0.25 U	0.25 U	0.24 U	0.266 U	0.245 U	0.26 U	0.26 U	0.264 U	0.25 U	0.24 U
4,4'-TN-AZOXY		0.5 U	0.485 U		0.52 U				0.532 U	0.49 U		0.52 U			
4-AMINO-2,6-DINITROTOLUENE		0.25 U	0.242 U	0.252 U	0.26 U	0.25 U	0.25 U	0.24 U	0.266 U	0.245 U	0.26 U	0.26 U	0.264 U	0.25 U	0.24 U
4-NITROTOLUENE		0.25 U	0.242 U	0.252 U	0.26 U	0.25 U	0.25 U	0.24 U	0.266 U	0.245 U	0.26 U	0.26 U	0.264 U	0.25 U	0.24 U
RDX		42	52 J	59	57	26	61	71	11	19	17	17	21	15	15
DNX		0.25 U	0.242 U		0.26 U				0.266 U	0.245 U		0.26 U			
MXN		0.25 U	0.36 J		0.28 J				0.266 U	0.245 U		0.26 U			
TNX		0.25 U	0.242 U		0.26 U				0.266 U	0.245 U		0.26 U			
HMX		0.35 J	0.71 J	0.64 J	0.79	0.29 J	0.78	1 J	18	27	25	29	37 J	30	30
NITROBENZENE		0.25 U	0.242 U	0.252 U	0.26 U	0.25 U	0.25 U	0.24 U	0.266 U	0.245 U	0.26 U	0.26 U	0.264 U	0.25 U	0.24 U
TETRYL		0.25 U	0.242 U	0.252 U	0.26 U	0.25 U	0.25 U	0.24 U	0.266 U	0.245 U	0.26 U	0.26 U	0.264 U	0.25 U	0.24 U
Field Parameters															
TEMPERATURE	C	17.61	10.48	15.02	22.36		15.04		17.5	11.27	15.26	14.86		12.6	
DISSOLVED OXYGEN	MG/L	6.88	3.67				2.22		0.18	1.25				1.43	
DISSOLVED OXYGEN - METER				2.87	3.46						2.47	0.82			
SPECIFIC CONDUCTANCE	MS/CM	0.607	0.33	0.297	0.321		0.568		0.625	0.303	0.346	0.299		0.414	
OXIDATION REDUCTION POTENTIAL	MV	171.3	399.7	420	688.6		472		523	279.9	398.2	806.6		398	
TURBIDITY	NTU	5	1.21	1.4	0.4		1.81		1.01	0.55	5	7.8		3.5	
PH	S.U.	4.2	3.6	3.7	2.97		3.07		4	4.24	5	3.43		4.31	
Miscellaneous Parameters															
AMMONIA-N	MG/L	0.005 UJ	0.08 J						0.005 U	0.01 UJ					
NITRITE/NITRATE-N		0.07	0.05 U		0.025 U		0.025 U		0.4	0.21		0.025 U		0.19	
TOTAL ORGANIC CARBON					2.6							2.4			
PERCHLORATE	UG/L							0.2 U							0.116 J

A blank cell indicates that no sample was collected or analysis was conducted for the parameter.

U - Indicates that the chemical was not detected at the numerical detection limit (sample-specific detection limit) noted. Non-detected results from the laboratory are reported in this manner. This qualifier is

UJ - Indicates that the chemical was not detected; however, the detection limit (sample-specific detection limit) is considered to be estimated based on problems encountered during laboratory analysis. The

J - Indicates that the chemical was detected; however, the associated numerical result is not a precise representation of the concentration that is actually present in the sample. The laboratory reported

R - Indicates that the chemical may or may not be present. The positive analytical result reported by the laboratory is considered to be unreliable and unusable. This

UG/L - micrograms per liter

C - degrees centigrade

MG/L - milligrams per liter

MS/CM - millisiemens per centimeter

MV - millivolts

NTU - nephelometric turbidity units

S.U. - standard units

TABLE 3-2

DESCRIPTIVE STATISTICS FOR
 SWMU 12 (MINE FILL A) ROUND 7 GROUNDWATER IN THE UPPER PENNSYLVANIAN ZONE
 NSWC CRANE
 CRANE, INDIANA

Parameter	Frequency of Detection	Minimum Concentration	Maximum Concentration	Range of Nondetects	Mean Concentration	Average of Positive Detects	Sample of Maximum Detect
Explosives (ug/L)							
1,3,5-Trinitrobenzene	4/16	0.54	110	0.24 - 0.29	8	31	12GWT1107
1,3-Dinitrobenzene	2/16	7.9	11	0.24 - 0.29	1	9	12GWT1107
2,4,6-Trinitrotoluene	7/16	0.38 J	160	0.24 - 0.29	20	45	12GWT1107
2,4-Dinitrotoluene	4/16	0.28 J	4.1 J	0.24 - 0.29	0.7	2	12GWT1107
2,6-Dinitrotoluene	2/16	1.3 J	1.5 J	0.24 - 0.29	0.4	1	12GWT1607
2-Amino-4,6-Dinitrotoluene	4/16	3.4 J	150	0.24 - 0.29	13	51	12GWT1607
4-Amino-2,6-Dinitrotoluene	6/16	3.4	250	0.24 - 0.29	23	60	12GWT1607
HMX	13/16	0.98	750	0.24 - 0.29	127	156	12GWT1607
RDX	15/16	0.32 J	7800	0.28 - 0.28	1312	1399	12GWT1607

TABLE 3-3

SUMMARY OF CHEMICALS DETECTED, FIELD PARAMETERS, AND MISCELLANEOUS PARAMETERS FOR SWMU 12 GROUNDWATER
 ROUNDS 1 THROUGH 7 IN THE PENNSYLVANIA MIDDLE WATER BEARING ZONE
 NSWC CRANE
 CRANE, INDIANA
 PAGE 2 OF 2

Sampling Round	Location	12MWT46						
		1	2	3	4	5	6	7
Date		11/13/2004	03/03/2005	12/04/2005	No Sample	No Sample	No Sample	No Sample
Explosives								
	Units							
1,3,5-TRINITROBENZENE	UG/L	0.255 U	0.26 U	0.26 U				
1,3-DINITROBENZENE		0.255 U	0.26 U	0.26 U				
2,4,6-TRINITROTOLUENE		0.255 U	0.26 U	0.26 U				
2,4-DIAMINO-6-NITROTOLUENE		0.255 U	0.26 U					
2,4-DINITROTOLUENE		0.255 U	0.26 U	0.26 U				
2,6-DIAMINO-4-NITROTOLUENE		0.255 U	0.26 U					
2,6-DINITROTOLUENE		0.255 U	0.26 U	0.26 U				
2-AMINO-4,6-DINITROTOLUENE		0.255 U	0.26 U	0.26 U				
2-NITROTOLUENE		0.255 U	0.26 U	0.26 U				
3,5-DINITROANILINE		0.255 U	0.26 U					
3-NITROTOLUENE		0.255 U	0.26 U	0.26 U				
4,4'-TN-AZOXY		0.51 U	0.52 U					
4-AMINO-2,6-DINITROTOLUENE		0.255 U	0.26 U	0.26 U				
4-NITROTOLUENE		0.255 U	0.26 U	0.26 U				
RDX		0.255 U	0.26 U	0.26 U				
DNX		0.255 U	0.26 U					
MNX		0.255 U	0.26 U					
TNX		0.255 U	0.26 U					
HMX		0.255 U	0.26 U	0.26 U				
NITROBENZENE		0.255 U	0.26 U	0.26 U				
TETRYL		0.255 U	0.26 U	0.26 U				
Field Parameters								
TEMPERATURE	C	14.99	12.99					
DISSOLVED OXYGEN	MG/L	5.42	0.64					
DISSOLVED OXYGEN - METER								
SPECIFIC CONDUCTANCE	MS/CM	0.382	0.296					
OXIDATION REDUCTION POTENTIAL	MV	101	-10					
TURBIDITY	NTU	23	4.61					
PH	S.U.	5.68	6.02					
Miscellaneous Parameters								
AMMONIA-N	MG/L	1.8 J	0.82					
NITRITE/NITRATE-N		0.025 U	0.05 U					
TOTAL ORGANIC CARBON								
PERCHLORATE	UG/L							

A blank cell indicates that no sample was collected or analysis was conducted for the parameter.

U - Indicates that the chemical was not detected at the numerical detection limit (sample-specific detection limit) noted. Non-detected results from the laboratory are reported in this manner. This qualifier is also added to a positive result (reported by the laboratory) if the detected concentration is determined to be attributable to contamination introduced during field sampling or laboratory analysis.

UG/L - micrograms per liter

C - degrees centigrade

MG/L - milligrams per liter

MS/CM - millisiemens per centimeter

MV - millivolts

NTU - nephelometric turbidity units

S.U. - standard units

TABLE 3-4

SUMMARY OF CHEMICALS DETECTED, FIELD PARAMETERS, AND MISCELLANEOUS PARAMETERS FOR SWMU 12
GROUNDWATER ROUNDS 1 THROUGH 7 IN THE MISSISSIPPI GLEN DEAN WATER BEARING ZONE
NSWC CRANE
CRANE, INDIANA

Location	Round	12MWT41						
		1	2	3	4	5	6	7
Date		11/10/2004	02/19/2005	05/23/2005	08/25/2005	12/01/2005	05/20/2006	04/30/2007
Explosives	Units							
1,3,5-TRINITROBENZENE	UG/L	0.266 U	0.255 U	0.26 U	0.26 U	0.25 U	0.25 U	0.26 U
1,3-DINITROBENZENE		0.266 U	0.255 U	0.26 U	0.26 U	0.25 U	0.25 U	0.26 U
2,4,6-TRINITROTOLUENE		0.266 U	0.255 U	0.26 U	0.26 U	0.25 U	0.25 U	0.26 U
2,4-DIAMINO-6-NITROTOLUENE		0.266 U	0.255 U		0.26 U			
2,4-DINITROTOLUENE		0.266 U	0.255 U	0.26 U	0.26 U	0.25 U	0.25 U	0.26 U
2,6-DIAMINO-4-NITROTOLUENE		0.266 U	0.255 U		0.26 U			
2,6-DINITROTOLUENE		0.266 U	0.255 U	0.26 U	0.26 U	0.25 U	0.25 U	0.26 U
2-AMINO-4,6-DINITROTOLUENE		0.266 U	0.255 U	0.26 U	0.26 U	0.25 U	0.25 U	0.26 U
2-NITROTOLUENE		0.266 U	0.255 U	0.26 U	0.26 U	0.25 U	0.25 U	0.26 U
3,5-DINITROANILINE		0.266 U	0.255 U		0.26 U			
3-NITROTOLUENE		0.266 U	0.255 U	0.26 U	0.26 U	0.25 U	0.25 U	0.26 U
4,4'-TN-AZOXY		0.532 U	0.51 U		0.53 U			
4-AMINO-2,6-DINITROTOLUENE		0.266 U	0.255 U	0.26 U	0.26 U	0.25 U	0.25 U	0.26 U
4-NITROTOLUENE		0.266 U	0.255 U	0.26 U	0.26 U	0.25 U	0.25 U	0.26 U
RDX		0.266 U	0.255 U	0.26 U	0.26 U	0.33 J	0.25 U	0.26 U
DNX		0.266 U	0.255 U		0.26 U			
MNX		0.266 U	0.255 U		0.26 U			
TNX		0.266 U	0.255 U		0.26 U			
HMX		0.266 U	0.255 U	0.26 U	0.26 U	0.25 U	0.25 U	0.26 U
NITROBENZENE		0.266 U	0.255 U	0.26 U	0.26 U	0.25 U	0.25 U	0.26 U
TETRYL		0.266 U	0.255 U	0.26 U	0.26 U	0.25 U	0.25 U	0.26 U
Field Parameters								
TEMPERATURE	C	14.12	10.02	13.77	15.5		-9999	
DISSOLVED OXYGEN	MG/L	2.8	1.26				-9999	
DISSOLVED OXYGEN - METER				0.59	0.54			
SPECIFIC CONDUCTANCE	MS/CM	0.922	0.754	0.579	0.544		-9999	
OXIDATION REDUCTION POTENTIAL	MV	71	-39	23.8	767.6		-9999	
TURBIDITY	NTU	4	3.6	7.6	34		-9999	
PH	S.U.	6.85	6.78	6	2.81		-9999	
Miscellaneous Parameters								
AMMONIA-N	MG/L	0.16 J	0.46 J					
NITRITE/NITRATE-N		0.025 U	0.05 U		0.025 U		0.025 U	
TOTAL ORGANIC CARBON					1 U			
PERCHLORATE	UG/L							0.2 UJ

A blank cell indicates that no sample was collected or analysis was conducted for the parameter.

9999 = missing data

U - Indicates that the chemical was not detected at the numerical detection limit (sample-specific detection limit) noted. Non-detected results from the laboratory are reported in this manner. This qualifier is also added to a positive result (reported by the laboratory) if the detected concentration is determined to be attributable to contamination introduced during field sampling or laboratory analysis.

UG/L - micrograms per liter

C - degrees centigrade

MG/L - milligrams per liter

MS/CM - millisiemens per centimeter

MV - millivolts

NTU - nephelometric turbidity units

S.U. - standard units

TABLE 3-5

SUMMARY OF CHEMICALS DETECTED, FIELD PARAMETERS, AND
MISCELLANEOUS PARAMETERS FOR SWMU 12 SURFACE WATER ROUNDS 1 THROUGH 7
NSWC CRANE
CRANE, INDIANA
PAGE 4 OF 4

Location	12SW/SD31							12SW/SD34							
	Round	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Date	No Sample	03/05/2005	05/20/2005	No Sample	11/29/2005	05/16/2006	No Sample	No Sample	03/06/2005	05/20/2005	08/27/2005	11/29/2005	05/16/2006	05/02/2007	
Explosives	Units														
1,3,5-TRINITROBENZENE	UG/L		0.96 J	0.75 J		0.86	0.25 U			0.271 U	0.271 U	0.29 U	0.264 U	0.25 U	0.29 U
1,3-DINITROBENZENE			0.258 U	0.252 U		0.26 U	0.25 U			0.271 U	0.271 U	0.29 U	0.264 U	0.25 U	0.29 U
2,4,6-TRINITROTOLUENE			79	240		160	180			0.271 U	0.271 U	0.29 U	0.264 U	0.25 U	0.29 U
2,4-DIAMINO-6-NITROTOLUENE			1.6 J							0.271 U		0.29 U			
2,4-DINITROTOLUENE			0.36 J	0.252 J		0.49 J	0.25 U			0.271 U	0.271 U	0.29 U	0.264 U	0.25 U	0.29 U
2,6-DIAMINO-4-NITROTOLUENE			0.258 U							0.271 U		0.29 U			
2,6-DINITROTOLUENE			0.258 U	0.252 U		0.26 U	0.25 U			0.271 U	0.271 U	0.29 U	0.264 U	0.25 U	0.29 U
2-AMINO-4,6-DINITROTOLUENE			11 J	16 J		16 J	5.9 J			0.8 J	0.271 U	0.29 U	0.3 J	0.25 U	0.45 J
2-NITROTOLUENE			0.258 U	0.252 U		0.26 U	0.25 U			0.271 U	0.271 U	0.29 U	0.264 U	0.25 U	0.29 U
3,5-DINITROANILINE			1.2							0.271 U		0.29 U			
3-NITROTOLUENE			0.258 U	0.252 U		0.26 U	0.25 U			0.271 U	0.271 U	0.29 U	0.264 U	0.25 U	0.45 J
4,4'-TN-AZOXY			0.515 U							0.542 U		0.59 U			
4-AMINO-2,6-DINITROTOLUENE			24	51		58	32			1.7	0.51 J	0.29 U	0.66	0.78	0.99
4-NITROTOLUENE			0.258 U	0.252 U		0.26 U	0.25 U			0.271 U	0.271 U	0.29 U	0.264 U	0.25 U	0.29 U
RDX			20	34		47	23			140	99	3.1	83	200	66
DNX			0.258 U							0.271 U		0.29 U			
MNX			0.258 U							1.9		0.29 U			
TNX			0.258 U							0.271 U		0.29 U			
HMX			4.2	7.4		12 J	5.1			98	35	11	31 J	55	76
NITROBENZENE			0.258 U	0.252 U		0.26 U	0.25 U			0.271 U	0.271 U	0.29 U	0.264 U	0.25 U	0.29 U
TETRYL			0.258 U	0.252 U		0.26 U	0.25 U			0.271 U	0.271 U	0.29 U	0.264 U	0.25 U	0.29 U
Field Parameters															
TEMPERATURE	C		7.35	15.8			15.4			10.04	16.28	20.56		14	
DISSOLVED OXYGEN	MG/L		3.55				11.65			3.52				11.08	
DISSOLVED OXYGEN - METER				9.63							8.61	2.75			
SPECIFIC CONDUCTANCE	MS/CM		0.081	0.184			0.242			0.404	0.462	0.456		0.442	
OXIDATION REDUCTION POTENTIAL	MV		98	138			-9999			141	177	116		-9999	
TURBIDITY	NTU		40	40			17			130	130	8.7		45	
PH	S.U.		7.46	7.42			7.61			7.18	7.58	7.46		7.72	
Miscellaneous Parameters															
AMMONIA-N	MG/L		0.14							0.08					
NITRITE/NITRATE-N			0.51 J				0.4			0.81		0.025 U		1.2	
PERCHLORATE	UG/L														0.2 UJ

A blank cell indicates that no sample was collected or analysis was conducted for the parameter.

U - Indicates that the chemical was not detected at the numerical detection limit (sample-specific detection limit) noted. Non-detected results from the laboratory are reported in this manner. This qualifier is also added to a positive result (reported).

UJ - Indicates that the chemical was not detected; however, the detection limit (sample-specific detection limit) is considered to be estimated based on problems encountered during laboratory analysis. The associated numerical detection limit is regarded.

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. This qualifier is applied in cases of gross technical deficiencies (i.e., holding time).

J - Indicates that the chemical was detected; however, the associated numerical result is not a precise representation of the concentration that is actually present in the sample. The laboratory reported concentration is considered to be an estimate of t.

> - Indicates that the true value is probably greater than the reported value. This "qualifier flag" is used to identify reported values that exceed the calibration range of field measurements but could not be re-analyzed for various reasons.

UG/L - micrograms per liter

C - degrees centigrade

MG/L - milligrams per liter

MS/CM - millisiemens per centimeter

MV - millivolts

NTU - nephelometric turbidity units

S.U. - standard units

TABLE 3-6

DESCRIPTIVE STATISTICS FOR
SWMU 12 (MINE FILL A) ROUND 7 SURFACE WATER
NSWC CRANE
CRANE, INDIANA

Parameter	Frequency of Detection	Minimum Concentration	Maximum Concentration	Range of Nondetects	Mean Concentration	Average of Positive Detects	Sample of Maximum Detect
Explosives (ug/L)							
2-Amino-4,6-Dinitrotoluene	1/6	0.45 J	0.45 J	0.25 - 0.27	0.3	0.5	12SW3406
3-Nitrotoluene	1/6	0.45 J	0.45 J	0.25 - 0.27	0.3	0.5	12SW3406
4-Amino-2,6-Dinitrotoluene	2/6	0.58	0.99	0.25 - 0.27	0.4	0.8	12SW3406
HMX	3/6	1.9	76	0.25 - 0.27	14	28	12SW3406
RDX	3/6	2.9 J	66	0.25 - 0.27	13	25	12SW3406

4.0 DATA EVALUATION

Section 4 presents groundwater and surface water monitoring data for Rounds 1 through 7. The information presented includes Round 7 potentiometric surface contours and temporal plots for each groundwater and surface water sampling location included in the SWMU 12 long term monitoring program. The objective of the long term monitoring program at SWMU 12 is to collect enough monitoring data (up to nine rounds) to determine the nature and extent of contamination, whether residual explosives are naturally degrading, and provide data for making remedy decisions for residual explosives contamination to complete the CMS.

The information being provided in this monitoring program fulfills the requirements established by U.S. EPA Region 5 as described in the document entitled "Region 5 Framework for Monitored Natural Attenuation Decisions for Groundwater" (U.S. EPA, 2000). The framework summarizes the current state-of-the-science and U.S. EPA policy on the use of MNA. The framework also provides technical direction for the collection of specific primary and secondary monitoring information to demonstrate a net loss of contaminants and processes responsible for the loss.

The primary MNA monitoring information requirements are identified below in bold type along with supporting information being provided by the SWMU 12 long term monitoring program.

- **Monitoring data should include analytical results for the contaminants of concern and their degradation products from nine or more rounds of samples collected under non-pumping conditions over a period of three to five years.** The SWMU 12 long term monitoring program is providing analytical results for select explosives and degradation by-products. As indicated in the SWMU 12 RFI, RDX is considered to be the principal chemical of concern because it is a site-related contaminant and has been detected more frequently and at higher concentrations than any other explosive. The degradation by-products for RDX are DNX, MNX, and TNX. The long-term monitoring program is scheduled to include nine rounds of sampling, under non-pumping conditions, to provide information on trends in groundwater and surface water concentrations of explosives and explosives degradation by-products. To date, seven rounds of groundwater sampling events have been conducted in September 2004, March, 2005, May, 2005, August, 2005, November and December, 2005, May 2006, and April, 2007. The remaining two rounds of sampling are expected to be completed in 2008.

- **There should be at least two years of quarterly sampling to evaluate seasonal effects on the contaminant concentrations.** At the completion of the ninth round of sampling at SWMU 12, quarterly monitoring will have been conducted for at least 3 years.
- **The data should be collected from appropriately located sampling points, including within the source area, within the center of the plume and at the leading edges of the plume.** The SWMU 12 long term monitoring program includes 21 wells. The location of each well relative to the contamination plume is discussed in Section 4.1.
- **Samples should be collected from points located vertically (above and below) and horizontally (upgradient and downgradient) outside the area of groundwater contamination.** The SWMU 12 long term monitoring program includes wells located in the Puz, Pmz, and Mgd water bearing zones to evaluate if contamination is migrating vertically to the lower aquifer (Mgd). Through Round 4, explosives contamination has been detected in the Puz and Pmz aquifers, but not in the Mgd aquifer. In Round 5, RDX was detected at a low concentration in the Mgd indicating that explosives have migrated to the lower aquifer. However, there were no detections of explosives in the Mgd in Rounds 6 and 7. In addition, the monitoring program includes monitoring wells positioned upgradient and downgradient of the source area, within the source plume and along the outside area of the groundwater contamination.
- **The most recent analytical data on groundwater should be no more than two years old at the time of evaluation.** The ninth round of sampling is expected to be completed in 2008. A final report evaluating the MNA program through nine rounds of sampling is expected to be issued in 2008. As a result, the most recent analytical data will be no more than two years old.
- **Demonstration of a trend of decreasing contamination concentration must be clear and meaningful and be based on statistical tests which indicate a high degree of confidence in the apparent trend line.** The SWMU 12 MNA report summarizing nine rounds of sampling will include temporal plots of RDX and degradation by-product concentrations, along with a detailed statistical evaluation.
- **Additional rounds of samples, beyond nine rounds, may be required to demonstrate the decreasing trend.** SWMU 12 MNA monitoring data will be evaluated after nine rounds and a decision will be made if additional data is needed.

The secondary MNA monitoring information requirements are identified below in bold type along with supporting information being provided by the SWMU 12 long term monitoring program.

- **The monitoring data should be collected from appropriate locations that are distributed both vertically and horizontally throughout the plume.** The SWMU 12 long term monitoring program includes monitoring wells located in the Puz, Pmz, and Mgd water bearing zones to evaluate if contamination is migrating vertically to the lower aquifers. In addition, the monitoring program includes monitoring wells positioned upgradient and downgradient of the source area, within the source plume and along the outside area of the groundwater contamination. The location of each well relative to the contamination plume is discussed in Section 4.1 below.
- **Sample locations should consider heterogeneities in geologic structures and in the spatial distribution of contaminants. Groundwater flow paths and rates should be fully and accurately defined.** Groundwater elevations are being measured during each sampling round to develop potentiometric analyses of groundwater direction and flow rates and the results will be presented in the final MNA report.
- **Locations should be sampled under non-pumping conditions and should include the following information:**
 - **Contaminants of concern and potential degradation by-products.** All sampling is being conducted under non-pumping conditions. The SWMU 12 monitoring program is providing analytical results for RDX and the degradation by-products DNX, MNX, and TNX.
 - **Routine and Other Indicator Parameters.** The monitoring data also includes the routine indicator parameters DO, ORP, pH, specific conductance, temperature, turbidity, ammonia, and nitrite/nitrate concentrations.
 - **Vertical and horizontal characterization of the distribution of hydraulic conductivity and its affect on contaminant concentrations.** Information collected in nine rounds of sampling will be evaluated and used to characterize vertical and horizontal hydraulic conductivity.
 - **Water levels should be measured to determine groundwater flow direction.** Groundwater elevations are being measured at each well during each of the nine sampling rounds and the results will be presented in the final MNA report in the form of potentiometric surface figures.

- **Seasonal variations and trends should be evaluated by obtaining data from different times of the year to determine if changes in contaminant concentrations, indicator parameters, or water types are caused by natural attenuation or may be attributed to seasonal variability.** The SWMU 12 monitoring program includes monitoring which will measure RDX and degradation by-product concentrations and routine indicator parameters by season. The final MNA report will include the presentation of temporal plots to discern trends of RDX and degradation by-product concentrations, as well as routine indicator parameters.

4.1 GROUNDWATER MONITORING PROGRAM

MNA groundwater sampling is being conducted at 21 select well locations across SWMU 12 (see Figure 2-1). Sixteen wells are located in the Puz aquifer; four wells are located in the Pmz aquifer; and the remaining well is in the Mgd aquifer. These wells have been established in accordance with U.S. EPA Region 5 MNA guidance. The monitoring wells have a specific role in the monitoring program and represent locations within the plume source area, within the center and leading edges of the plume, and from points located vertically (above and below) and horizontally (upgradient and downgradient) outside the area of groundwater contamination. The selected wells are distributed as follows in the Puz, Pmz, and Mgd water bearing zones:

Puz Aquifer Wells

- Three source area wells (12MWT06, 12MWT11, and 12MWT16)
- Three wells located within the center of the plume (12MWT09, 12MWT12, and 12MWT17)
- Seven wells at the leading edge of the plume (12MWT10, 12MWT18, 12MWT20, 12MWT22, 12MWT36, 12MWT38, and 12MWT42)
- One well upgradient of the plume (12MWT28)
- Two wells laterally downgradient of the plume (12MWT03 and 12MWT23)

Pmz Aquifer Wells

- Three wells vertically below the plume (12MWT30, 12MWT31, and 12MWT32)
- One well laterally downgradient of the plume (12MWT46)

Mgd Aquifer Well

- One well laterally downgradient of the plume (12MWT41)

In Rounds 3 through 9, all groundwater samples are being analyzed for explosives and well stabilization parameters with occasional analyses for routine indicator MNA parameters and periodically for RDX degradation by-products. Groundwater elevations are also being collected during each sampling round.

4.2 SURFACE WATER MONITORING PROGRAM

In support of the MNA demonstration, surface water samples are also being collected at eight select locations (see Figure 2-2). These locations include 12SW/SD09, 12SW/SD11, 12SW/SD14, 12SW/SD24, 12SW/SD25, 12SW/SD27, 12SW/SD31, and 12SW/SD34. The location 12SW/SD25 is considered to be upgradient of SWMU 12. In Rounds 3 through 9, samples from these locations are being analyzed for explosives and the routine indicator parameters DO, ORP, pH, specific conductance, temperature, turbidity, ammonia and nitrite/nitrate concentrations.

4.3 ROUND 7 POTENTIOMETRIC SURFACES

Figures 4-1, 4-2, and 4-3 show the Round 7 (April 10, 2007) potentiometric surface elevation maps for the Puz, Pmz, and Mgd water bearing zones, respectively. The groundwater elevations collected in Round 7 were compared to groundwater elevations reported in Round 6 (see Appendix E). In general, groundwater flow for Round 6 in all three water bearing zones are similar to flow directions reported in Round 5. An overview of the groundwater elevations in Round 7, as compared to Round 6, is presented below for each water bearing zone.

The potentiometric surface for the Puz in Round 6 is presented in Figure 4-1. As in all previous rounds, the highest groundwater elevations were measured at the far northwest end of SWMU 12 at wells 12MWT25 to 12MWT28 (731.31 feet asml to 733.63 feet asml). In general, the changes in most well elevations were ± 1 foot as compared to Round 6. As shown in Figure 4-1, there are two ridges of higher groundwater elevations that extend from the groundwater high at the north end of SWMU 12. The larger more pronounced ridge runs southeast along the centerline of the SWMU 12 ridgetop through wells 12MWT13, 12MWT16, 12MWT17, and 12MWT23. The groundwater elevations decrease from about 731 to 712 feet amsl along this groundwater ridge. To the northeast and southwest of this groundwater ridge, the elevations decrease rapidly to the sides of the ridge. Shallow groundwater on the northeastern side of this groundwater ridge flows to the east and northeast, while shallow groundwater on the southwestern side of the ridge flows southwest. A second ridge extends from the northern high area toward the southwest. Along this ridge, the elevations decrease gradually along the crest of the groundwater ridge at wells 12MWT26 and 12MWT28 (733 feet amsl) down to well 12MWT42 (708 feet amsl). Groundwater is flowing toward the cropline on the sides of both ridges.

Groundwater elevations measured in the Pmz in Round 7 are shown in Figure 4-2. Groundwater elevations for all Pmz wells changed by less than ± 1.0 foot in elevation as compared to Round 6. As shown in Figure 4-2, a groundwater ridge extends from the northwest end of SWMU 12 toward the southeast. Groundwater elevations decrease toward the southeast and toward the southwest from the groundwater ridge. The highest groundwater elevation was measured at well 12MWT33 (699.58 feet amsl). The lowest groundwater elevations were measured in wells 12MWT30 (634.92 feet amsl) on the southwest side of SWMU 12 and 12MWT48 (619.73 feet amsl) on the southeast side of SWMU 12.

Round 7 groundwater levels for the Mgd zone are presented in Figure 4-3. In Round 7, groundwater elevations ranged from 573.66 feet amsl at 12MWT50 to 603.46 feet amsl at 12MWT41. The groundwater elevation changes at the Mgd wells in Round 7 were slightly higher than in Round 6 with exception of well 12MWT50 which drop slightly. The general groundwater flow direction in the Mgd in Round 6 was to the south and southeast toward Turkey Creek.

4.4 GROUNDWATER TEMPORAL PLOT TREND ANALYSIS

The temporal plots of RDX and degradation by-product concentrations are shown in Figures 4-4, 4-5, and 4-6 for each water-bearing zone. The plots are arranged in columns by monitoring well location showing concentration trends for RDX followed by the trend for each degradation by-product. The analytical results for each round are shown as a data point and include the validation qualifier, if applicable, and correspond to the datum presented in Tables 3-1, 3-3, and 3-4, respectively, for the Puz, Pmz, and Mgd. The absence of a data point for a Round indicates no sample was collected or a particular parameter was not a target analyte.

Puz Water Bearing Zone

Figure 4-4 shows temporal plots of RDX and degradation by-product groundwater concentrations for Rounds 1 through 7 in the Puz. Through Round 7, RDX has been detected all at MNA monitoring locations with the exception of 12MWT03, which is laterally downgradient of the contamination plume at SWMU 12. At the present time, RDX concentrations at monitoring wells 12MWT16, 12MWT17, 12MWT20, and 12MWT38 are showing a potential upward trend in RDX concentrations through 7 rounds of sampling. Monitoring wells 12MWT06, 12MWT09 and 12MWT18 are showing a potential downward trend in RDX concentrations. Otherwise, all other Puz wells are exhibiting oscillating changes in RDX concentrations and no apparent trend in RDX concentrations. Degradation by-products have been detected at all monitoring locations with the exception of 12MWT03, 12MWT18, 12MWT20, 12MWT23,

12MWT28, and 12MWT42. At the present time, there is insufficient data to discern any trend in degradation by-product concentrations.

Pmz Water Bearing Zone

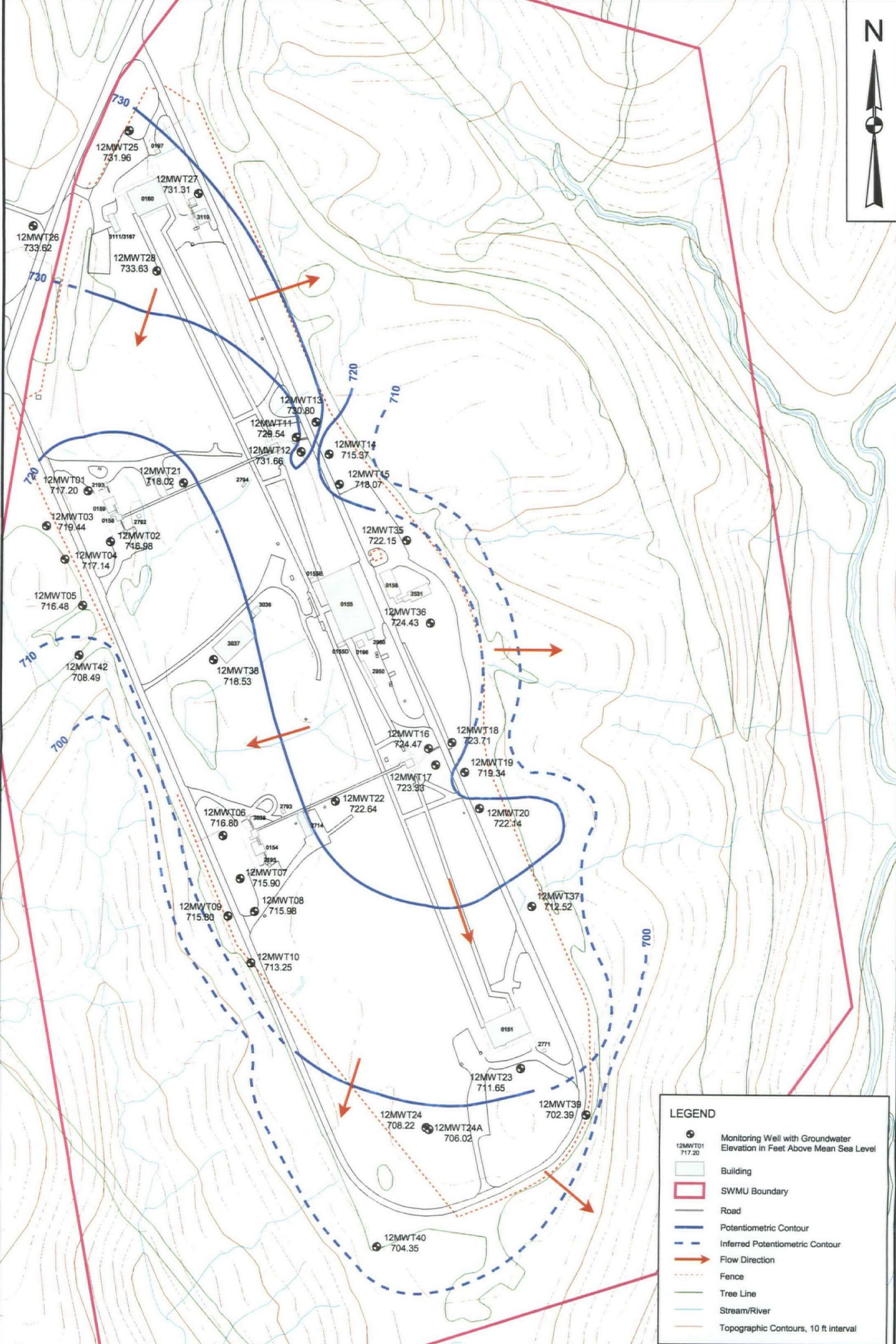
Figure 4-5 shows temporal plots of RDX and degradation by-product concentrations for Round 1 through 7 in Pmz wells. Through Round 7, there have been no positive detections of RDX or degradation by-products in the Pmz monitoring wells 12MWT30, 12MWT31, 12MWT32, and 12MWT46.

Mgd Water Bearing Zone

Figure 4-6 shows temporal plots of RDX and degradation by-product concentrations for Round 1 through 7 in well 12MWT41. Through Round 7, there has been only one minor detection of RDX (0.33µg/L), which occurred in Round 5. Otherwise, there have been no positive detections of RDX or degradation by-products at well 12MWT41.

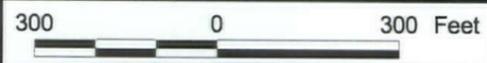
4.5 SURFACE WATER TEMPORAL PLOT TREND ANALYSIS

Figure 4-7 shows temporal plots of explosives and degradation by-product surface water concentrations for Rounds 1 through 7. Through Round 7, RDX has been detected at all surface water sampling locations with the exception of 12SW/SD25, which is considered to be an upgradient location. RDX has been most frequently detected at surface water locations 12SW/SD09, 12SW/SD11, 12SW/SD14, 12SW/SD31, and 12SW/SD34. With the exception of location 12SW/SD24, RDX concentrations exhibit no clear trends. At 12SW/SD24, RDX concentrations are showing a potential downward trend. The only RDX degradation by-product detected through Round 7 is MNX at locations 12SW/SD09, 12SW/SD14, and 12SW/SD34. At the present time, there is insufficient data to conduct an evaluation regarding trends for MNX concentrations.



LEGEND

- Monitoring Well with Groundwater Elevation in Feet Above Mean Sea Level
- Building
- SWMU Boundary
- Road
- Potentiometric Contour
- Inferred Potentiometric Contour
- Flow Direction
- Fence
- Tree Line
- Stream/River
- Topographic Contours, 10 ft interval

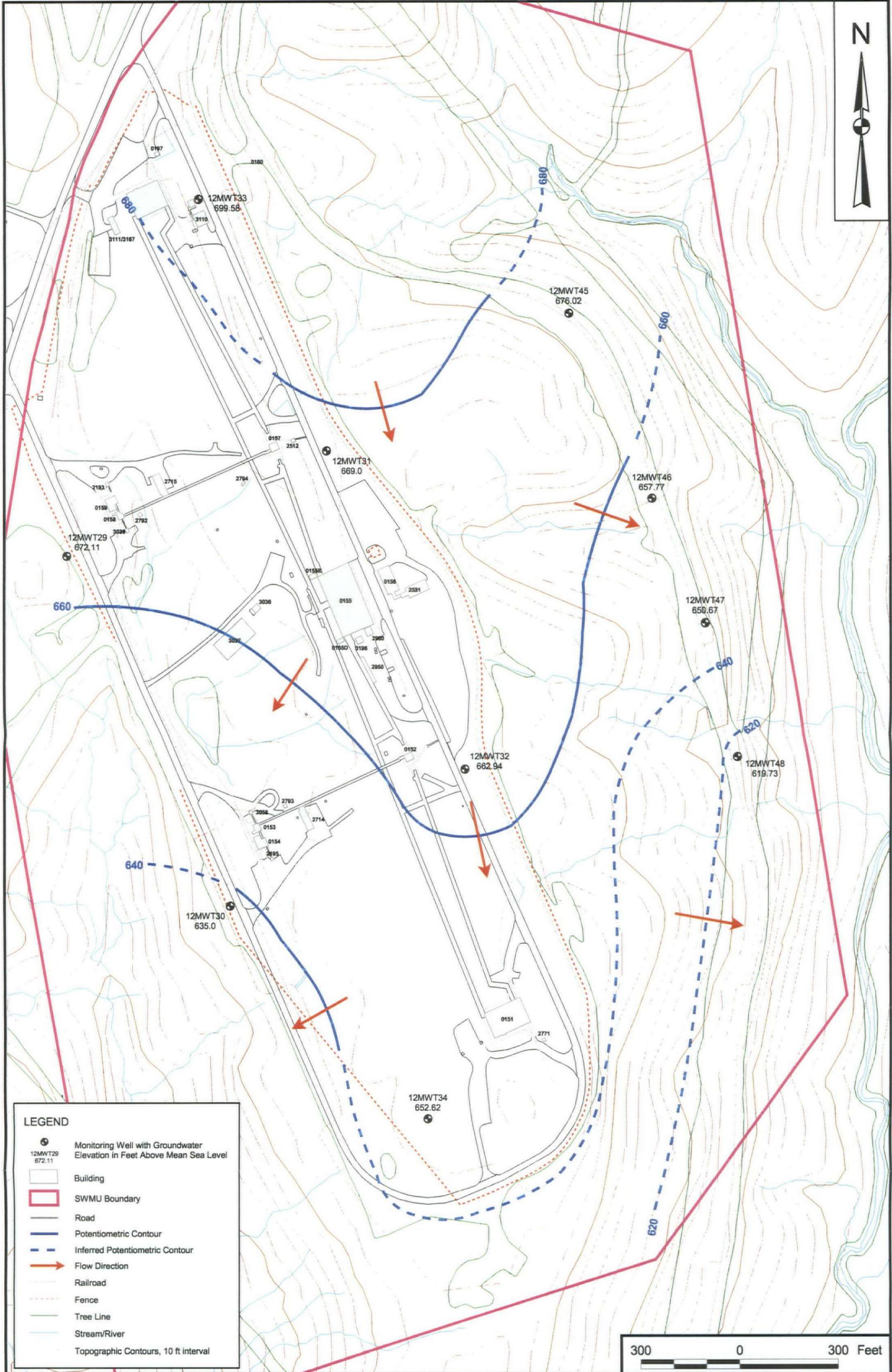


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CHECKED BY J. LUCAS	DATE 11/15/07
COST/SCHEDULE-AREA	
SCALE AS NOTED	



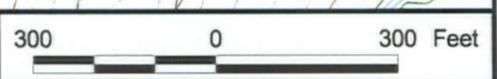
POTENTIOMETRIC SURFACE MAP FOR THE UPPER PENNSYLVANIAN WATER-BEARING ZONE - APRIL 10, 2007
ROUND 7
SWMU 12 MINE FILL A
NSWC CRANE
CRANE, INDIANA

CONTRACT NUMBER 00041	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 4 - 1	REV 0



LEGEND

- Monitoring Well with Groundwater Elevation in Feet Above Mean Sea Level
- Building
- SWMU Boundary
- Road
- Potentiometric Contour
- Inferred Potentiometric Contour
- Flow Direction
- Railroad
- Fence
- Tree Line
- Stream/River
- Topographic Contours, 10 ft interval

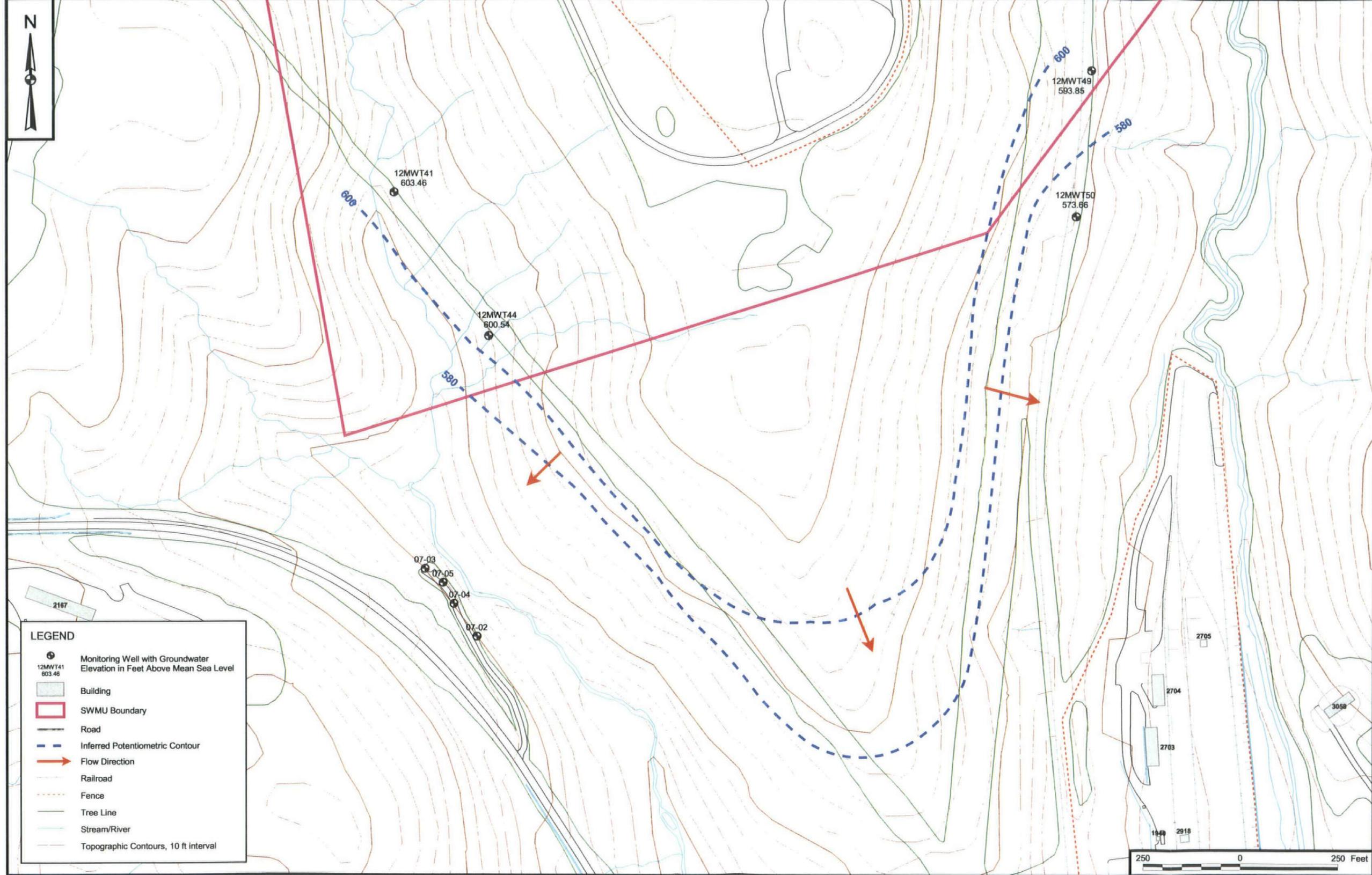


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COST/SCHEDULE-AREA	
SCALE AS NOTED	



POTENTIOMETRIC SURFACE MAP FOR THE MIDDLE PENNSYLVANIAN WATER-BEARING ZONE - APRIL 10, 2007
ROUND 7
SWMU 12 MINE FILL A
NSWC CRANE
CRANE, INDIANA

CONTRACT NUMBER 00041	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 4 - 2	REV 0



LEGEND

- Monitoring Well with Groundwater Elevation in Feet Above Mean Sea Level
- Building
- SWMU Boundary
- Road
- Inferred Potentiometric Contour
- Flow Direction
- Railroad
- Fence
- Tree Line
- Stream/River
- Topographic Contours, 10 ft interval

		POTENTIOMETRIC SURFACE MAP FOR THE GLEN DEAN LIMESTONE (MISSISSIPPIAN) AQUIFER ON APRIL 10, 2007 ROUND 7 SWMU 12 MINE FILL A NSWCRANE CRANE, INDIANA	
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CHECKED BY	DATE	APPROVED BY	DATE
J. LUCAS	11/14/07		
COST/SCHED-AREA		DRAWING NO.	FIGURE 4 - 3
SCALE		AS NOTED	

FIGURE 4-4

TEMPORAL PLOTS OF RDX AND DEGRADATION BY-PRODUCT CONCENTRATIONS IN
THE PENNSYLVANIA UPPER WATER BEARING ZONE AT SWMU 12
ROUNDS 1 THROUGH 7
NSWC CRANE
CRANE, INDIANA
PAGE 1 OF 4

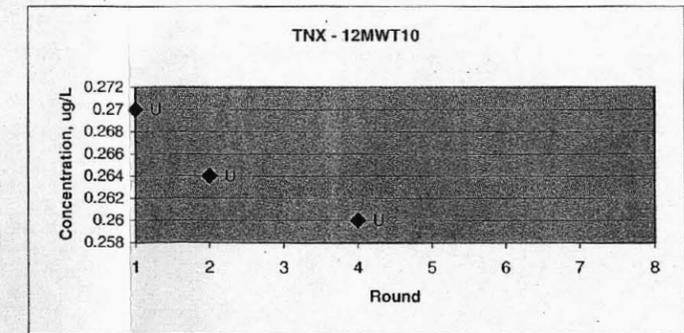
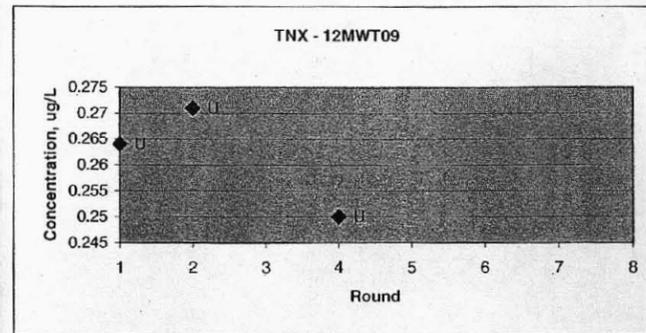
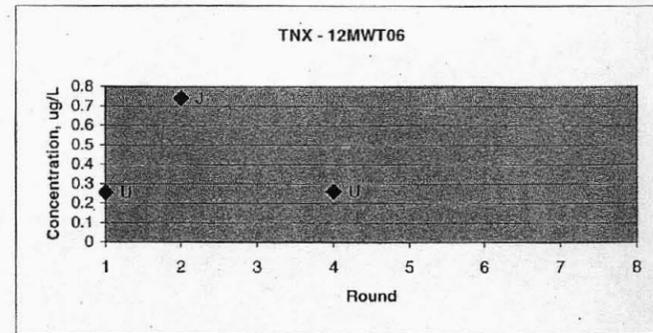
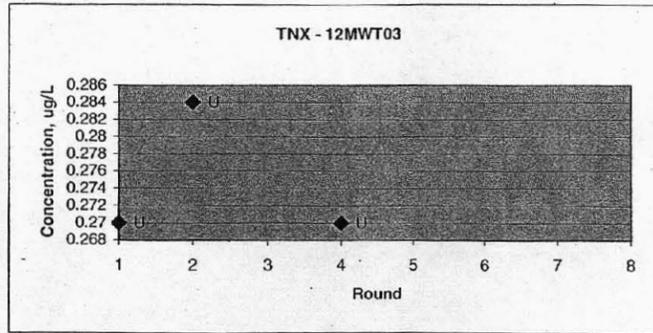
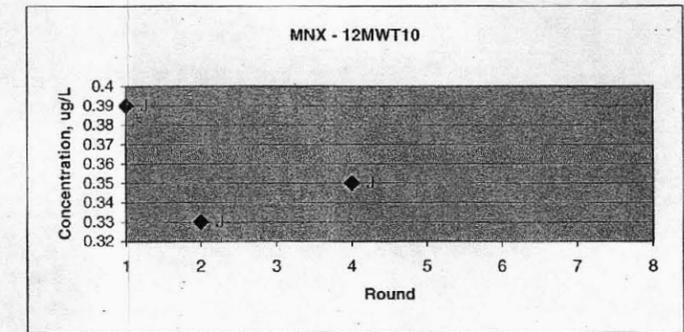
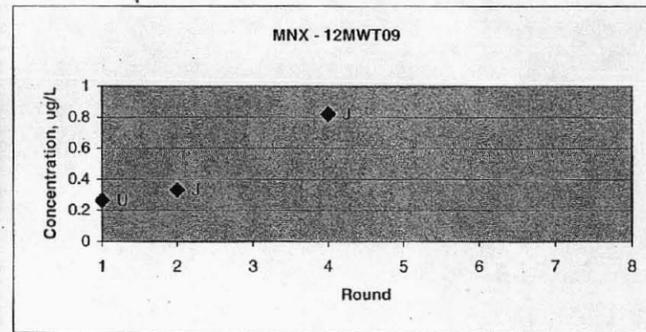
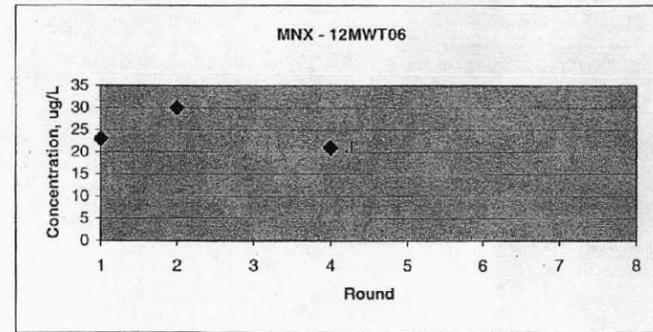
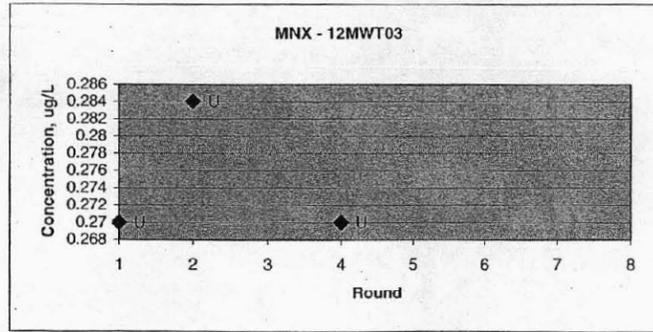
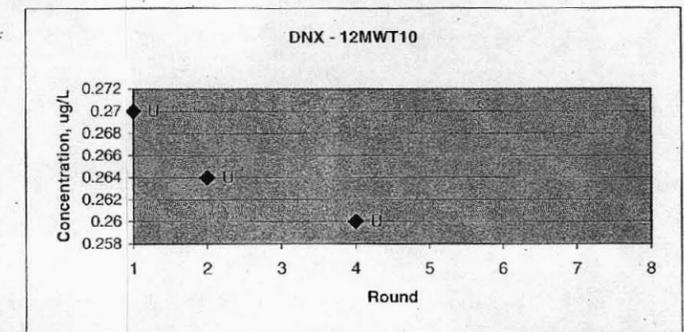
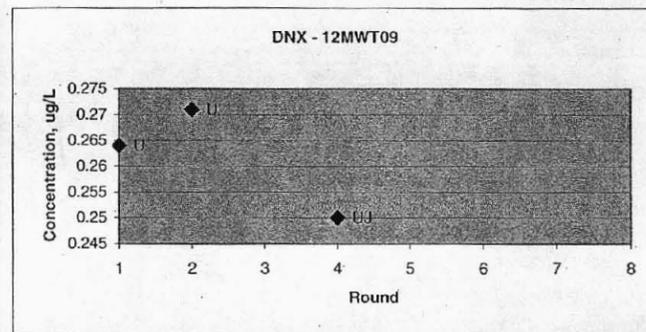
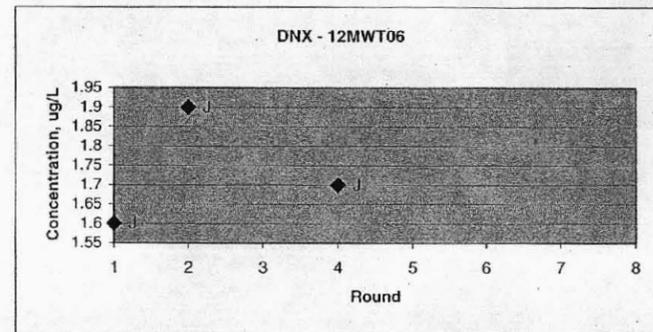
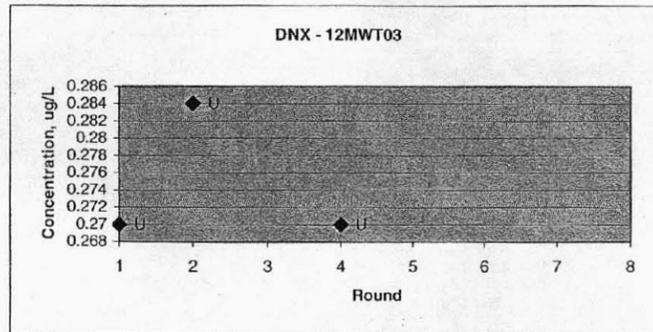
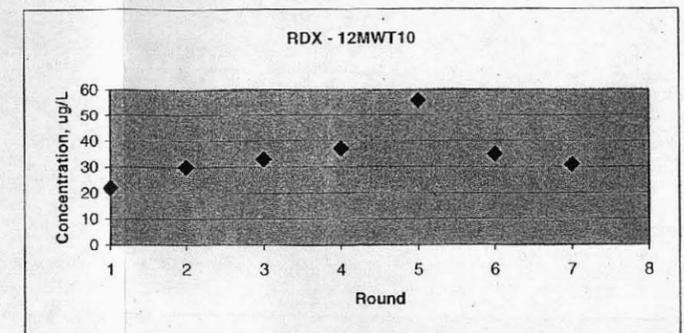
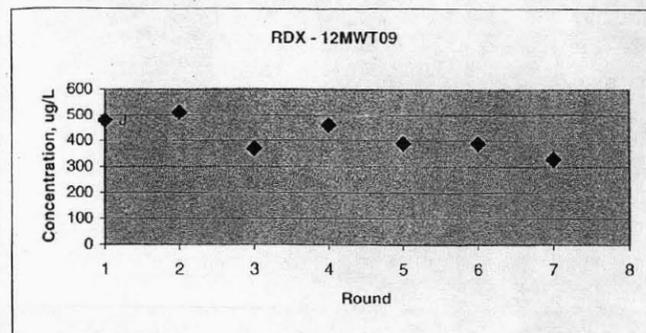
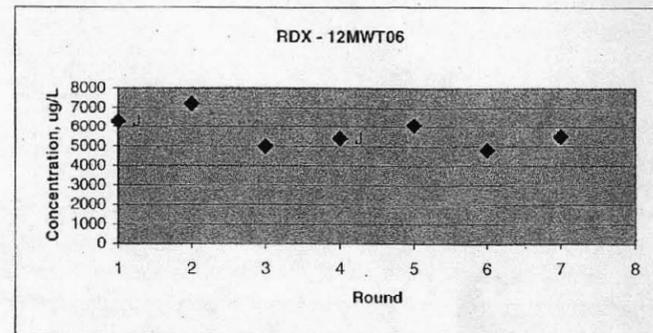
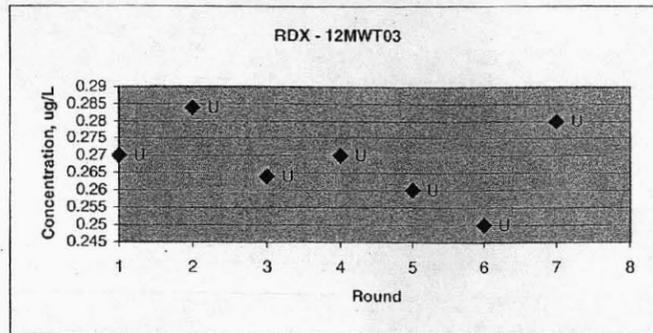


FIGURE 4-4

TEMPORAL PLOTS OF RDX AND DEGRADATION BY-PRODUCT CONCENTRATIONS IN
 THE PENNSYLVANIA UPPER WATER BEARING ZONE AT SWMU 12
 ROUNDS 1 THROUGH 7
 NSWC CRANE
 CRANE, INDIANA
 PAGE 2 OF 4

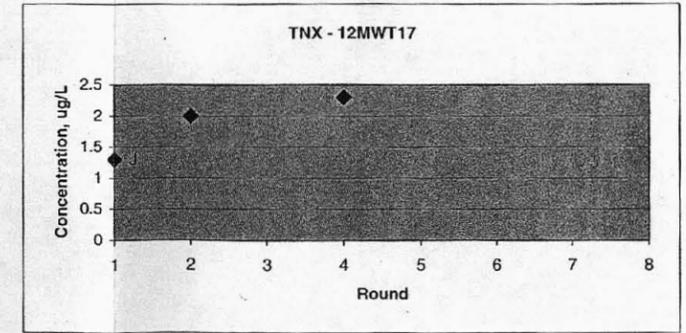
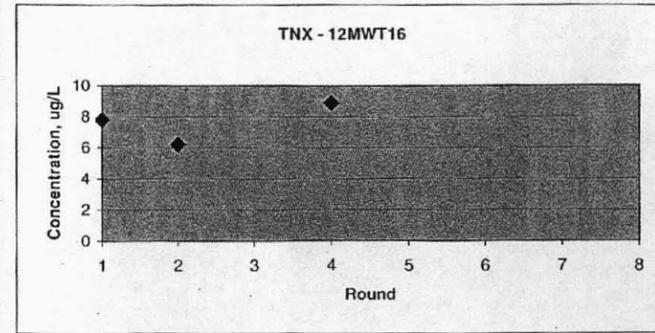
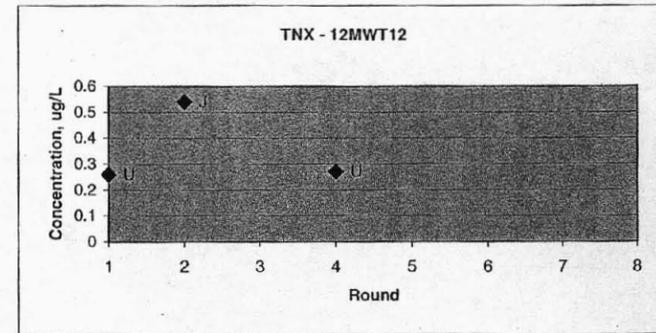
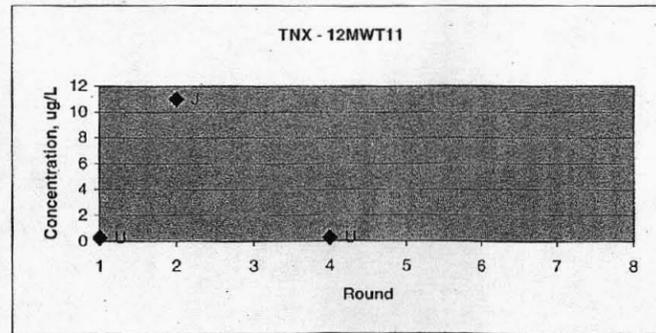
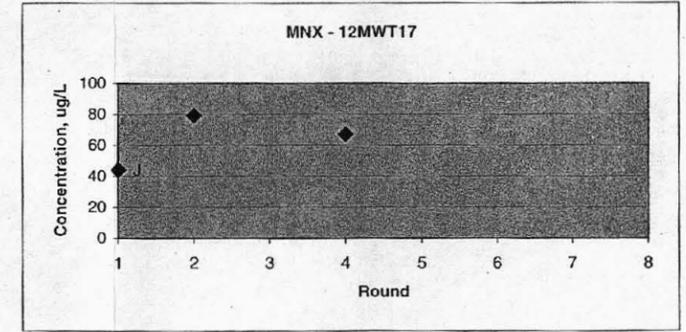
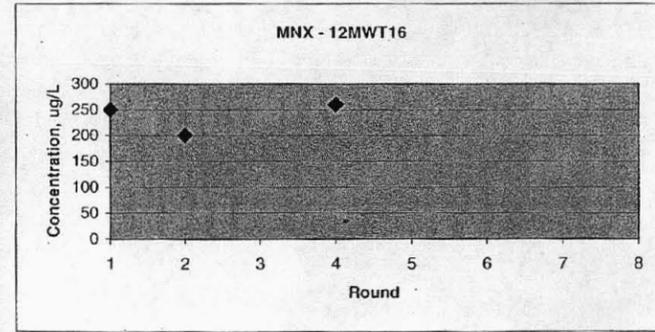
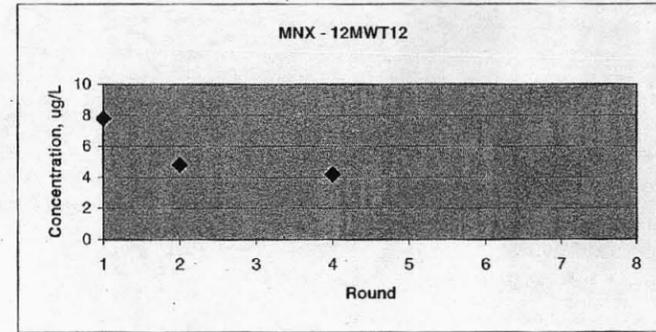
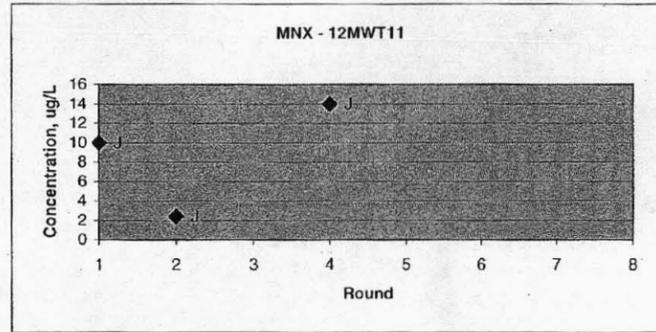
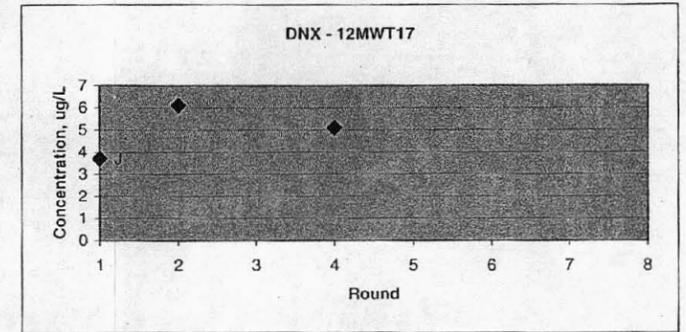
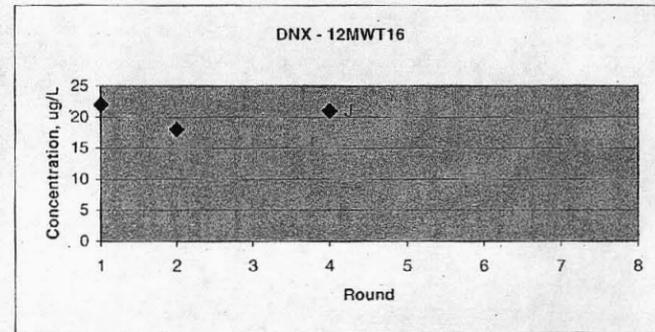
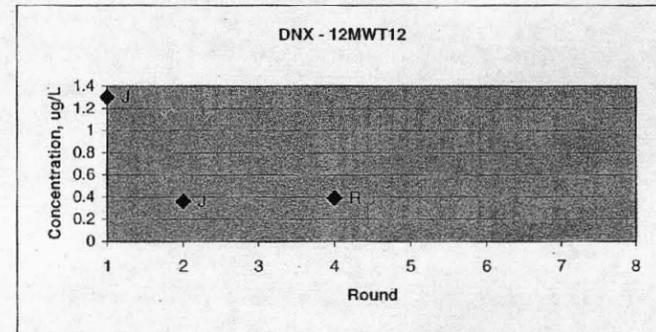
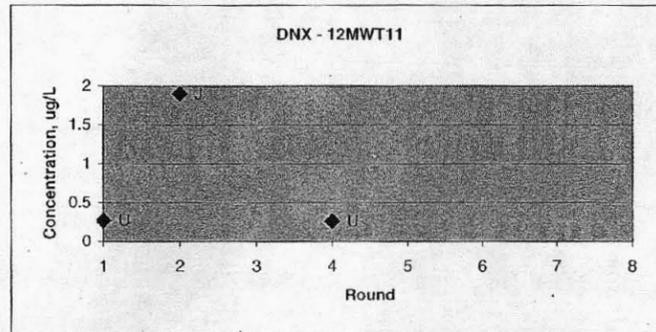
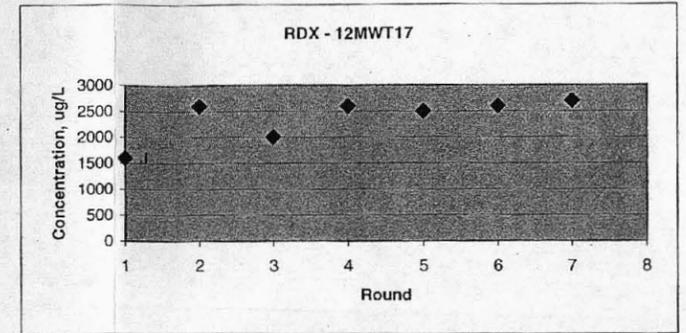
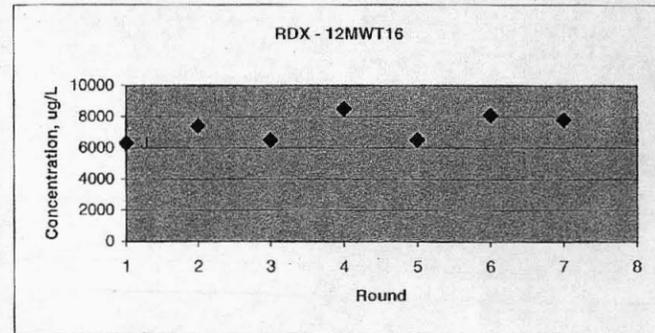
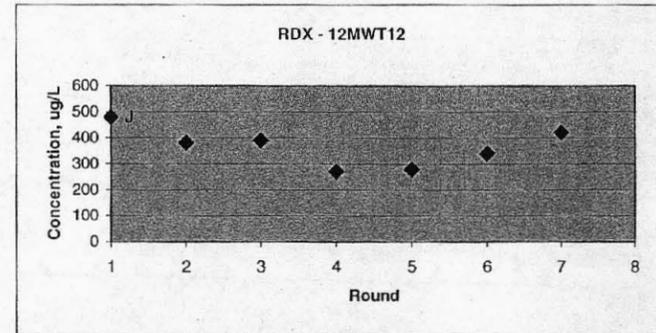
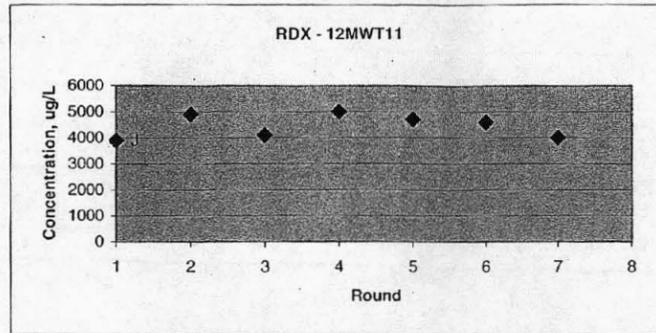


FIGURE 4-4

TEMPORAL PLOTS OF RDX AND DEGRADATION BY-PRODUCT CONCENTRATIONS IN
THE PENNSYLVANIA UPPER WATER BEARING ZONE AT SWMU 12
ROUNDS 1 THROUGH 7
NSWC CRANE
CRANE, INDIANA
PAGE 3 OF 4

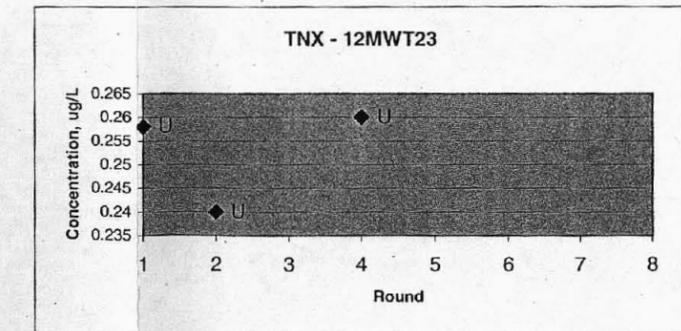
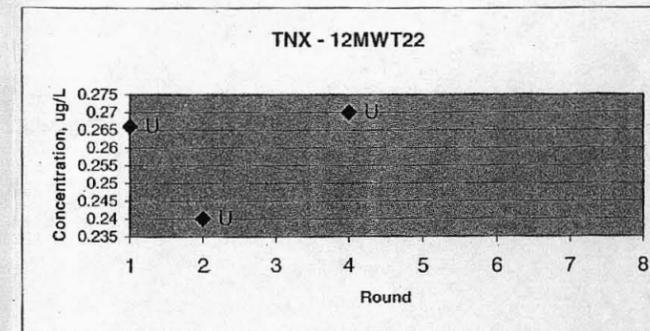
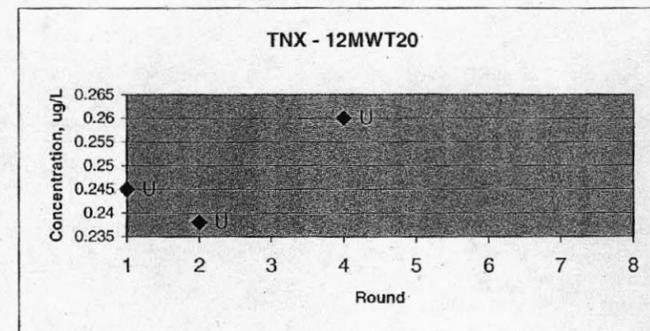
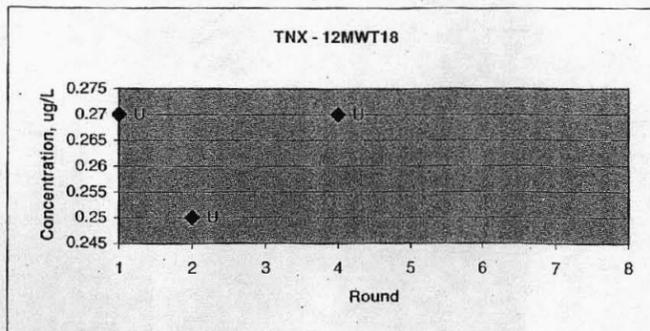
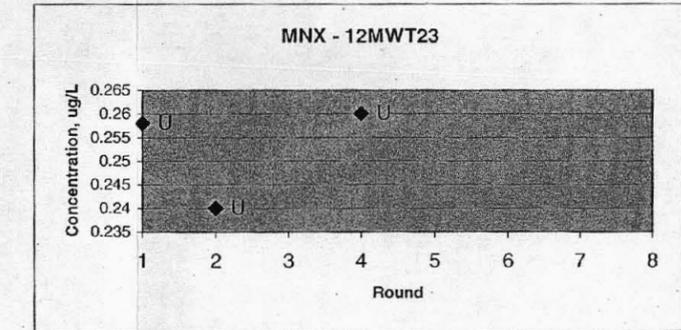
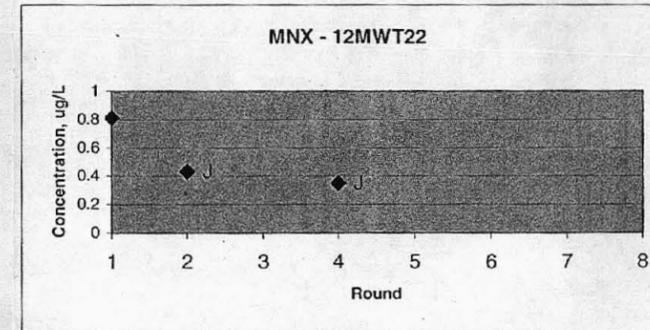
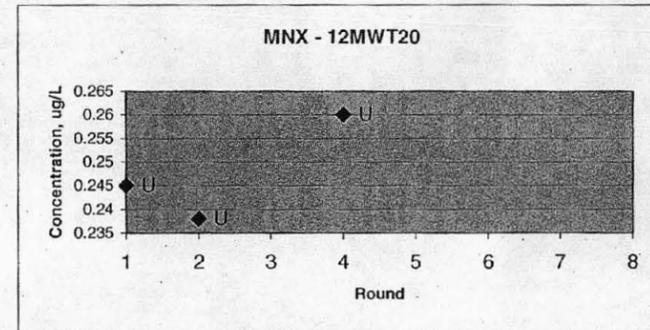
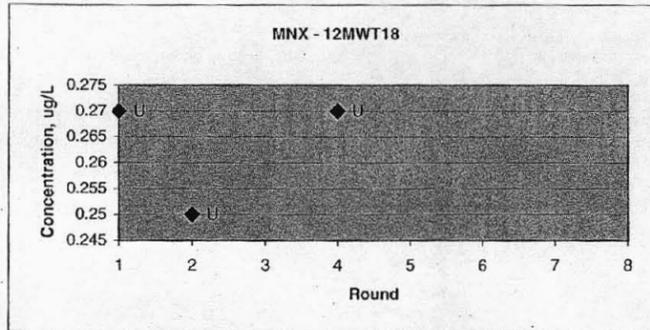
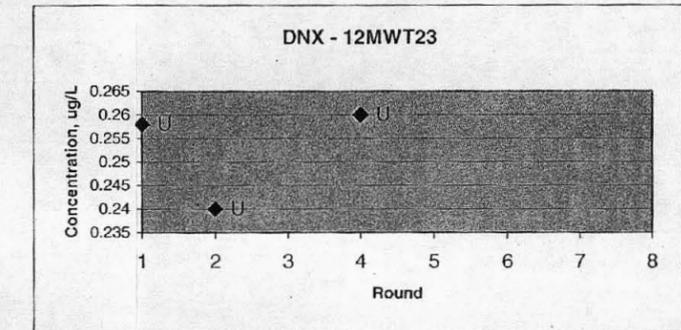
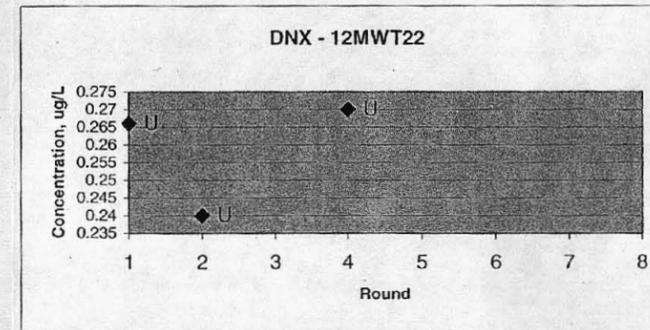
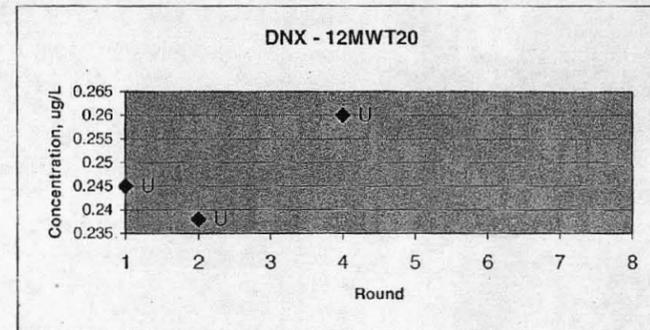
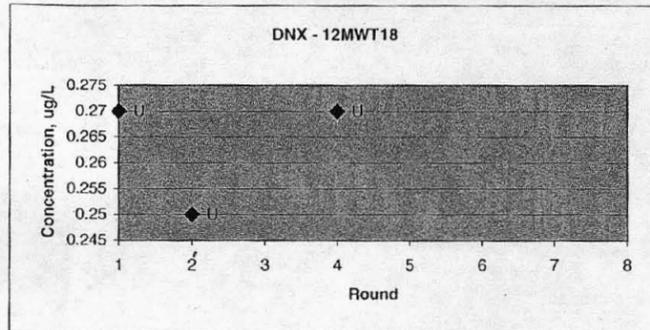
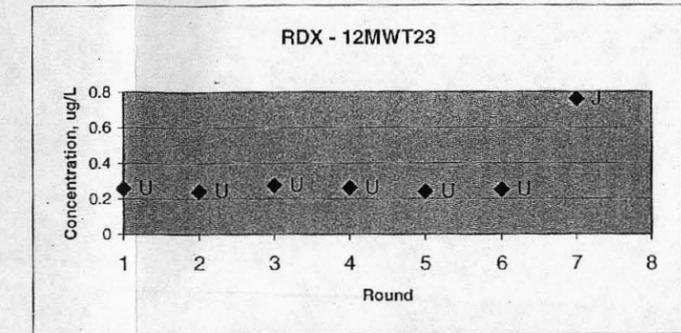
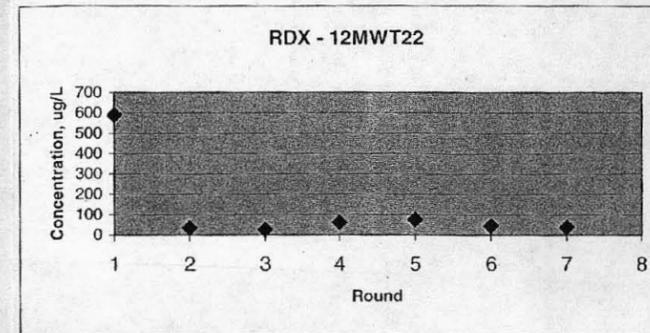
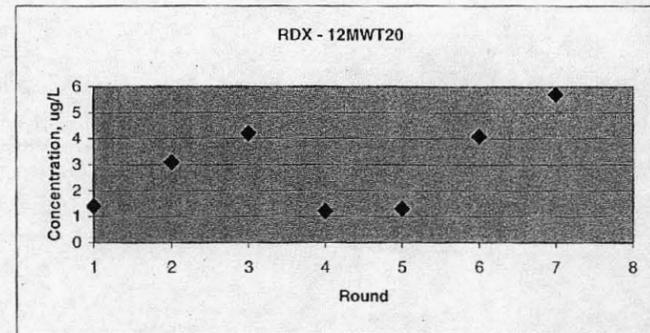
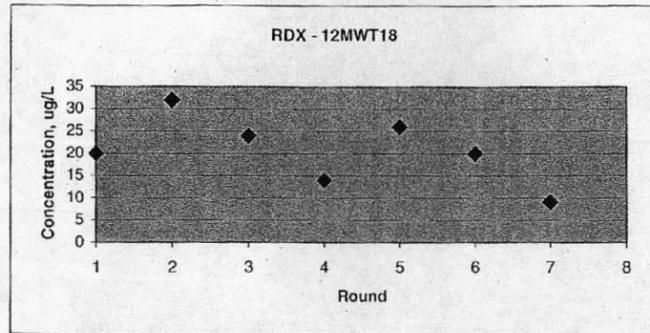


FIGURE 4-4

TEMPORAL PLOTS OF RDX AND DEGRADATION BY-PRODUCT CONCENTRATIONS IN
 THE PENNSYLVANIA UPPER WATER BEARING ZONE AT SWMU 12
 ROUNDS 1 THROUGH 7
 NSWC CRANE
 CRANE, INDIANA
 PAGE 4 OF 4

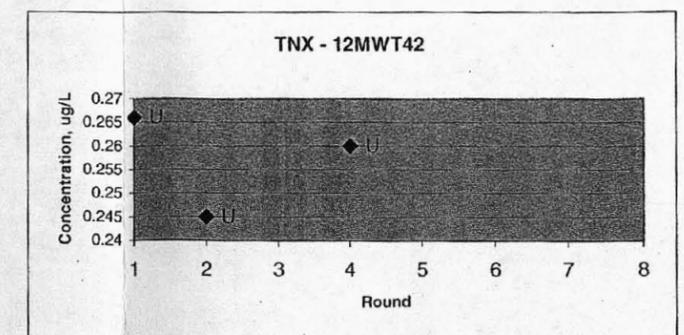
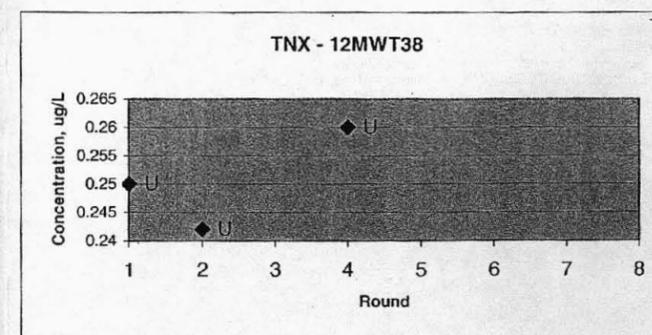
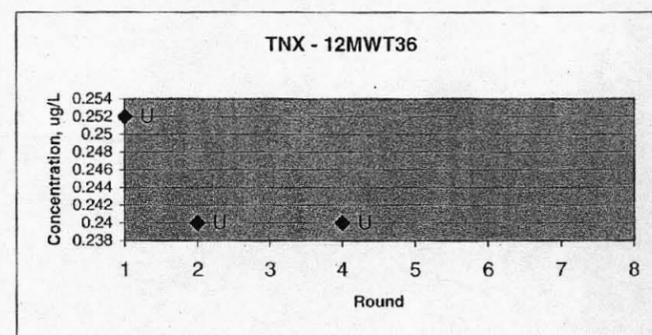
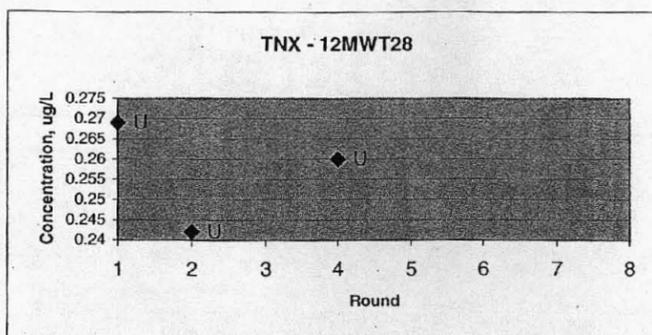
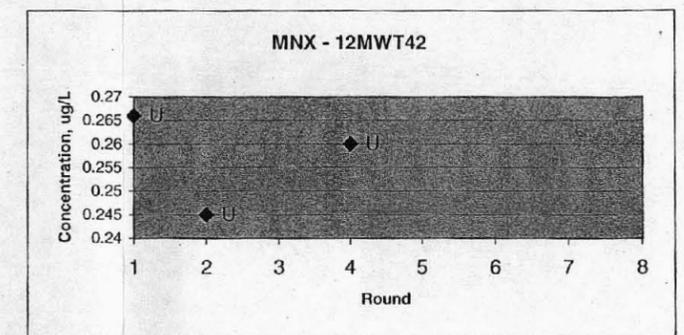
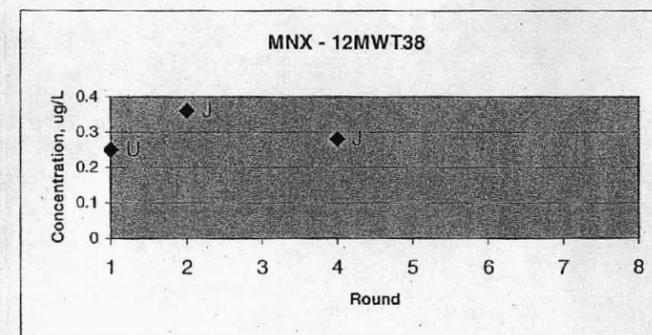
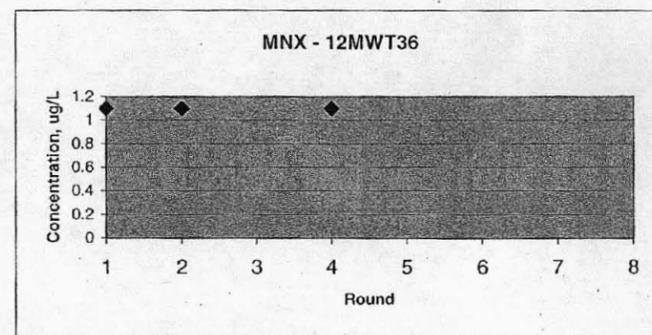
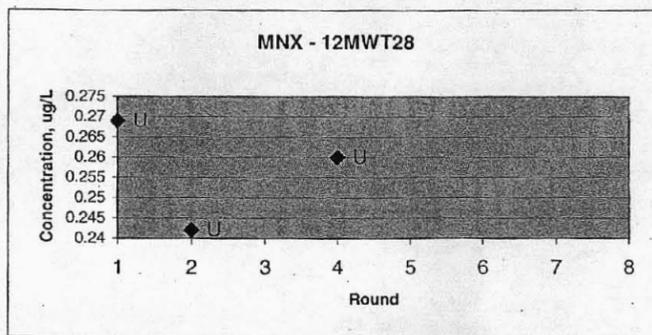
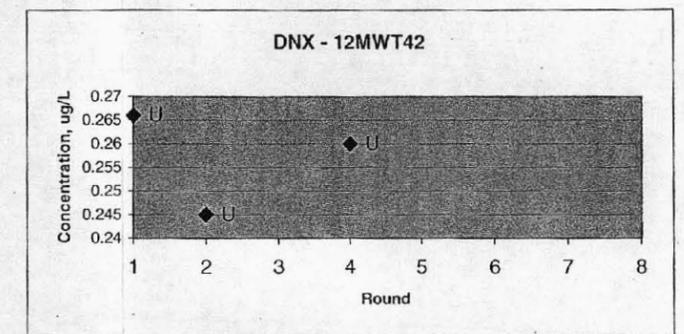
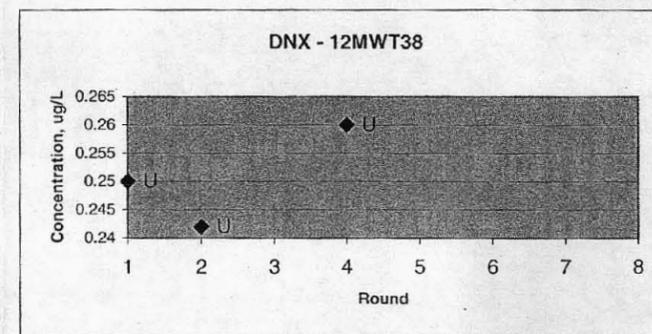
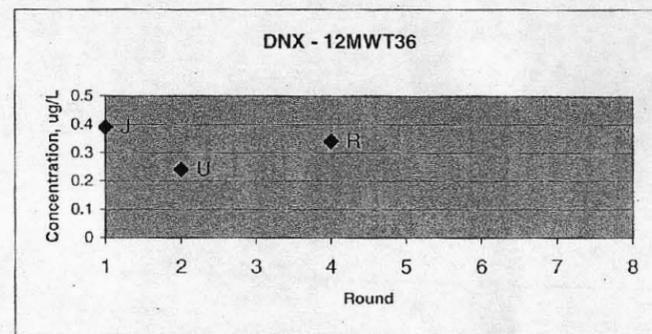
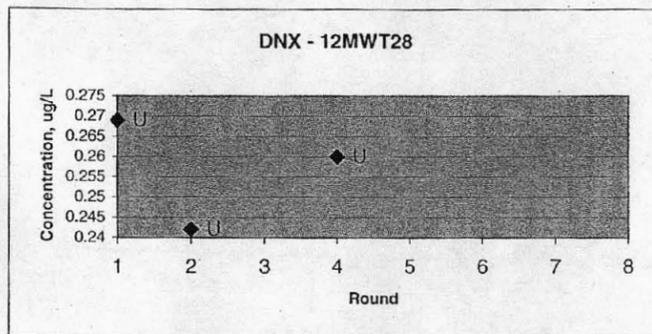
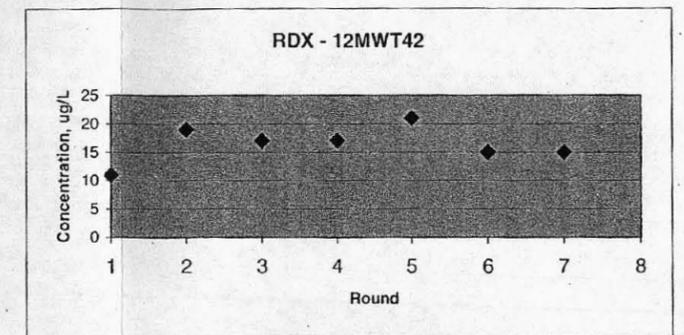
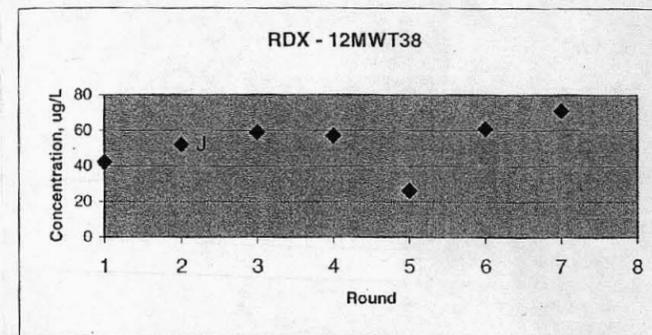
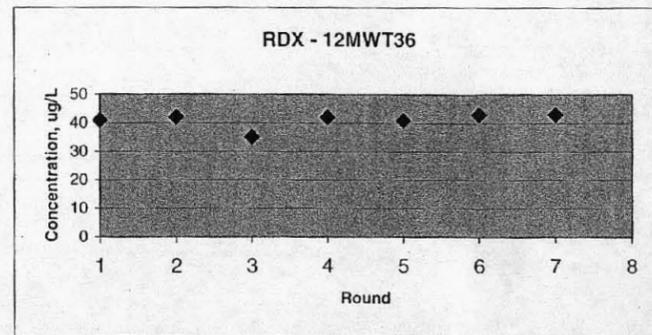
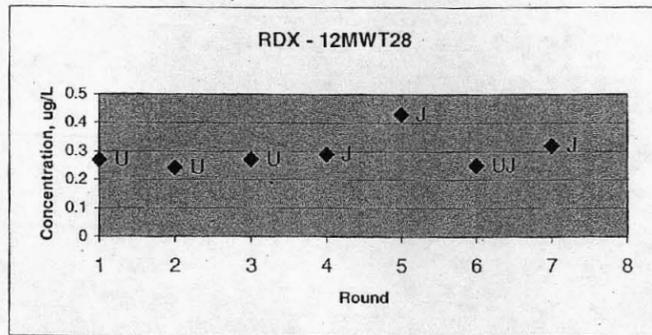


FIGURE 4-5
 TEMPORAL PLOTS OF RDX AND DEGRADATION BY-PRODUCT CONCENTRATIONS IN
 THE PENNSYLVANIA MIDDLE WATER BEARING ZONE AT SWMU 12
 ROUNDS 1 THROUGH 7
 NSWC CRANE
 CRANE, INDIANA

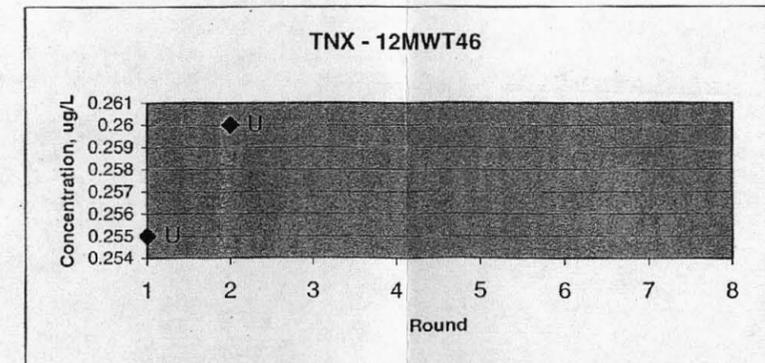
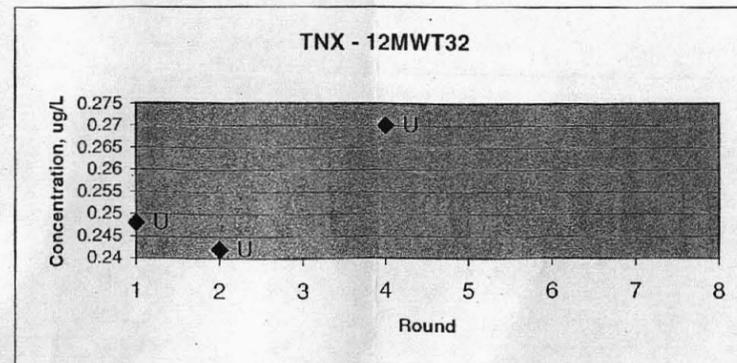
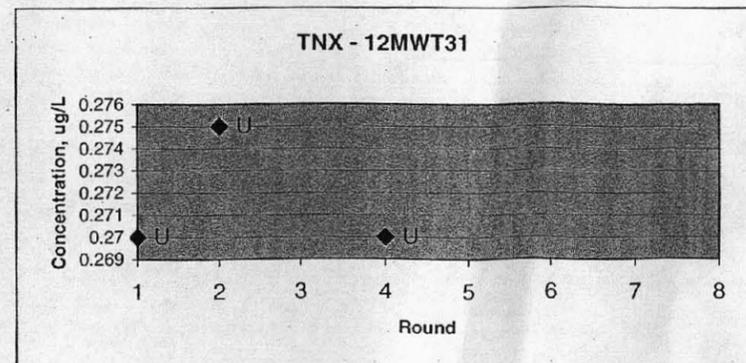
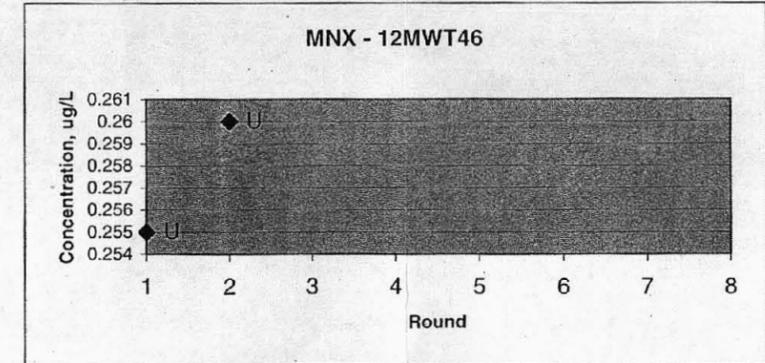
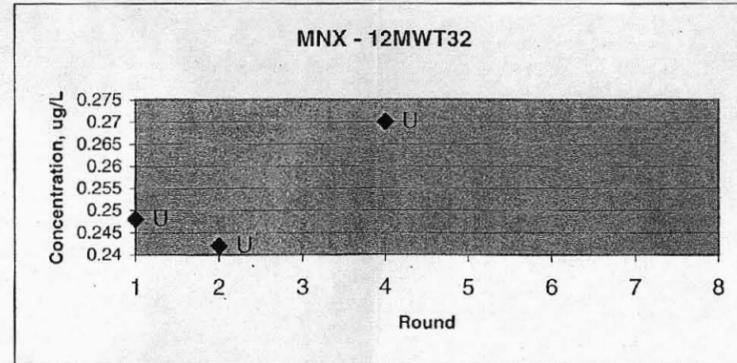
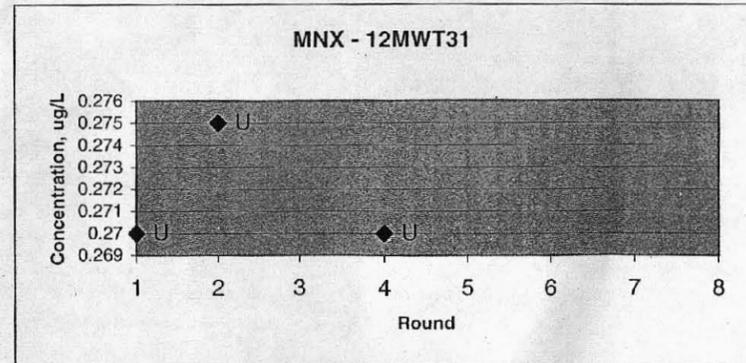
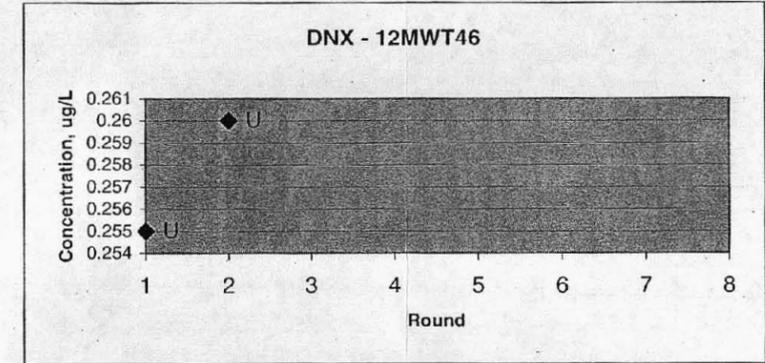
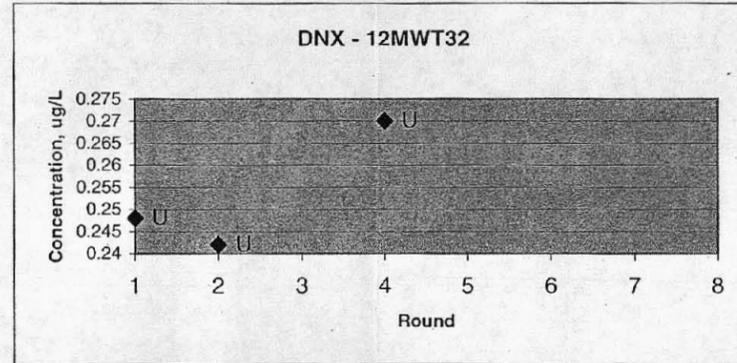
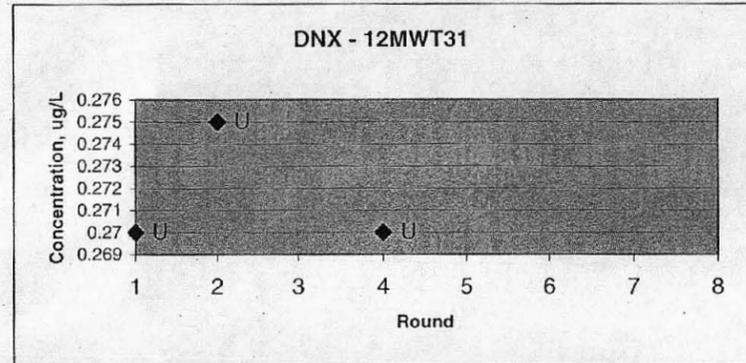
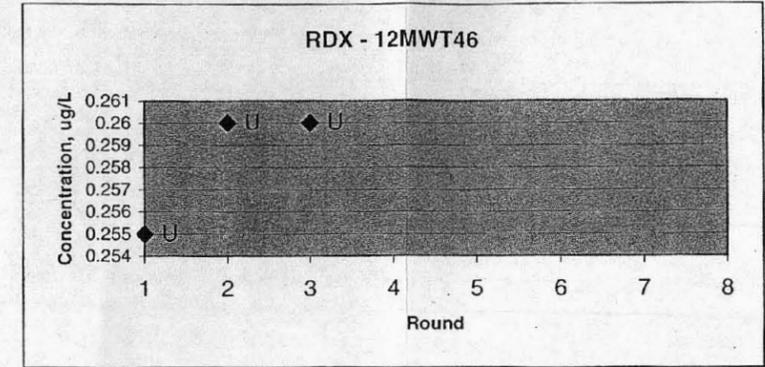
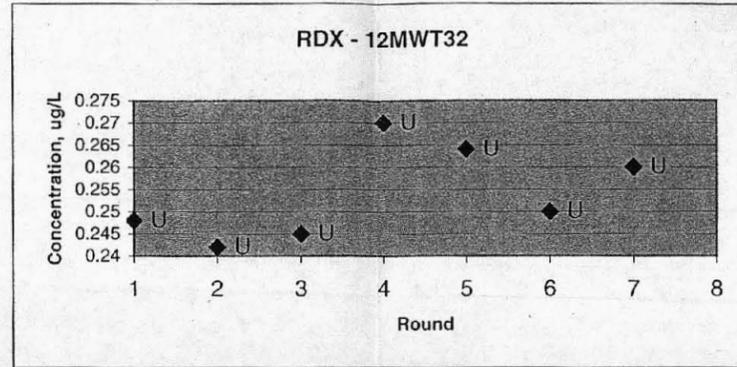
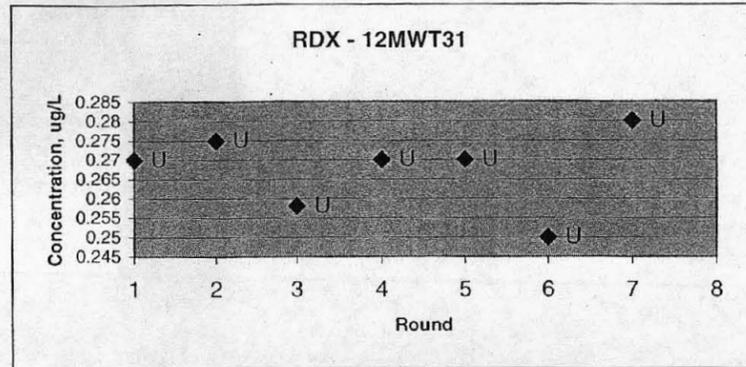


FIGURE 4-6

TEMPORAL PLOTS OF RDX AND DEGRADATION BY-PRODUCT CONCENTRATIONS IN
THE MISSISSIPPIAN GLEN DEAN WATER BEARING ZONE AT SWMU 12
ROUNDS 1 THROUGH 7
NSWC CRANE
CRANE, INDIANA

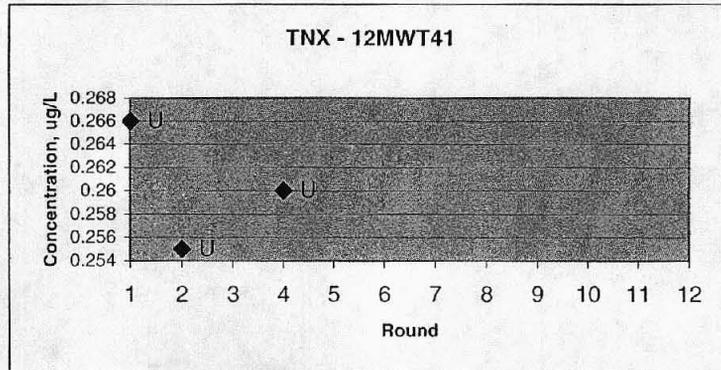
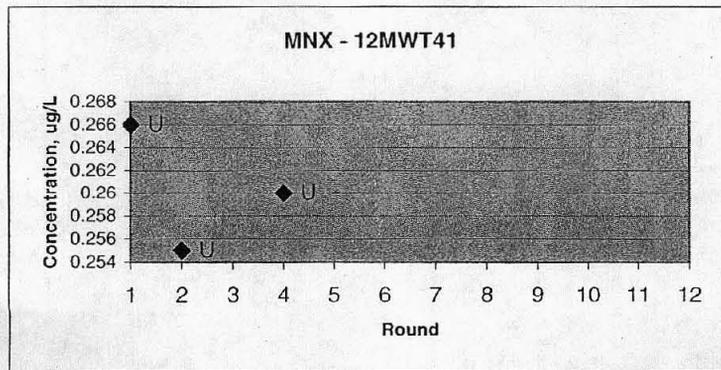
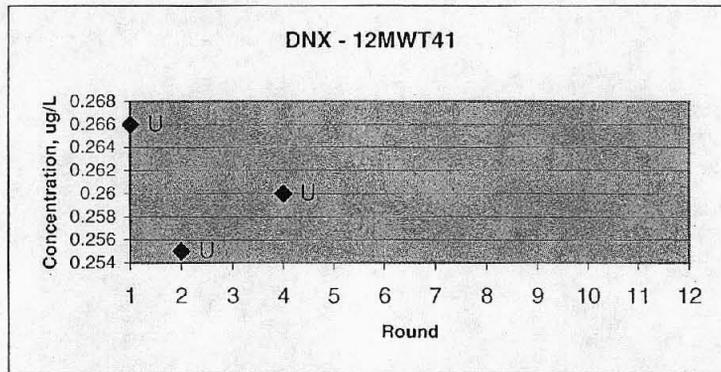
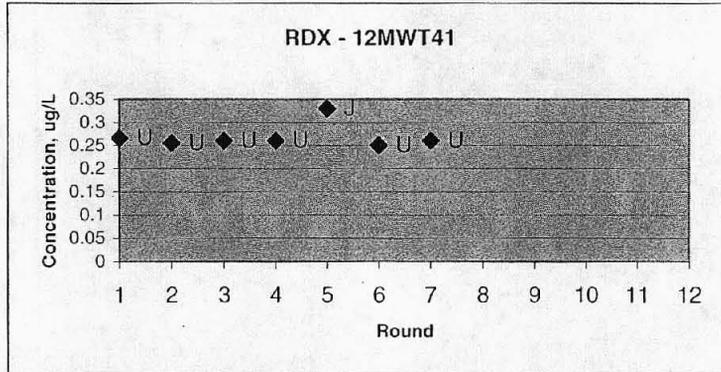


FIGURE 4-7

TEMPORAL PLOTS OF RDX AND DEGRADATION BY-PRODUCT CONCENTRATIONS
 IN SURFACE WATER AT SWMU 12
 ROUNDS 1 THROUGH 7
 NSWC CRANE
 CRANE, INDIANA
 PAGE 1 OF 2

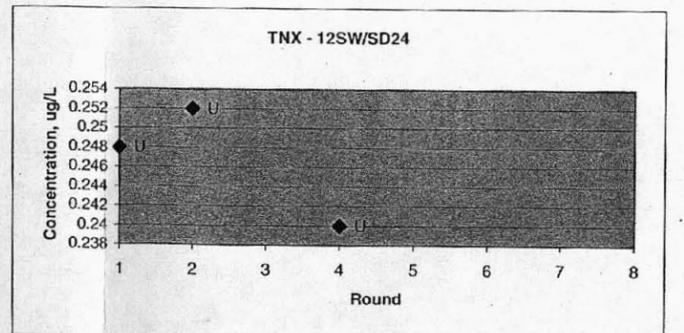
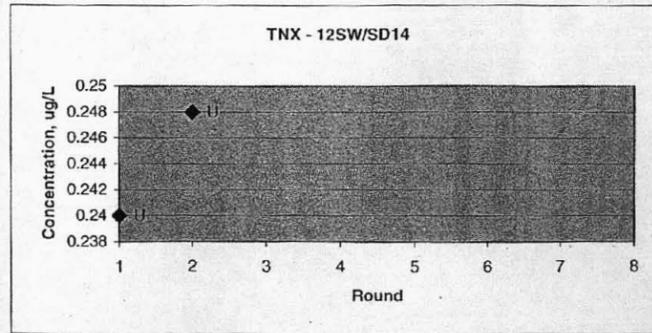
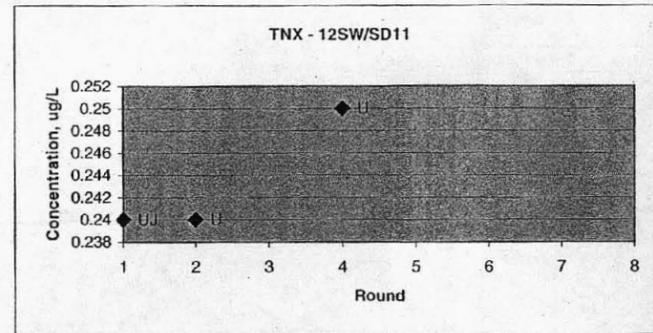
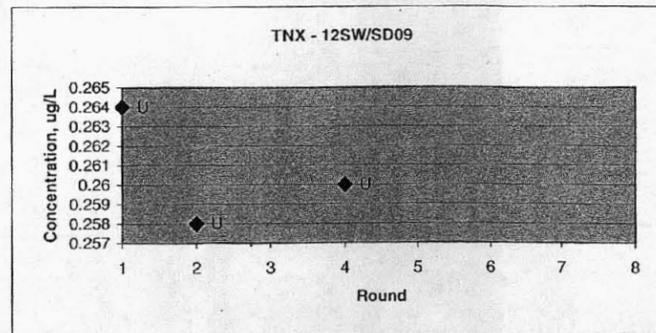
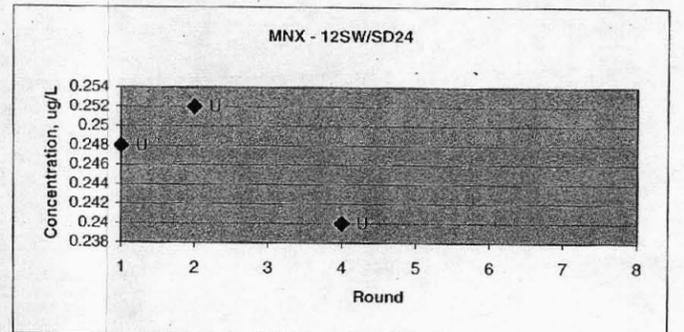
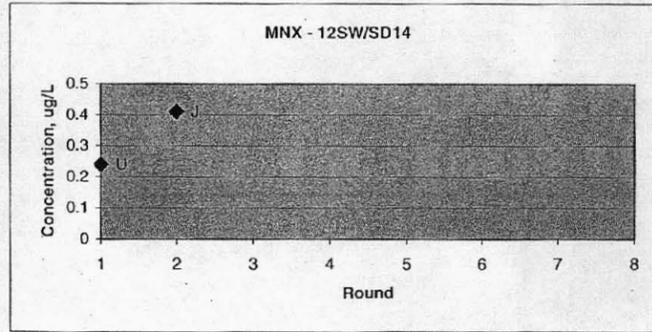
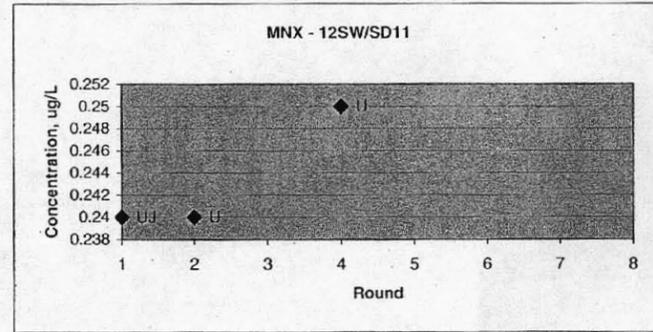
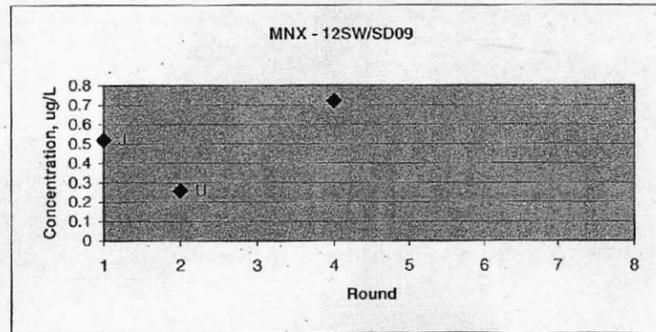
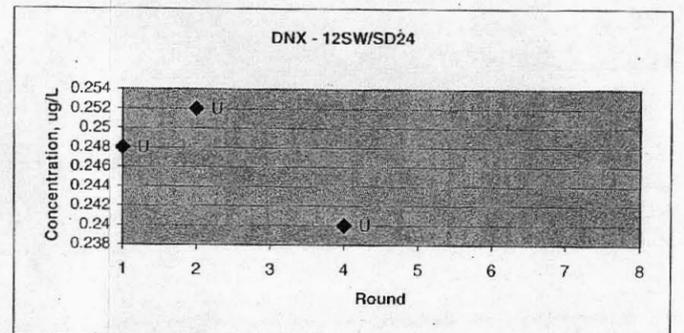
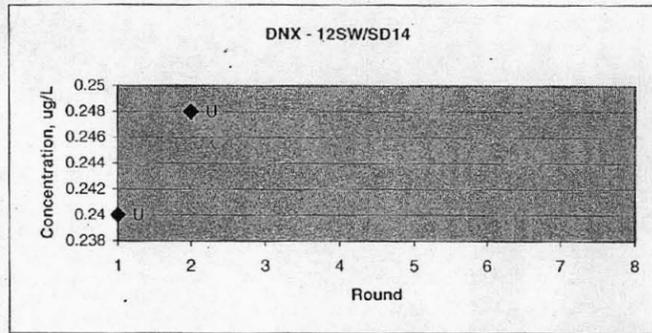
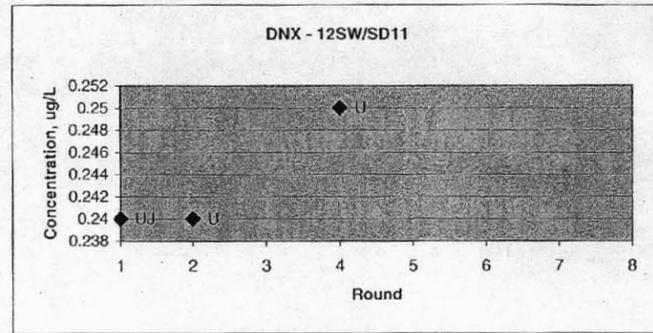
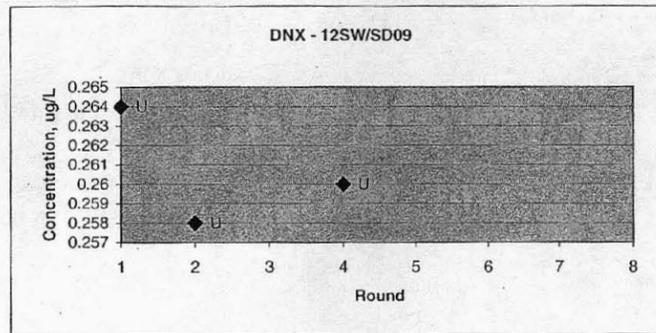
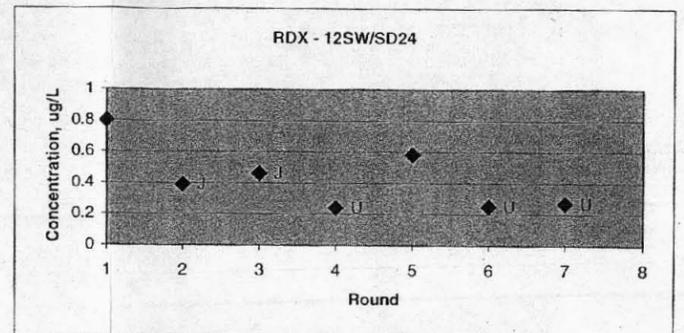
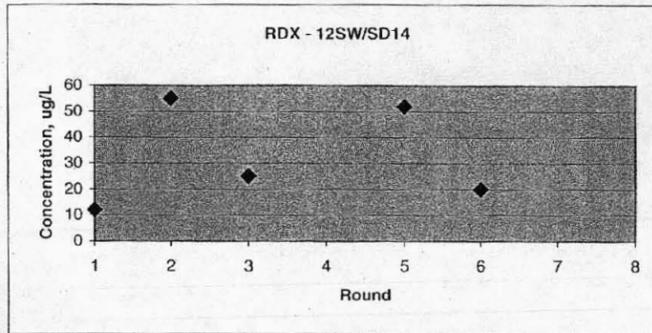
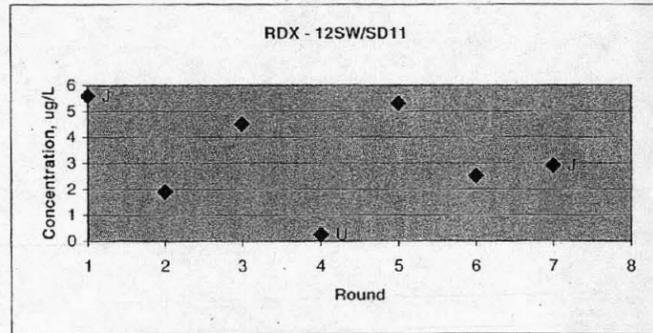
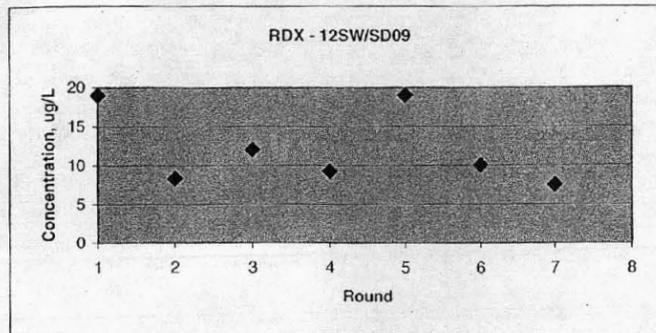
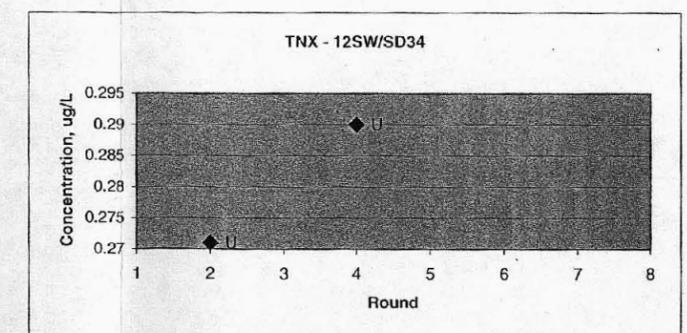
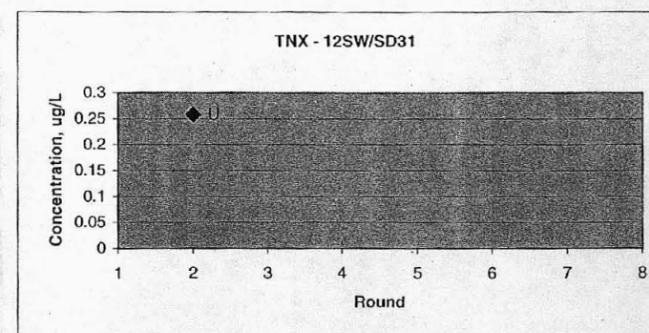
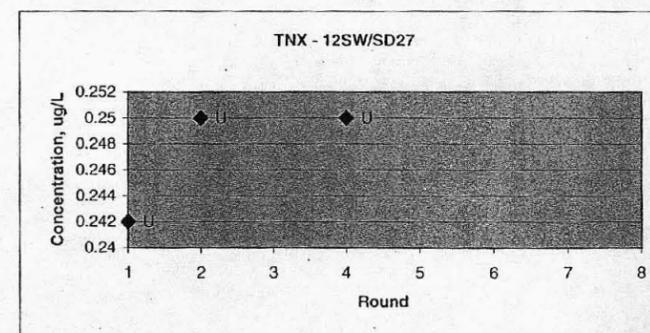
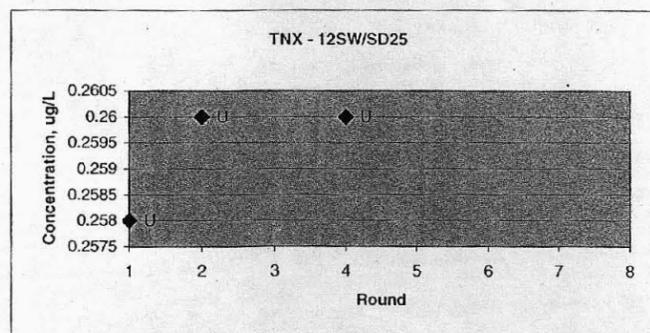
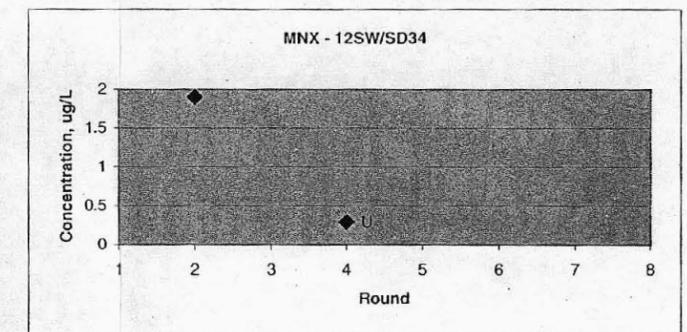
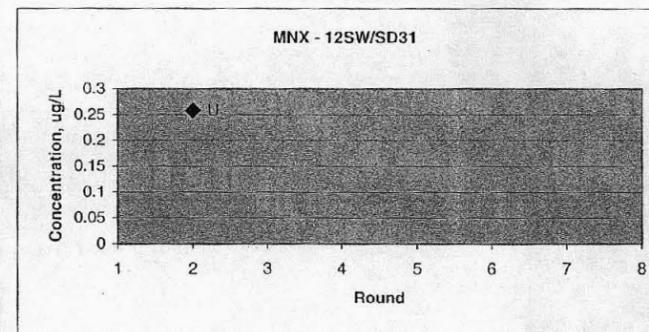
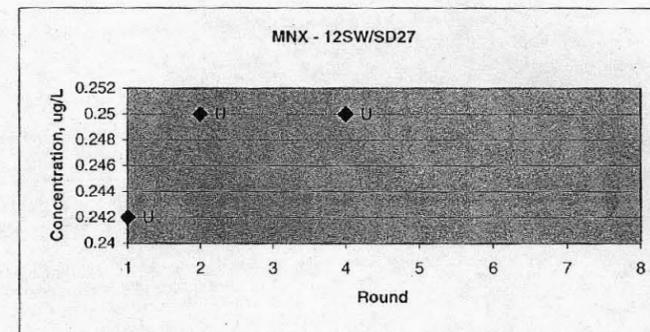
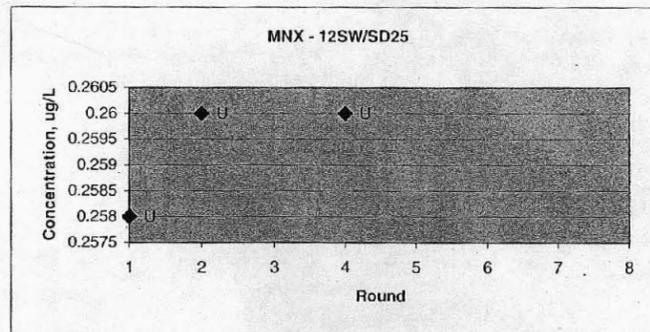
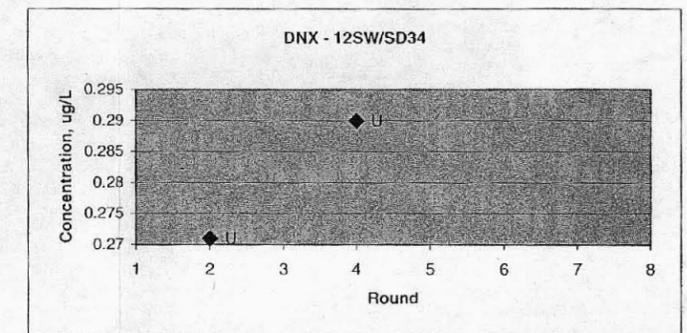
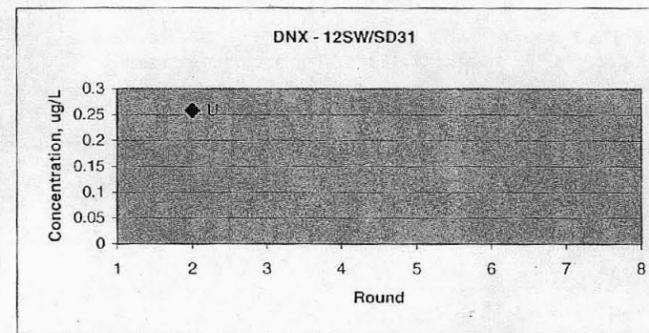
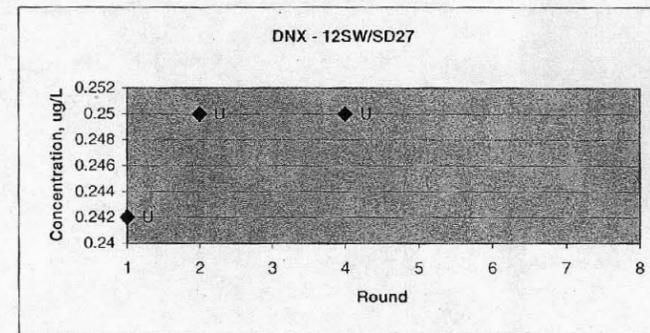
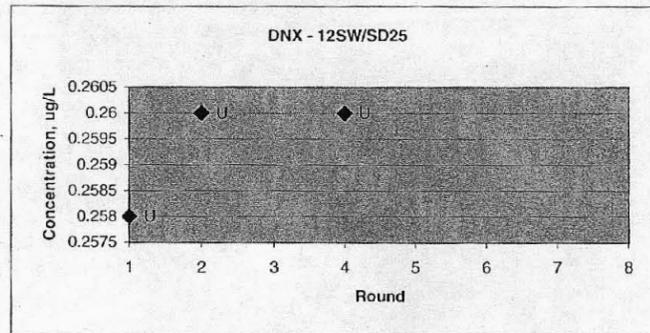
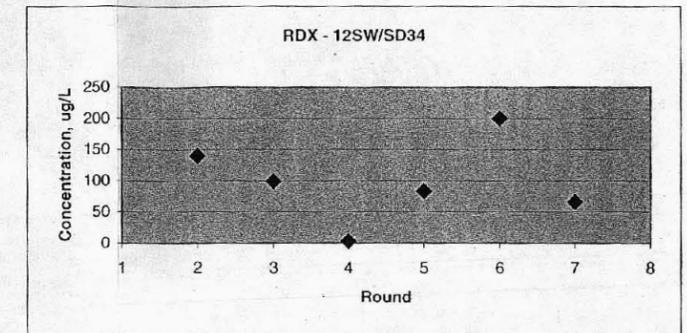
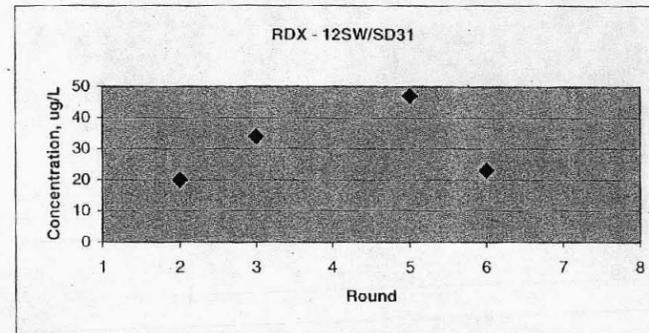
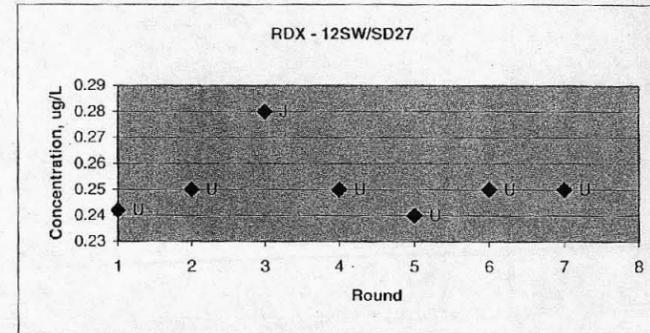
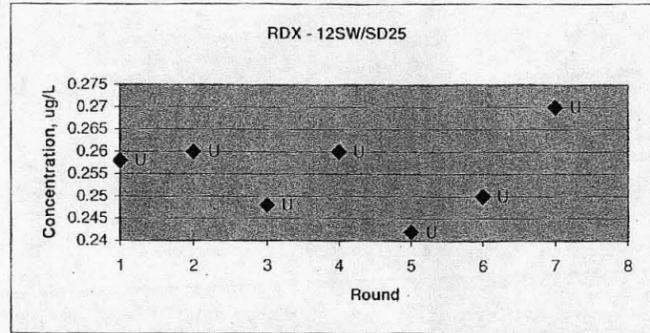


FIGURE 4-7

TEMPORAL PLOTS OF RDX AND DEGRADATION BY-PRODUCT CONCENTRATIONS
IN SURFACE WATER AT SWMU 12
ROUNDS 1 THROUGH 7
NSWC CRANE
CRANE, INDIANA
PAGE 2 OF 2



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TtNUS, 2005a. Resource Conservation and Recovery Act Facility Investigation Report for Mine Fill A (SWMU 12), Tetra Tech NUS, Inc., August.

TtNUS, 2005b. Monitored Natural Attenuation Report for Mine Fill A (SWMU 12), Round No. 3, NSWC Crane, Crane, Indiana, December.

TtNUS, 2006a. Monitored Natural Attenuation Report for Mine Fill A (SWMU 12), Round No. 4, NSWC Crane, Crane, Indiana, April.

TtNUS, 2006b. Monitored Natural Attenuation Report for Mine Fill A (SWMU 12), Round No. 5, NSWC Crane, Crane, Indiana, June.

TtNUS, 2007. Monitored Natural Attenuation Report for Mine Fill A (SWMU 12), Round No. 6, NSWC Crane, Crane, Indiana, February.

United States Environmental Protection Agency (U.S. EPA), 2000. Region 5 Framework for Monitored Natural Attenuation Decisions for Groundwater, U.S. EPA Region 5, September.

APPENDIX A

APPENDIX A

SWMU 12

SAMPLE LOG SHEETS AND OTHER FIELD FORMS

ROUND 7

APPENDIX A.1
SWMU 12
GROUNDWATER SAMPLE LOG SHEETS
ROUND 7

Created By	James Goerd	Modified By	James Goerd
Created Date	4/2/07	Modified Date	4/12/07
Printed By	James Goerd	Printed Date	5/9/07

Project Information
MNA Sampling - SWMU 12 - CRANE NSWC

Facility Name	CRANE NSWC	Sample ID #	12GWT0307
TtNUS Project #	112G00041	Well ID	12MWT03
Task/Contract #	CTO 0377	Well Type	Monitoring Well
WBS Code #		Sampled By	James Goerd
Status	Complete	Concentration	-Select-

Well and Sample Data

Date		Static Water Level (ft.)		Water Quality Meter	4103008
Purge Method	Low flow - bladder	Total Well Depth (ft.)	28.05	Pump Control Box	MP10-1588
Sampling Method		Well Riser Diameter (in.)	2	Turbidity Meter	1157-1899
MS/MSD Collected?		Well Volumes Req.	1		
Duplicate Sample Collected?	N	Monitor Reading (ppm)			
Corresponding Duplicate Sample ID					

Purge Entries

Date	Time	Water Level (ft.)	Flow Rate (mL/min)	Color	pH (S.U.)	S.C. (ms/cm)	DO (mg/L)	Turbidity (NTUs)	Temp °C	ORP (mV)	Salinity (%)	Other	Incremental Volume (mL)
4/12/07	12:45	14.70	100	Slightly Turbid	NA	NA	NA	NA	NA	NA	NA	NA	0
4/12/07	12:55	17.22	75	Clear	6.20	1.91	3.04	21	9.9	311	NA	NA	750
4/12/07	13:05	17.44	75	Slightly Turbid	6.20	1.87	3.12	16	9.2	303	NA	NA	750
4/12/07	13:15	17.73	75	Slightly Turbid	6.21	1.87	3.18	0	9.0	289	NA	NA	750
4/12/07	13:25	17.94	75	Clear	6.22	1.87	3.34	0	9.2	284	NA	NA	750
4/12/07	13:35	18.36	75	Clear	6.23	1.88	3.68	0	9.1	273	NA	NA	750
4/12/07	13:45	18.66	75	Clear	6.24	1.88	3.80	4.75	8.9	269	NA	NA	750
4/12/07	13:55	18.74	75	Clear	6.24	1.88	3.83	4.21	9.0	267	NA	NA	750



MNA Sampling - SWMU 12 - CRANE NSWC

Purge Entries

Date	Time	Water Level (ft.)	Flow Rate (mL/min)	Color	pH (S.U.)	S.C. (ms/cm)	DO (mg/L)	Turbidity (NTUs)	Temp °C	ORP (mV)	Salinity (%)	Other	Incremental Volume (mL)
4/12/07	14:05	18.94	74	Clear	6.25	1.88	3.87	3.87	9.2	243	NA	NA	740
4/12/07	14:15	19.26	75	Clear	6.25	1.89	3.93	2.42	9.2	225	NA	NA	750
4/12/07	14:25	19.34	75	Clear	6.25	1.88	3.94	2.14	9.2	204	NA	NA	750
4/12/07	14:35	19.41	75	Clear	6.25	1.88	3.92	2.10	9.2	199	NA	NA	750
4/12/07	14:55	19.93	75	Clear	6.24	1.89	3.89	1.87	9.4	123	NA	NA	1500
4/12/07	15:05	20.05	75	Clear	6.25	1.91	3.87	NA	9.3	111	NA	NA	750
4/12/07	15:15	20.18	75	Clear	6.25	1.91	3.88	NA	9.3	98	NA	NA	750
4/12/07	15:25	20.23	75	Clear	6.25	1.91	3.84	NA	9.3	98	NA	NA	750
4/12/07	15:35	20.29	75	Clear	6.25	1.92	3.74	NA	9.4	73	NA	NA	750
4/12/07	15:45	20.34	75	Clear	6.24	1.92	3.64	NA	9.3	66	NA	NA	750
4/12/07	15:55	20.47	75	Clear	6.23	1.92	3.22	NA	9.3	59	NA	NA	750
4/12/07	16:05	20.61	75	Clear	6.23	1.92	3.04	NA	9.4	51	NA	NA	750
4/12/07	16:15	20.82	75	Clear	6.23	1.92	2.81	NA	9.4	47	NA	NA	750
4/12/07	16:25	20.99	75	Clear	6.23	1.92	2.53	NA	9.3	41	NA	NA	750
4/12/07	16:35	21.09	75	Clear	6.22	1.91	2.52	NA	9.1	37	NA	NA	750
4/12/07	16:45	21.14	75	Clear	6.21	1.91	2.50	1.17	9.1	34	NA	NA	750

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Final Purge / Sample Data

One Casing Volume	17.33	Method	Low flow - bladder	Dissolved Oxygen (mg/L)	2.50
Total Vo. Purge (L)	17.99	Waterlevel (ft.)	21.14	Turbidity (NTUs)	1.17
Start Purge (hrs.)	1:45:00 PM	Flowrate (mL/min)	75	Temp (C)	9.1
End Purge (hrs.)	5:45:00 PM	Color	Clear	ORP (mV)	34
Total Purge Time (min.)	240	pH (S.U.)	6.21	Salinity	NA
		Conductivity (mS/cm)	1.91	Other	NA



MNA Sampling - SWMU 12 - CRANE NSWC

Analysis Records

Collected	Date	Time	Analysis / Method	Description of Analysis	Preservative	Count	Type	Requirements	Comments	Chain #
✓	4/12/07	16:50	SW-846 6850	Perchlorate	4°C	2	Plastic - PP	250ml		112G00041-4132007-1
✓	4/12/07	16:50	SW-846 8330	Nitroaromatics and Nitramines	4°C	2	Glass - Amber	1L		112G00041-4132007-2

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General Observations and Notes

X

- End of Report -



Project Information

MNA Sampling - SWMU 12 - CRANE NSWC

Facility Name	CRANE NSWC	Sample ID #	12GWT0607
TtNUS Project #	112G00041	Well ID	12MWT06
Task/Contract #	CTO 0377	Well Type	Monitoring Well
WBS Code #		Sampled By	James Goerd
Status	Complete	Concentration	Low concentration

Well and Sample Data

Date		Static Water Level (ft.)	9.64	Water Quality Meter	4103008
Purge Method	Low flow - bladder	Total Well Depth (ft.)	26.11	Pump Control Box	MP10-1588
Sampling Method	Low flow - bladder	Well Riser Diameter (in.)	2	Turbidity Meter	1157-1899
MS/MSD Collected?		Well Volumes Req.	1		
Duplicate Sample Collected?	N	Monitor Reading (ppm)	NA		
Corresponding Duplicate Sample ID					

Purge Entries

Date	Time	Water Level (ft.)	Flow Rate (mL/min)	Color	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTUs)	Temp °C	ORP (mV)	Salinity (%)	Other	Incremental Volume (mL)
4/15/07	12:10	9.64	0	Clear	NA	NA	NA	NA	NA	NA	NA	NA	0
4/15/07	12:20	10.12	120	Clear	4.89	0.560	3.20	1.69	12.1	306	NA	NA	1200
4/15/07	12:30	10.14	120	Clear	4.89	0.716	4.05	1.56	11.9	292	NA	NA	1200
4/15/07	12:40	10.22	120	Clear	4.90	0.889	4.60	0.98	12.1	281	NA	NA	1200
4/15/07	12:50	10.30	120	Clear	4.90	0.819	5.02	0.62	11.9	271	NA	NA	1200
4/15/07	13:00	10.32	120	Clear	4.92	0.698	5.43	0.56	12.2	264	NA	NA	1200
4/15/07	13:10	10.35	120	Clear	4.93	0.667	5.57	0.91	12.1	259	NA	NA	1200
4/15/07	13:20	10.38	120	Clear	4.93	0.623	5.71	1.17	12.2	254	NA	NA	1200



MNA Sampling - SWMU 12 - CRANE NSWC

Purge Entries

Date	Time	Water Level (ft.)	Flow Rate (mL/min)	Color	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTUs)	Temp °C	ORP (mV)	Salinity (%)	Other	Incremental Volume (mL)
4/15/07	13:30	10.39	120	Clear	4.95	0.583	5.88	1.01	12.1	252	NA	NA	1200
4/15/07	13:40	10.39	120	Clear	4.96	0.581	6.05	1.08	12.0	250	NA	NA	1200
4/15/07	13:50	10.38	120	Clear	4.97	0.576	6.20	0.95	12.1	247	NA	NA	1200

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Final Purge / Sample Data

One Casing Volume	10.17	Method	Low flow - bladder	Dissolved Oxygen (mg/L)	6.20
Total Vo. Purge (L)	12	Waterlevel (ft.)	10.38	Turbidity (NTUs)	0.95
Start Purge (hrs.)	1:10:00 PM	Flowrate (mL/min)	120	Temp (C)	12.1
End Purge (hrs.)	2:50:00 PM	Color	Clear	ORP (mV)	247
Total Purge Time (min.)	100	pH (S.U.)	4.97	Salinity	NA
		Conductivity (mS/cm)	0.576	Other	NA



MNA Sampling - SWMU 12 - CRANE NSWC

Analysis Records

Collected	Date	Time	Analysis / Method	Description of Analysis	Preservative	Count	Type	Requirements	Comments	Chain #
✓	4/15/07	13:55	SW-846 6850	Perchlorate	4°C	2	Plastic - PP	250ml		112G00041-4152007-3
✓	4/15/07	13:55	SW-846 8330	Nitroaromatics and Nitramines	4°C	2	Glass - Amber	1L		112G00041-4162007-4

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General Observations and Notes

None

- End of Report -



Project Information

MNA Sampling - SWMU 12 - CRANE NSWC

Facility Name	CRANE NSWC	Sample ID #	12GWT0907
TtNUS Project #	112G00041	Well ID	12MWT09
Task/Contract #	CTO 0377	Well Type	Monitoring Well
WBS Code #		Sampled By	James Goerd
Status	Complete	Concentration	-Select-

Well and Sample Data

Date		Static Water Level (ft.)		Water Quality Meter	4103008
Purge Method	Low flow - bladder	Total Well Depth (ft.)	25.00	Pump Control Box	MP10-1588
Sampling Method		Well Riser Diameter (in.)		Turbidity Meter	1157-1899
MS/MSD Collected?		Well Volumes Req.	1		
Duplicate Sample Collected?	Y	Monitor Reading (ppm)			
Corresponding Duplicate Sample ID	12FD04120701				

Purge Entries

Date	Time	Water Level (ft.)	Flow Rate (mL/min)	Color	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTUs)	Temp °C	ORP (mV)	Salinity (%)	Other	Incremental Volume (mL)
4/12/07	08:55	11.91	100	Clear	NA	NA	NA	NA	NA	NA	NA	NA	0
4/12/07	09:05	12.41	125	Clear	4.17	0.664	3.86	5.49	10.2	322	NA	NA	1250
4/12/07	09:15	13.29	100	Clear	4.20	0.587	3.78	4.76	9.2	362	NA	NA	1000
4/12/07	09:25	12.81	110	Clear	4.20	0.563	3.69	3.61	9.3	370	NA	NA	1100
4/12/07	09:35	12.87	110	Clear	4.22	0.552	3.61	3.23	9.9	372	NA	NA	1100
4/12/07	09:45	12.90	110	Clear	4.24	0.572	3.49	3.09	9.9	373	NA	NA	1100
4/12/07	09:55	12.89	110	Clear	4.25	0.548	3.53	2.89	9.8	374	NA	NA	1100
4/12/07	10:05	12.88	110	Clear	4.26	0.578	3.53	2.99	9.7	374	NA	NA	1100



MNA Sampling - SWMU 12 - CRANE NSWC

Purge Entries

Date	Time	Water Level (ft.)	Flow Rate (mL/min)	Color	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTUs)	Temp °C	ORP (mV)	Salinity (%)	Other	Incremental Volume (mL)
4/12/07	10:15	12.90	110	Clear	4.26	0.570	3.55	4.12	9.8	374	NA	NA	1100
4/12/07	10:25	12.88	110	Clear	4.26	0.580	3.57	3.87	9.7	372	NA	NA	1100

Page 2 of 3

Final Purge / Sample Data

One Casing Volume	0	Method	Low flow - bladder	Dissolved Oxygen (mg/L)	3.57
Total Vo. Purge (L)	9.95	Waterlevel (ft.)	12.88	Turbidity (NTUs)	3.87
Start Purge (hrs.)	9:55:00 AM	Flowrate (mL/min)	110	Temp (C)	9.7
End Purge (hrs.)	11:25:00 AM	Color	Clear	ORP (mV)	372
Total Purge Time (min.)	90	pH (S.U.)	4.26	Salinity	NA
		Conductivity (mS/cm)	0.580	Other	NA



MNA Sampling - SWMU 12 - CRANE NSWC

Analysis Records

Collected	Date	Time	Analysis / Method	Description of Analysis	Preservative	Count	Type	Requirements	Comments	Chain#
✓	4/12/07	10:30	SW-846 6850	Perchlorate	4°C	2	Plastic - PP	250ml		112G00041-4132007-1
✓	4/12/07	10:30	SW-846 8330	Nitroaromatics and Nitramines	4°C	2	Glass - Amber	1L		112G00041-4132007-2

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General Observations and Notes

Field duplicate 12FD04120701

- End of Report -

Created By
Created DateJames Goerd
4/2/07Modified By
Modified DateJames Goerd
5/9/07Printed By
Printed DateJames Goerd
5/9/07

Project Information

MNA Sampling - SWMU 12 - CRANE NSWC

Facility Name	CRANE NSWC	Sample ID #	12GWT1007
TtNUS Project #	112G00041	Well ID	12MWT10
Task/Contract #	CTO 0377	Well Type	Monitoring Well
WBS Code #		Sampled By	Walt Pryor
Status	Complete	Concentration	Low concentration

Well and Sample Data

Date		Static Water Level (ft.)	13.20	Water Quality Meter	4143008
Purge Method	Low flow - bladder	Total Well Depth (ft.)	25.00	Pump Control Box	MP10-2191
Sampling Method	Low flow - bladder	Well Riser Diameter (in.)	2	Turbidity Meter	1757-1800
MS/MSD Collected?		Well Volumes Req.	1		
Duplicate Sample Collected?	N	Monitor Reading (ppm)	N/A		
Corresponding Duplicate Sample ID					

Purge Entries

Date	Time	Water Level (ft.)	Flow Rate (mL/min)	Color	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTUs)	Temp °C	ORP (mV)	Salinity (%)	Other	Incremental Volume (mL)
4/15/07	08:55	13.20	100	Clear	3.85	0.97	5.67	10	10.31	341	N/A		0
4/15/07	09:05	14.60	100	Clear	3.86	0.96	4.23	17	10.44	340	N/A		1000
4/15/07	09:15	15.25	100	Clear	3.86	0.95	5.63	12	10.71	341	N/A		1000
4/15/07	09:25	16.20	100	Clear	3.84	0.96	4.71	9.1	10.64	343	N/A		1000
4/15/07	09:35	16.45	100	Clear	3.84	0.96	3.41	6.3	10.69	343	N/A		1000
4/15/07	09:45	16.85	100	Clear	3.84	0.96	2.99	5.0	10.88	344	N/A		1000
4/15/07	09:55	17.10	100	Clear	3.84	0.97	2.84	4.0	10.88	344	N/A		1000
4/15/07	10:05	17.30	100	Clear	3.84	0.97	2.84	3.4	10.90	344	N/A		1000



MNA Sampling - SWMU 12 - CRANE NSWC

Purge Entries

Date	Time	Water Level (ft.)	Flow Rate (mL/min)	Color	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTUs)	Temp °C	ORP (mV)	Salinity (%)	Other	Incremental Volume (mL)
4/15/07	10:15	17.45	100	Clear	3.84	0.97	2.84	2.9	11.10	343	N/A		1000
4/15/07	10:25	17.60	100	Clear	3.84	0.97	2.78	2.4	11.06	343	N/A		1000
4/15/07	10:35	17.80	100	Clear	3.85	0.98	2.77	2.3	11.11	341	N/A		1000
4/15/07	10:45	17.82	60	Clear	3.85	0.98	2.73	2.2	11.12	340	N/A		600
4/15/07	10:55	17.82	60	Clear	3.86	0.98	2.75	2.2	11.15	339	N/A		600
4/15/07	11:05	17.82	60	Clear	3.86	0.98	2.71	2.4	11.17	339	N/A		600

Page 2 of 3

Final Purge / Sample Data

One Casing Volume	7.29	Method	Low flow - bladder	Dissolved Oxygen (mg/L)	2.71
Total Vo. Purge (L)	11.8	Waterlevel (ft.)	17.82	Turbidity (NTUs)	2.4
Start Purge (hrs.)	9:55:00 AM	Flowrate (mL/min)	60	Temp (C)	11.17
End Purge (hrs.)	12:05:00 PM	Color	Clear	ORP (mV)	339
Total Purge Time (min.)	130	pH (S.U.)	3.86	Salinity	N/A
		Conductivity (mS/cm)	0.98	Other	



MNA Sampling - SWMU 12 - CRANE NSWC

Analysis Records

Collected	Date	Time	Analysis / Method	Description of Analysis	Preservative	Count	Type	Requirements	Comments	Chain #
✓	4/15/07	11:05	SW-846 6850	Perchlorate	4°C	2	Plastic - PP	250ml		112G00041-4152007-3
✓	4/15/07	11:05	SW-846 8330	Nitroaromatics and Nitramines	4°C	2	Glass - Amber	1L		112G00041-4162007-4

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General Observations and Notes

None

- End of Report -



Project Information

MNA Sampling - SWMU 12 - CRANE NSWC

Facility Name	CRANE NSWC	Sample ID #	12GWT1107
TtNUS Project #	112G00041	Well ID	12MWT11
Task/Contract #	CTO 0377	Well Type	Monitoring Well
WBS Code #		Sampled By	James Goerd
Status	Complete	Concentration	Low concentration

Well and Sample Data

Date		Static Water Level (ft.)	10.68	Water Quality Meter	4103008
Purge Method	Low flow - bladder	Total Well Depth (ft.)	27.34	Pump Control Box	MP10-1588
Sampling Method	Low flow -bladder	Well Riser Diameter (in.)	2	Turbidity Meter	1157-1588
MS/MSD Collected?	MS/MSD	Well Volumes Req.	1		
Duplicate Sample Collected?	N	Monitor Reading (ppm)	NA		
Corresponding Duplicate Sample ID					

Purge Entries

Date	Time	Water Level (ft.)	Flow Rate (mL/min)	Color	pH (S.U.)	S.C. (ms/cm)	DO (mg/L)	Turbidity (NTUs)	Temp °C	ORP (mV)	Salinity (%)	Other	Incremental Volume (mL)
4/15/07	08:55	10.68	0	Clear	NA	NA	NA	NA	NA	NA	NA	NA	0
4/15/07	09:05	13.96	400	Slightly Turbid	3.71	0.668	1.54	32.6	11.0	375	NA	NA	4000
4/15/07	09:15	12.55	200	Slightly Turbid	3.72	0.671	1.61	0	11.0	372	NA	NA	2000
4/15/07	09:25	12.64	200	Slightly Turbid	3.75	0.678	2.64	71.1	11.0	366	NA	NA	2000
4/15/07	09:35	12.67	200	Slightly Turbid	3.76	0.682	3.98	51.2	10.8	362	NA	NA	2000
4/15/07	09:45	12.70	200	Slightly Turbid	3.78	0.687	5.12	36.5	11.0	358	NA	NA	2000
4/15/07	09:55	12.71	200	Slightly Turbid	3.79	0.688	5.95	27.2	11.0	355	NA	NA	2000
4/15/07	10:05	12.74	200	Clear	3.74	0.724	8.14	23.6	10.9	352	NA	NA	2000



MNA Sampling - SWMU 12 - CRANE NSWC

Purge Entries

Date	Time	Water Level (ft.)	Flow Rate (mL/min)	Color	pH (S.U.)	S.C. (ms/cm)	DO (mg/L)	Turbidity (NTUs)	Temp °C	ORP (mV)	Salinity (%)	Other	Incremental Volume (mL)
4/15/07	10:15	12.49	180	Clear	3.74	0.739	8.57	18.2	10.7	349	NA	NA	1800
4/15/07	10:25	12.41	180	Clear	3.73	0.713	8.57	11.3	10.5	356	NA	NA	1800
4/15/07	10:35	12.41	180	Clear	3.73	0.708	8.67	8.50	10.4	359	NA	NA	1800
4/15/07	10:40	12.40	180	Clear	3.73	0.731	9.09	8.34	10.5	360	NA	NA	900

Page 2 of 3

Final Purge / Sample Data

One Casing Volume	10.29	Method	Low flow - bladder	Dissolved Oxygen (mg/L)	9.09
Total Vo. Purge (L)	22.3	Waterlevel (ft.)	12.40	Turbidity (NTUs)	8.34
Start Purge (hrs.)	9:55:00 AM	Flowrate (mL/min)	180	Temp (C)	10.5
End Purge (hrs.)	11:40:00 AM	Color	Clear	ORP (mV)	360
Total Purge Time (min.)	105	pH (S.U.)	3.73	Salinity	NA
		Conductivity (mS/cm)	0.731	Other	NA



MNA Sampling - SWMU 12 - CRANE NSWC

Analysis Records

Collected	Date	Time	Analysis / Method	Description of Analysis	Preservative	Count	Type	Requirements	Comments	Chain #
✓	4/15/07	10:45	SW-846 6850	Perchlorate	4°C	6	Plastic - PP	250ml		112G00041- 4152007-3
✓	4/15/07	10:45	SW-846 8330	Nitroaromatics and Nitramines	4°C	6	Glass - Amber	1L		112G00041- 4162007-4

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General Observations and Notes

MS/MSD

- End of Report -

Created By
Created DateJames Goerd
4/2/07Modified By
Modified DateJames Goerd
5/9/07Printed By
Printed DateJames Goerd
5/9/07

Project Information

MNA Sampling - SWMU 12 - CRANE NSWC

Facility Name	CRANE NSWC	Sample ID #	12GWT1207
TtNUS Project #	112G00041	Well ID	12MWT12
Task/Contract #	CTO 0377	Well Type	Monitoring Well
WBS Code #		Sampled By	James Goerd
Status	Complete	Concentration	Low concentration

Well and Sample Data

Date		Static Water Level (ft.)	9.22	Water Quality Meter	4103008
Purge Method	Low flow - bladder	Total Well Depth (ft.)	24.00	Pump Control Box	MP10-1588
Sampling Method	Low - flow bladder	Well Riser Diameter (in.)	2	Turbidity Meter	1157-1899
MS/MSD Collected?		Well Volumes Req.	1		
Duplicate Sample Collected?	N	Monitor Reading (ppm)	NA		
Corresponding Duplicate Sample ID					

Purge Entries

Date	Time	Water Level (ft.)	Flow Rate (mL/min)	Color	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTUs)	Temp °C	ORP (mV)	Salinity (%)	Other	Incremental Volume (mL)
4/14/07	09:05	9.22	150	Clear	NA	NA	NA	NA	NA	NA	NA	NA	0
4/14/07	09:15	9.60	150	Clear	6.06	0.999	9.92	3.51	10.3	291	NA	NA	1500
4/14/07	09:25	9.63	150	Clear	6.05	0.999	9.76	NA	10.3	282	NA	NA	1500
4/14/07	09:35	9.67	150	Clear	6.08	0.900	9.31	0.83	10.2	268	NA	NA	1500
4/14/07	09:45	9.68	150	Clear	6.13	0.999	8.87	NA	10.2	259	NA	NA	1500
4/14/07	09:55	9.68	150	Clear	6.18	0.900	8.49	0.84	10.2	244	NA	NA	1500
4/14/07	10:05	9.68	150	Clear	6.14	0.999	8.11	NA	10.0	233	NA	NA	1500
4/14/07	10:15	9.67	150	Clear	6.19	0.900	7.84	0.80	9.9	227	NA	NA	1500



MNA Sampling - SWMU 12 - CRANE NSWC

Purge Entries

Date	Time	Water Level (ft.)	Flow Rate (mL/min)	Color	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTUs)	Temp °C	ORP (mV)	Salinity (%)	Other	Incremental Volume (mL)
4/14/07	10:25	9.8	150	Clear	6.20	0.999	7.76	NA	9.9	218	NA	NA	1500
4/14/07	10:35	9.68	150	Clear	6.16	0.900	7.48	0.76	9.9	212	NA	NA	1500
4/14/07	10:45	9.67	150	Clear	6.22	0.999	7.25	0.74	9.9	209	NA	NA	1500

Page 2 of 3

Final Purge / Sample Data

One Casing Volume	9.13	Method	Low flow - bladder	Dissolved Oxygen (mg/L)	7.25
Total Vo. Purge (L)	15	Waterlevel (ft.)	9.67	Turbidity (NTUs)	0.74
Start Purge (hrs.)	10:05:00 AM	Flowrate (mL/min)	150	Temp (C)	9.9
End Purge (hrs.)	11:45:00 AM	Color	Clear	ORP (mV)	209
Total Purge Time (min.)	100	pH (S.U.)	6.22	Salinity	NA
		Conductivity (mS/cm)	0.999	Other	NA



MNA Sampling - SWMU 12 - CRANE NSWC

Analysis Records

Collected	Date	Time	Analysis / Method	Description of Analysis	Preservative	Count	Type	Requirements	Comments	Chain #
✓	4/14/07	10:50	SW-846 6850	Perchlorate	4°C	2	Plastic - PP	250ml		112G00041-4152007-3
✓	4/14/07	10:50	SW-846 8330	Nitroaromatics and Nitramines	4°C	2	Glass - Amber	1L		112G00041-4162007-4

Page 3 of 3

General Observations and Notes

Doesn't appear as though conductivity is being measured correctly.

- End of Report -



Created By
Created Date

James Goerdts
4/2/07

Modified By
Modified Date

James Goerdts
5/9/07

Printed By
Printed Date

James Goerdts
5/9/07

Project Information

MNA Sampling - SWMU 12 - CRANE NSWC

Facility Name	CRANE NSWC	Sample ID #	12GWT1607
TtNUS Project #	112G00041	Well ID	12MWT16
Task/Contract #	CTO 0377	Well Type	Monitoring Well
WBS Code #		Sampled By	Walt Pryor
Status	Complete	Concentration	Low concentration

Well and Sample Data

Date		Static Water Level (ft.)	21.75	Water Quality Meter	4143008
Purge Method	Low flow - bladder	Total Well Depth (ft.)	25.00	Pump Control Box	MP10-2191
Sampling Method	Low flow - bladder	Well Riser Diameter (in.)	2	Turbidity Meter	1757-1800
MS/MSD Collected?		Well Volumes Req.	1		
Duplicate Sample Collected?	N	Monitor Reading (ppm)	N/A		
Corresponding Duplicate Sample ID					

Purge Entries

Date	Time	Water Level (ft.)	Flow Rate (mL/min)	Color	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTUs)	Temp °C	ORP (mV)	Salinity (%)	Other	Incremental Volume (mL)
4/13/07	13:10	21.75	90	Clear	6.31	0.564	9.05	11	13.75	257	N/A		0
4/13/07	13:20	22.30	90	Clear	6.25	0.563	6.79	3.5	13.15	235	N/A		900
4/13/07	13:30	23.05	90	Clear	6.25	0.554	6.22	5.4	13.26	226	N/A		900
4/13/07	13:40	23.75	50	Clear	6.25	0.557	6.60	14	13.26	226	N/A		500
4/13/07	13:50	24.00	50	Slightly Turbid	6.25	0.556	6.63	26	13.28	226	N/A		500
4/13/07	14:00	Dry	50	Slightly Turbid	6.23	0.559	6.60	32	13.34	228	N/A		500

Final Purge / Sample Data

One Casing Volume	2.01	Method	Low flow - bladder	Dissolved Oxygen (mg/L)	6.60
Total Vo. Purge (L)	3.3	Waterlevel (ft.)	Dry	Turbidity (NTUs)	32
Start Purge (hrs.)	2:10:00 PM	Flowrate (mL/min)	50	Temp (C)	13.34
End Purge (hrs.)	3:00:00 PM	Color	Slightly Turbid	ORP (mV)	228
Total Purge Time (min.)	50	pH (S.U.)	6.23	Salinity	N/A
		Conductivity (mS/cm)	0.559	Other	



MNA Sampling - SWMU 12 - CRANE NSWC

Analysis Records

Collected	Date	Time	Analysis / Method	Description of Analysis	Preservative	Count	Type	Requirements	Comments	Chain #
✓	4/14/07	13:55	SW-846 6850	Perchlorate	4°C	2	Plastic - PP	250ml		112G00041-4152007-3
✓	4/14/07	13:55	SW-846 8330	Nitroaromatics and Nitramines	4°C	2	Glass - Amber	1L		112G00041-4162007-4

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General Observations and Notes

Well purged dry on 4/13/07 and sampled on 4/14/07.

- End of Report -



Created By	James Goerd	Modified By	James Goerd	Printed By	James Goerd
Created Date	4/2/07	Modified Date	5/9/07	Printed Date	5/9/07

Project Information

MNA Sampling - SWMU 12 - CRANE NSWC

Facility Name	CRANE NSWC	Sample ID #	12GWT1707
TtNUS Project #	112G00041	Well ID	12MWT17
Task/Contract #	CTO 0377	Well Type	Monitoring Well
WBS Code #		Sampled By	Walt Pryor
Status	Complete	Concentration	Low concentration

Well and Sample Data

Date		Static Water Level (ft.)	24.02	Water Quality Meter	4143008
Purge Method	Low flow - bladder	Total Well Depth (ft.)	26.00	Pump Control Box	MP10-2191
Sampling Method	Low flow - bladder	Well Riser Diameter (in.)	2	Turbidity Meter	1757-1800
MS/MSD Collected?		Well Volumes Req.	1		
Duplicate Sample Collected?	N	Monitor Reading (ppm)	N/A		
Corresponding Duplicate Sample ID					

Purge Entries

Date	Time	Water Level (ft.)	Flow Rate (mL/min)	Color	pH (S.U.)	S.C. (ms/cm)	DO (mg/L)	Turbidity (NTUs)	Temp °C	ORP (mV)	Salinity (%)	Other	Incremental Volume (mL)
4/13/07	14:15	24.55	50	Clear	5.93	0.896	7.90	14	13.81	254	N/A		0
4/13/07	14:25	25.00	50	Clear	5.86	0.891	5.92	4.7	13.75	252	N/A		500
4/13/07	14:35	25.50	50	Clear	5.86	0.890	5.33	11	13.72	250	N/A		500
4/13/07	14:45	Dry	50	Clear	5.83	0.911	5.00	11	13.59	250	N/A		500

Final Purge / Sample Data

One Casing Volume	1.22	Method	Low flow - bladder	Dissolved Oxygen (mg/L)	5.00
Total Vo. Purge (L)	1.5	Waterlevel (ft.)	Dry	Turbidity (NTUs)	11
Start Purge (hrs.)	3:15:00 PM	Flowrate (mL/min)	50	Temp (C)	13.59
End Purge (hrs.)	3:45:00 PM	Color	Clear	ORP (mV)	250
Total Purge Time (min.)	30	pH (S.U.)	5.83	Salinity	N/A
		Conductivity (mS/cm)	0.911	Other	



MNA Sampling - SWMU 12 - CRANE NSWC

Analysis Records

Collected	Date	Time	Analysis / Method	Description of Analysis	Preservative	Count	Type	Requirements	Comments	Chain #
✓	4/14/07	14:40	SW-846 6850	Perchlorate	4°C	2	Plastic - PP	250ml		112G00041-4152007-3
✓	4/14/07	14:40	SW-846 8330	Nitroaromatics and Nitramines	4°C	1	Glass - Amber	1L		112G00041-4162007-4

Page 2 of 2

General Observations and Notes

Well purged dry on 4/13/07 and sampled on 4/14/07.

- End of Report -

Created By
Created DateJames Goerd
4/2/07Modified By
Modified DateJames Goerd
5/9/07Printed By
Printed DateJames Goerd
5/9/07

Project Information

MNA Sampling - SWMU 12 - CRANE NSWC

Facility Name	CRANE NSWC	Sample ID #	12GWT1807
TtNUS Project #	112G00041	Well ID	12MWT18
Task/Contract #	CTO 0377	Well Type	Monitoring Well
WBS Code #		Sampled By	Walt Pryor
Status	Complete	Concentration	Low concentration

Well and Sample Data

Date		Static Water Level (ft.)	21.65	Water Quality Meter	4143008
Purge Method	Low flow - bladder	Total Well Depth (ft.)	26.00	Pump Control Box	MP10-2191
Sampling Method	Low Flow - bladder	Well Riser Diameter (in.)	2	Turbidity Meter	1757-1800
MS/MSD Collected?		Well Volumes Req.	1		
Duplicate Sample Collected?	N	Monitor Reading (ppm)	N/A		
Corresponding Duplicate Sample ID					

Purge Entries

Date	Time	Water Level (ft.)	Flow Rate (mL/min)	Color	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTUs)	Temp °C	ORP (mV)	Salinity (%)	Other	Incremental Volume (mL)
4/11/07	09:46	21.65	200	Slightly Turbid	5.83	1.42	8.12	28	12.78	288	N/A		0
4/11/07	09:57	22.75	200	Clear	5.88	1.34	7.95	12	12.61	282	N/A		2200
4/11/07	10:08	23.65	200	Clear	5.89	1.30	7.70	10	12.41	278	N/A		2200
4/11/07	10:18	24.10	150	Clear	5.82	1.41	7.48	5.5	12.45	283	N/A		1500
4/11/07	10:28	24.60	150	Clear	5.71	1.56	6.98	13	12.52	288	N/A		1500
4/11/07	10:38	25.15	150	Clear	5.75	1.57	6.90	25	12.57	293	N/A		1500
4/11/07	10:48	25.30	150	Slightly Turbid	5.78	1.54	7.00	85	12.70	300	N/A		1500
4/11/07	10:58	Below Bladder	150	Cloudy	5.78	1.57	6.62	110	12.68	302	N/A		1500



MNA Sampling - SWMU 12 - CRANE NSWC

Purge Entries

Date	Time	Water Level (ft.)	Flow Rate (mL/min)	Color	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTUs)	Temp °C	ORP (mV)	Salinity (%)	Other	Incremental Volume (mL)
4/11/07	11:08	Below Bladder	150	Cloudy	5.78	1.61	6.83	85	12.52	298	N/A		1500
4/11/07	11:18	Below Bladder	150	Slightly Turbid	5.70	1.68	7.16	60	12.03	291	N/A		1500
4/11/07	11:28	Below Bladder	150	Slightly Turbid	5.63	1.80	7.18	32	11.93	293	N/A		1500
4/11/07	11:38	Below Bladder	150	Slightly Turbid	5.55	1.94	7.26	19	11.98	297	N/A		1500

Page 2 of 3

Final Purge / Sample Data

One Casing Volume	2.69	Method	Low flow - bladder	Dissolved Oxygen (mg/L)	7.26
Total Vo. Purge (L)	18.35	Waterlevel (ft.)	Below Bladder	Turbidity (NTUs)	19
Start Purge (hrs.)	10:46:00 AM	Flowrate (mL/min)	150	Temp (C)	11.98
End Purge (hrs.)	12:38:00 PM	Color	Slightly Turbid	ORP (mV)	297
Total Purge Time (min.)	112	pH (S.U.)	5.55	Salinity	N/A
		Conductivity (mS/cm)	1.94	Other	



MNA Sampling - SWMU 12 - CRANE NSWC

Analysis Records

Collected	Date	Time	Analysis / Method	Description of Analysis	Preservative	Count	Type	Requirements	Comments	Chain #
✓	4/12/07	07:57	SW-846 6850	Perchlorate	4°C	2	Plastic - PP	250ml		112G00041-4132007-1
✓	4/12/07	07:57	SW-846 8330	Nitroaromatics and Nitramines	4°C	2	Glass - Amber	1L		112G00041-4132007-2

Page 3 of 3

General Observations and Notes

None

- End of Report -

Project Information

MNA Sampling - SWMU 12 - CRANE NSWC

Facility Name	CRANE NSWC	Sample ID #	12GWT2007
TtNUS Project #	112G00041	Well ID	12MWT20
Task/Contract #	CTO 0377	Well Type	Monitoring Well
WBS Code #		Sampled By	James Goerd
Status	Complete	Concentration	Low concentration

Well and Sample Data

Date		Static Water Level (ft.)	24.42	Water Quality Meter	4103008
Purge Method	Low flow - bladder	Total Well Depth (ft.)	26.00	Pump Control Box	MP10-1588
Sampling Method		Well Riser Diameter (in.)		Turbidity Meter	1157-1899
MS/MSD Collected?		Well Volumes Req.	1		
Duplicate Sample Collected?	N	Monitor Reading (ppm)			
Corresponding Duplicate Sample ID					

Purge Entries

Date	Time	Water Level (ft.)	Flow Rate (mL/min)	Color	pH (S.U.)	S.C. (ms/cm)	DO (mg/L)	Turbidity (NTUs)	Temp °C	ORP (mV)	Salinity (%)	Other	Incremental Volume (mL)
4/11/07	14:25	24.42	200	Cloudy	NA	NA	NA	NA	NA	NA	NA	NA	0
4/11/07	14:35	24.91	200	Clear	5.57	2.47	3.99	74.4	13.1	226	NA	NA	2000
4/11/07	14:45	24.87	80	Slightly Turbid	5.35	3.09	3.77	26.9	13.2	237	NA	NA	800
4/11/07	14:55	24.86	80	Clear	5.24	3.30	3.59	16.3	13.3	243	NA	NA	800
4/11/07	15:06	24.88	80	Clear	5.20	3.39	3.93	7.09	13.3	246	NA	NA	880
4/11/07	15:15	24.85	80	Clear	5.17	3.41	4.23	6.11	13.4	247	NA	NA	720

Final Purge / Sample Data

One Casing Volume 0
Total Vo. Purge (L) 5.2
Start Purge (hrs.) 3:25:00 PM
End Purge (hrs.) 4:15:00 PM
Total Purge Time (min.) 50

Method Low flow - bladder
Waterlevel (ft.)
Flowrate (mL/min)
Color
pH (S.U.)
Conductivity (mS/cm)

Dissolved Oxygen (mg/L)
Turbidity (NTUs)
Temp (C)
ORP (mV)
Salinity
Other



MNA Sampling - SWMU 12 - CRANE NSWC

Analysis Records

Collected	Date	Time	Analysis / Method	Description of Analysis	Preservative	Count	Type	Requirements	Comments	Chain #
✓	4/11/07	15:30	SW-846 6850	Perchlorate	4°C	2	Plastic - PP	250ml		112G00041-4132007-1
✓	4/11/07	15:30	SW-846 8330	Nitroaromatics and Nitramines	4°C	2	Glass - Amber	1L		112G00041-4132007-2

Page 2 of 2

General Observations and Notes

X

- End of Report -



Created By
Created Date

James Goerd
4/2/07

Modified By
Modified Date

James Goerd
5/9/07

Printed By
Printed Date

James Goerd
5/9/07

Project Information

MNA Sampling - SWMU 12 - CRANE NSWC

Facility Name	CRANE NSWC	Sample ID #	12GWT2207
TtNUS Project #	112G00041	Well ID	12MWT22
Task/Contract #	CTO 0377	Well Type	Monitoring Well
WBS Code #		Sampled By	James Goerd
Status	Complete	Concentration	Low concentration

Well and Sample Data

Date		Static Water Level (ft.)	17.35	Water Quality Meter	4103008
Purge Method	Low flow - bladder	Total Well Depth (ft.)	25.00	Pump Control Box	MP10-1588
Sampling Method	Low flow - bladder	Well Riser Diameter (in.)	2	Turbidity Meter	1157-1899
MS/MSD Collected?		Well Volumes Req.	1		
Duplicate Sample Collected?	N	Monitor Reading (ppm)	NA		
Corresponding Duplicate Sample ID					

Purge Entries

Date	Time	Water Level (ft.)	Flow Rate (mL/min)	Color	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTUs)	Temp °C	ORP (mV)	Salinity (%)	Other	Incremental Volume (mL)
4/13/07	09:00	17.35	75	Clear	NA	NA	NA	NA	NA	NA	NA	NA	0
4/13/07	09:10	17.86	75	Clear	5.71	0.456	8.08	NA	11.3	268	NA	NA	750
4/13/07	09:20	17.93	75	Slightly Turbid	5.70	0.350	8.18	16.1	10.0	282	NA	NA	750
4/13/07	09:30	18.11	75	Clear	5.72	0.324	7.78	14.4	10.4	286	NA	NA	750
4/13/07	09:40	0	75	Clear	5.72	0.311	7.60	NA	10.6	287	NA	NA	750
4/13/07	09:50	0	75	Clear	5.74	0.304	7.40	NA	10.6	285	NA	NA	750
4/13/07	10:00	18.48	75	Clear	5.75	0.306	7.43	11.6	10.5	283	NA	NA	750
4/13/07	10:10	18.54	75	Clear	5.75	0.307	7.52	NA	10.5	277	NA	NA	750



MNA Sampling - SWMU 12 - CRANE NSWC

Purge Entries

Date	Time	Water Level (ft.)	Flow Rate (mL/min)	Color	pH (S.U.)	S.C. (ms/cm)	DO (mg/L)	Turbidity (NTUs)	Temp °C	ORP (mV)	Salinity (%)	Other	Incremental Volume (mL)
4/13/07	10:30	18.63	75	Clear	5.77	0.310	7.64	NA	10.6	265	NA	NA	1500
4/13/07	10:40	18.88	75	Clear	5.75	0.304	6.95	15.8	11.2	263	NA	NA	750
4/13/07	10:50	18.93	75	Clear	5.76	0.307	6.83	NA	11.4	260	NA	NA	750
4/13/07	11:00	0	75	Clear	5.76	0.308	6.75	NA	11.5	257	NA	NA	750
4/13/07	11:10	0	75	Clear	5.77	0.309	6.73	NA	11.5	255	NA	NA	750
4/13/07	11:30	19.48	75	Clear	5.77	0.314	6.72	32.3	12	246	NA	NA	1500
4/13/07	12:20	19.63	75	Clear	5.75	0.312	6.14	NA	12.7	245	NA	NA	3750
4/13/07	12:30	19.69	75	Clear	5.74	0.314	6.22	55.4	12.9	244	NA	NA	750
4/13/07	12:40	19.69	75	Clear	5.76	0.315	6.24	NA	13.1	254	NA	NA	750
4/13/07	12:50	19.72	75	Slightly Turbid	5.78	0.317	6.26	NA	13.4	234	NA	NA	750
4/13/07	13:00	19.72	75	Slightly Turbid	5.78	0.318	6.27	55.6	13.5	227	NA	NA	750

Page 2 of 3

Final Purge / Sample Data

One Casing Volume	0	Method	Low flow - bladder	Dissolved Oxygen (mg/L)	6.27
Total Vo. Purge (L)	18	Waterlevel (ft.)	19.72	Turbidity (NTUs)	55.6
Start Purge (hrs.)	10:00:00 AM	Flowrate (mL/min)	75	Temp (C)	13.5
End Purge (hrs.)	2:00:00 PM	Color	Slightly Turbid	ORP (mV)	227
Total Purge Time (min.)	240	pH (S.U.)	5.78	Salinity	NA
		Conductivity (mS/cm)	0.318	Other	NA



MNA Sampling - SWMU 12 - CRANE NSWC

Analysis Records

Collected	Date	Time	Analysis / Method	Description of Analysis	Preservative	Count	Type	Requirements	Comments	Chain#
✓	4/13/07	13:05	SW-846 6850	Perchlorate	4°C	2	Plastic - PP	250ml		112G00041-4132007-1
✓	4/13/07	13:05	SW-846 8330	Nitroaromatics and Nitramines	4°C	2	Glass - Amber	1L		112G00041-4132007-2

Page 3 of 3

General Observations and Notes

None

- End of Report -



Created By
Created Date

James Goerdts
4/2/07

Modified By
Modified Date

James Goerdts
5/9/07

Printed By
Printed Date

James Goerdts
5/9/07

Project Information

MNA Sampling - SWMU 12 - CRANE NSWC

Facility Name	CRANE NSWC	Sample ID #	12GWT2307
TtNUS Project #	112G00041	Well ID	12MWT23
Task/Contract #	CTO 0377	Well Type	Monitoring Well
WBS Code #		Sampled By	Walt Pryor
Status	Complete	Concentration	Low concentration

Well and Sample Data

Date		Static Water Level (ft.)	27.65	Water Quality Meter	4143008
Purge Method	Low flow - bladder	Total Well Depth (ft.)	31.00	Pump Control Box	MP10-2191
Sampling Method	Low flow - bladder	Well Riser Diameter (in.)	2	Turbidity Meter	1757-1800
MS/MSD Collected?		Well Volumes Req.	1		
Duplicate Sample Collected?	N	Monitor Reading (ppm)	N/A		
Corresponding Duplicate Sample ID					

Purge Entries

Date	Time	Water Level (ft.)	Flow Rate (mL/min)	Color	pH (S.U.)	S.C. (ms/cm)	DO (mg/L)	Turbidity (NTUs)	Temp °C	ORP (mV)	Salinity (%)	Other	Incremental Volume (mL)
4/12/07	13:40	27.65	90	Slightly Turbid	3.13	8.02	10.47	70	11.03	407	N/A		0
4/12/07	13:50	28.15	90	Slightly Turbid	3.15	7.97	5.58	33	11.58	415	N/A		900
4/12/07	14:00	28.60	90	Clear	3.18	7.88	4.91	14	11.80	441	N/A		900
4/12/07	14:10	29.05	90	Clear	3.21	7.80	5.14	15	11.71	450	N/A		900
4/12/07	14:20	29.42	90	Clear	3.21	7.89	5.20	16	11.70	455	N/A		900
4/12/07	14:30	30.20	90	Clear	3.21	7.80	5.14	15	11.70	459	N/A		900
4/12/07	14:40	30.30	90	Clear	3.24	7.85	5.20	29	11.71	463	N/A		900
4/12/07	14:50	Dry	90	Slightly Turbid	3.27	7.88	5.23	85	11.71	469	N/A		900

Final Purge / Sample Data

One Casing Volume	2.07	Method	Low flow - bladder	Dissolved Oxygen (mg/L)	5.23
Total Vo. Purge (L)	6.3	Waterlevel (ft.)	Dry	Turbidity (NTUs)	85
Start Purge (hrs.)	2:40:00 PM	Flowrate (mL/min)	90	Temp (C)	11.71
End Purge (hrs.)	3:50:00 PM	Color	Slightly Turbid	ORP (mV)	469
Total Purge Time (min.)	70	pH (S.U.)	3.27	Salinity	N/A
		Conductivity (mS/cm)	7.88	Other	



MNA Sampling - SWMU 12 - CRANE NSWC

Analysis Records

Collected	Date	Time	Analysis / Method	Description of Analysis	Preservative	Count	Type	Requirements	Comments	Chain#
✓	4/13/07	09:45	SW-846 6850	Perchlorate	4°C	2	Plastic - PP	250ml		112G00041-4132007-1
✓	4/13/07	09:45	SW-846 8330	Nitroaromatics and Nitramines	4°C	1	Glass - Amber	1L		112G00041-4132007-2

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General Observations and Notes

None

- End of Report -

Created By
Created DateJames Goerd
4/2/07Modified By
Modified DateJames Goerd
5/9/07Printed By
Printed DateJames Goerd
5/9/07

Project Information

MNA Sampling - SWMU 12 - CRANE NSWC

Facility Name	CRANE NSWC	Sample ID #	12GWT2807
TtNUS Project #	112G00041	Well ID	12MWT28
Task/Contract #	CTO 0377	Well Type	Monitoring Well
WBS Code #		Sampled By	Walt Pryor
Status	Complete	Concentration	Low concentration

Well and Sample Data

Date		Static Water Level (ft.)	11.60	Water Quality Meter	4143008
Purge Method	Low flow - bladder	Total Well Depth (ft.)	28.26	Pump Control Box	MP10-2191
Sampling Method	Low flow -bladder	Well Riser Diameter (in.)	2	Turbidity Meter	1757-1800
MS/MSD Collected?		Well Volumes Req.	1		
Duplicate Sample Collected?	N	Monitor Reading (ppm)	N/A		
Corresponding Duplicate Sample ID					

Purge Entries

Date	Time	Water Level (ft.)	Flow Rate (mL/min)	Color	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTUs)	Temp °C	ORP (mV)	Salinity (%)	Other	Incremental Volume (mL)
4/12/07	08:45	11.60	140	Slightly Turbid	6.23	1.75	8.70	70	11.03	290	N/A		0
4/12/07	08:55	14.87	140	Slightly Turbid	6.57	1.59	4.68	26	12.32	280	N/A		1400
4/12/07	09:05	18.40	90	Clear	6.62	1.59	5.86	18	11.71	264	N/A		900
4/12/07	09:15	18.81	90	Clear	6.63	1.58	5.48	17	11.26	254	N/A		900
4/12/07	09:25	19.20	90	Slightly Turbid	6.65	1.57	5.23	24	11.24	252	N/A		900
4/12/07	09:35	19.60	90	Slightly Turbid	6.65	1.57	4.92	23	11.26	249	N/A		900
4/12/07	09:45	19.95	90	Slightly Turbid	6.66	1.57	4.75	27	11.27	247	N/A		900
4/12/07	09:55	20.30	90	Slightly Turbid	6.66	1.58	4.70	32	11.29	243	N/A		900



MNA Sampling - SWMU 12 - CRANE NSWC

Purge Entries

Date	Time	Water Level (ft.)	Flow Rate (mL/min)	Color	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTUs)	Temp °C	ORP (mV)	Salinity (%)	Other	Incremental Volume (mL)
4/12/07	10:05	20.70	90	Slightly Turbid	6.66	1.59	4.43	38	11.40	242	N/A		900
4/12/07	10:15	21.10	90	Slightly Turbid	6.66	1.60	4.20	38	11.31	240	N/A		900
4/12/07	10:25	21.45	90	Slightly Turbid	6.66	1.60	4.09	55	11.39	237	N/A		900
4/12/07	10:35	21.75	90	Slightly Turbid	6.66	1.60	4.04	65	11.49	235	N/A		900
4/12/07	10:45	22.15	90	Slightly Turbid	6.65	1.60	4.32	75	11.49	234	N/A		900
4/12/07	10:55	22.50	90	Slightly Turbid	6.65	1.59	3.80	90	11.55	234	N/A		900
4/12/07	11:05	22.90	90	Slightly Turbid	6.65	1.56	3.81	110	11.48	234	N/A		900
4/12/07	11:15	23.20	90	Slightly Turbid	6.65	1.47	3.72	150	11.47	234	N/A		900
4/12/07	11:25	23.65	90	Cloudy	6.65	1.45	3.70	180	11.46	234	N/A		900
4/12/07	11:35	24.30	90	Cloudy	6.65	1.43	3.65	200	11.45	234	N/A		900
4/12/07	11:45	24.40	90	Cloudy	6.66	1.45	4.52	220	10.83	237	N/A		900
4/12/07	11:55	24.75	90	Cloudy	6.68	1.51	4.24	210	11.81	234	N/A		900
4/12/07	12:05	25.15	90	Cloudy	6.69	1.54	3.97	140	11.77	232	N/A		900
4/12/07	12:15	Dry	90	Cloudy	6.70	1.55	3.84	180	11.83	227	N/A		900

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Final Purge / Sample Data

One Casing Volume	10.29	Method	Low flow - bladder	Dissolved Oxygen (mg/L)	3.84
Total Vo. Purge (L)	19.4	Waterlevel (ft.)	Dry	Turbidity (NTUs)	180
Start Purge (hrs.)	9:45:00 AM	Flowrate (mL/min)	90	Temp (C)	11.83
End Purge (hrs.)	1:15:00 PM	Color	Cloudy	ORP (mV)	227
Total Purge Time (min.)	210	pH (S.U.)	6.70	Salinity	N/A
		Conductivity (mS/cm)	1.55	Other	



MNA Sampling - SWMU 12 - CRANE NSWC

Analysis Records

Collected	Date	Time	Analysis / Method	Description of Analysis	Preservative	Count	Type	Requirements	Comments	Chain#
✓	4/13/07	08:58	SW-846 6850	Perchlorate	4°C	2	Plastic - PP	250ml		112G00041-4132007-1
✓	4/13/07	08:58	SW-846 8330	Nitroaromatics and Nitramines	4°C	2	Glass - Amber	1L		112G00041-4132007-2

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General Observations and Notes

None

- End of Report -



Created By	James Goerd	Modified By	James Goerd	Printed By	James Goerd
Created Date	4/2/07	Modified Date	5/9/07	Printed Date	5/9/07

Project Information

MNA Sampling - SWMU 12 - CRANE NSWC

Facility Name	CRANE NSWC	Sample ID #	12GWT3002
TtNUS Project #	112G00041	Well ID	12MWT30
Task/Contract #	CTO 0377	Well Type	Monitoring Well
WBS Code #		Sampled By	James Goerd
Status	Complete	Concentration	-Select-

Well and Sample Data

Date		Static Water Level (ft.)	Dry	Water Quality Meter	No Data
Purge Method	Low flow - bladder	Total Well Depth (ft.)	90.50	Pump Control Box	No Data
Sampling Method	NA	Well Riser Diameter (in.)	2	Turbidity Meter	No Data
MS/MSD Collected?		Well Volumes Req.	1		
Duplicate Sample Collected?	N	Monitor Reading (ppm)	NA		
Corresponding Duplicate Sample ID					

Purge Entries

Date	Time	Water Level (ft.)	Flow Rate (mL/min)	Color	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTUs)	Temp °C	ORP (mV)	Salinity (%)	Other	Incremental Volume (mL)
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Final Purge / Sample Data

One Casing Volume

Total Vo. Purge (L)

Start Purge (hrs.)

End Purge (hrs.)

**Total Purge Time
(min.)**

Method

Waterlevel (ft.)

Flowrate (mL/min)

Color

pH (S.U.)

**Conductivity
(mS/cm)**

Low flow - bladder

**Dissolved Oxygen
(mg/L)**

Turbidity (NTUs)

Temp (C)

ORP (mV)

Salinity

Other



MNA Sampling - SWMU 12 - CRANE NSWC

Analysis Records

Collected	Date	Time	Analysis / Method	Description of Analysis	Preservative	Count	Type	Requirements	Comments	Chain#
X			SW-846 6850	Perchlorate	4°C	2	Plastic - PP	250ml		
X			SW-846 8330	Nitroaromatics and Nitramines	4°C	2	Glass - Amber	1L		

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General Observations and Notes

Well determined to be dry 4/16/07 17:35

- End of Report -

Created By
Created DateJames Goerd
4/2/07Modified By
Modified DateJames Goerd
5/9/07Printed By
Printed DateJames Goerd
5/9/07

Project Information

MNA Sampling - SWMU 12 - CRANE NSWC

Facility Name	CRANE NSWC	Sample ID #	12GWT3107
TtNUS Project #	112G00041	Well ID	12MWT31
Task/Contract #	CTO 0377	Well Type	Monitoring Well
WBS Code #		Sampled By	James Goerd
Status	Complete	Concentration	Low concentration

Well and Sample Data

Date		Static Water Level (ft.)	67.60	Water Quality Meter	4103008
Purge Method	Low flow - bladder	Total Well Depth (ft.)	88	Pump Control Box	MP10-1588
Sampling Method	Low flow - bladder	Well Riser Diameter (in.)	2	Turbidity Meter	1157-1899
MS/MSD Collected?		Well Volumes Req.	1		
Duplicate Sample Collected?	N	Monitor Reading (ppm)	NA		
Corresponding Duplicate Sample ID					

Purge Entries

Date	Time	Water Level (ft.)	Flow Rate (mL/min)	Color	pH (S.U.)	S.C. (ms/cm)	DO (mg/L)	Turbidity (NTUs)	Temp °C	ORP (mV)	Salinity (%)	Other	Incremental Volume (mL)
4/14/07	12:20	67.60	90	Clear	NA	NA	NA	NA	NA	NA	NA	NA	0
4/14/07	12:30	68.32	90	Clear	7.70	0.782	4.90	3.85	10.8	280	NA	NA	900
4/14/07	12:40	69.24	90	Clear	7.70	0.793	2.92	NA	11.1	273	NA	NA	900
4/14/07	12:50	69.64	90	Clear	7.72	0.781	2.49	NA	11.3	266	NA	NA	900
4/14/07	13:00	71.31	90	Clear	7.75	0.760	2.12	0.97	11.9	254	NA	NA	900
4/14/07	13:10	71.53	80	Clear	7.74	0.775	2.44	NA	9.8	248	NA	NA	800
4/14/07	13:20	71.72	80	Clear	7.73	0.743	2.45	NA	10.4	241	NA	NA	800
4/14/07	13:30	71.95	80	Clear	7.75	0.750	2.17	NA	11.1	235	NA	NA	800



MNA Sampling - SWMU 12 - CRANE NSWC

Purge Entries

Date	Time	Water Level (ft.)	Flow Rate (mL/min)	Color	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTUs)	Temp °C	ORP (mV)	Salinity (%)	Other	Incremental Volume (mL)
4/14/07	13:40	72.10	80	Clear	7.78	0.743	2.40	1.37	8.6	229	NA	NA	800
4/14/07	13:50	72.16	80	Clear	7.78	0.737	2.51	NA	8.3	226	NA	NA	800
4/14/07	14:00	72.21	80	Clear	7.77	0.723	2.74	NA	8.2	225	NA	NA	800
4/14/07	14:10	72.24	80	Clear	7.77	0.707	2.80	0.20	8.2	221	NA	NA	800
4/14/07	14:20	72.65	80	Clear	7.78	0.742	2.18	NA	10.5	216	NA	NA	800
4/14/07	14:30	72.78	80	Clear	7.81	0.740	NA	1.96	11.3	209	NA	NA	800
4/14/07	14:40	72.96	80	Clear	7.82	0.696	2.03	NA	11.1	203	NA	NA	800
4/14/07	14:50	73.24	80	Clear	7.82	0.724	2.29	1.5	11.2	199	NA	NA	800
4/14/07	15:00	73.58	80	Clear	7.83	0.695	2.51	NA	11.3	195	NA	NA	800
4/14/07	15:20	74.06	80	Clear	7.85	0.716	2.53	NA	11.3	189	NA	NA	1600
4/14/07	15:30	74.21	80	Clear	7.84	0.709	2.50	NA	11.2	188	NA	NA	800
4/14/07	15:40	0	80	Clear	7.85	0.715	2.45	NA	11.1	185	NA	NA	800
4/14/07	16:20	76.82	80	Clear	7.91	0.689	2.37	1.42	11.3	178	NA	NA	3200

Page 2 of 3

Final Purge / Sample Data

One Casing Volume	12.6	Method	Low flow - bladder	Dissolved Oxygen (mg/L)	2.37
Total Vo. Purge (L)	19.6	Waterlevel (ft.)	76.82	Turbidity (NTUs)	1.42
Start Purge (hrs.)	1:20:00 PM	Flowrate (mL/min)	80	Temp (C)	11.3
End Purge (hrs.)	5:20:00 PM	Color	Clear	ORP (mV)	178
Total Purge Time (min.)	240	pH (S.U.)	7.91	Salinity	NA
		Conductivity (mS/cm)	0.689	Other	NA



MNA Sampling - SWMU 12 - CRANE NSWC

Analysis Records

Collected	Date	Time	Analysis / Method	Description of Analysis	Preservative	Count	Type	Requirements	Comments	Chain #
✓	4/14/07	16:30	SW-846 6850	Perchlorate	4°C	2	Plastic - PP	250ml		112G00041- 4152007-3
✓	4/14/07	16:30	SW-846 8330	Nitroaromatics and Nitramines	4°C	2	Glass - Amber	1L		112G00041- 4162007-4

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General Observations and Notes

None

- End of Report -

Project Information

MNA Sampling - SWMU 12 - CRANE NSWC

Facility Name	CRANE NSWC	Sample ID #	12GWT3207
TtNUS Project #	112G00041	Well ID	12MWT32
Task/Contract #	CTO 0377	Well Type	Monitoring Well
WBS Code #		Sampled By	James Goerd
Status	Complete	Concentration	Low concentration

Well and Sample Data

Date		Static Water Level (ft.)	84.52	Water Quality Meter	4103008
Purge Method	Low flow - bladder	Total Well Depth (ft.)	102.93	Pump Control Box	MP10-1588
Sampling Method	low flow - bladder	Well Riser Diameter (in.)	2	Turbidity Meter	1157-1899
MS/MSD Collected?		Well Volumes Req.	1		
Duplicate Sample Collected?	N	Monitor Reading (ppm)	NA		
Corresponding Duplicate Sample ID					

Purge Entries

Date	Time	Water Level (ft.)	Flow Rate (mL/min)	Color	pH (S.U.)	S.C. (ms/cm)	DO (mg/L)	Turbidity (NTUs)	Temp °C	ORP (mV)	Salinity (%)	Other	Incremental Volume (mL)
4/11/07	09:40	84.52	100	Slightly Turbid	NA	NA	NA	NA	NA	NA	NA	NA	0
4/11/07	09:50	84.68	100	Clear	6.36	2.00	4.12	11.3	12.6	104	NA	NA	1000
4/11/07	10:00	85.11	100	Clear	6.38	1.98	2.68	10.67	12.4	51	NA	NA	1000
4/11/07	10:10	85.39	100	Clear	6.37	1.97	2.45	7.89	12.3	42	NA	NA	1000
4/11/07	10:20	85.71	100	Clear	6.37	1.97	2.35	4.59	12.3	36	NA	NA	1000
4/11/07	10:30	86.59	100	Clear	6.36	2.00	2.20	3.23	12.4	29	NA	NA	1000
4/11/07	10:40	86.23	100	Clear	6.37	1.98	2.22	3.89	12.4	32	NA	NA	1000
4/11/07	10:50	87.05	90	Clear	6.37	2.01	2.18	2.03	12.4	27	NA	NA	900



MNA Sampling - SWMU 12 - CRANE NSWC

Purge Entries

Date	Time	Water Level (ft.)	Flow Rate (mL/min)	Color	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTUs)	Temp °C	ORP (mV)	Salinity (%)	Other	Incremental Volume (mL)
4/11/07	11:00	87.30	90	Clear	6.36	2.02	2.25	1.89	12.2	32	NA	NA	900
4/11/07	11:10	87.52	75	Clear	6.38	2.02	2.34	1.76	12.2	33	NA	NA	750
4/11/07	11:20	87.71	75	Clear	6.41	2.04	2.45	1.69	12.1	35	NA	NA	750
4/11/07	11:30	87.93	75	Clear	6.44	2.02	2.53	1.45	12.2	33	NA	NA	750
4/11/07	11:40	88.18	75	Clear	6.46	2.02	2.75	1.34	12.2	32	NA	NA	750
4/11/07	11:50	88.31	75	Clear	6.47	2.01	3.06	1.76	12.2	33	NA	NA	750
4/11/07	12:00	89.18	75	Clear	6.46	2.04	3.18	1.66	12.4	28	NA	NA	750
4/11/07	12:10	89.28	75	Clear	6.46	2.04	3.20	1.53	12.3	28	NA	NA	750
4/11/07	12:20	88.35	75	Clear	6.46	2.05	3.20	1.56	12.4	27	NA	NA	750
4/11/07	12:30	89.35	50	Clear	6.45	2.07	3.15	1.55	12.3	25	NA	NA	500
4/11/07	12:40	89.37	50	Clear	6.46	2.07	3.12	1.45	12.2	24	NA	NA	500
4/11/07	12:50	89.36	50	Clear	6.46	2.08	3.12	1.47	12.2	24	NA	NA	500

Page 2 of 3

Final Purge / Sample Data

One Casing Volume	11.37	Method	Low flow - bladder	Dissolved Oxygen (mg/L)	3.12
Total Vo. Purge (L)	15.3	Waterlevel (ft.)	89.36	Turbidity (NTUs)	1.47
Start Purge (hrs.)	10:40:00 AM	Flowrate (mL/min)	50	Temp (C)	12.2
End Purge (hrs.)	1:50:00 PM	Color	Clear	ORP (mV)	24
Total Purge Time (min.)	190	pH (S.U.)	6.46	Salinity	NA
		Conductivity (mS/cm)	2.08	Other	NA



MNA Sampling - SWMU 12 - CRANE NSWC

Analysis Records

Collected	Date	Time	Analysis / Method	Description of Analysis	Preservative	Count	Type	Requirements	Comments	Chain #
✓	4/11/07	12:55	SW-846 6850	Perchlorate	4°C	2	Plastic - PP	250ml		112G00041-4132007-1
✓	4/11/07	12:55	SW-846 8330	Nitroaromatics and Nitramines	4°C	2	Glass - Amber	1L		112G00041-4132007-2

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General Observations and Notes

X

- End of Report -

Created By
Created DateJames Goerdts
4/2/07Modified By
Modified DateJames Goerdts
5/9/07Printed By
Printed DateJames Goerdts
5/9/07

Project Information

MNA Sampling - SWMU 12 - CRANE NSWC

Facility Name	CRANE NSWC	Sample ID #	12GWT3607
TtNUS Project #	112G00041	Well ID	12MWT36
Task/Contract #	CTO 0377	Well Type	Monitoring Well
WBS Code #		Sampled By	Walt Pryor
Status	Complete	Concentration	Low concentration

Well and Sample Data

Date		Static Water Level (ft.)	13.50	Water Quality Meter	4143008
Purge Method	Low flow - bladder	Total Well Depth (ft.)	26.00	Pump Control Box	MP10-2191
Sampling Method	Low flow - bladder	Well Riser Diameter (in.)	2	Turbidity Meter	1757-1800
MS/MSD Collected?		Well Volumes Req.	1		
Duplicate Sample Collected?	N	Monitor Reading (ppm)	NA		
Corresponding Duplicate Sample ID					

Purge Entries

Date	Time	Water Level (ft.)	Flow Rate (mL/min)	Color	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTUs)	Temp °C	ORP (mV)	Salinity (%)	Other	Incremental Volume (mL)
4/11/07	13:08	13.50	300	Clear	6.35	0.698	5.57	6.0	12.24	306	N/A		0
4/11/07	13:18	15.60	130	Clear	6.38	0.681	4.33	1.5	12.10	277	N/A		1300
4/11/07	13:28	16.05	130	Clear	6.40	0.679	4.14	0.70	12.05	265	N/A		1300
4/11/07	13:38	16.54	130	Clear	6.42	0.676	4.01	0.35	12.07	259	N/A		1300
4/11/07	13:48	16.87	130	Clear	6.41	0.673	3.92	0.00	12.10	254	N/A		1300
4/11/07	13:58	17.20	130	Clear	6.42	0.672	3.87	0.00	12.21	245	N/A		1300
4/11/07	14:08	17.42	130	Clear	6.42	0.668	3.79	0.00	12.20	241	N/A		1300
4/11/07	14:18	17.65	130	Clear	6.42	0.667	3.78	0.00	12.28	235	N/A		1300



MNA Sampling - SWMU 12 - CRANE NSWC

Purge Entries

Date	Time	Water Level (ft.)	Flow Rate (mL/min)	Color	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTUs)	Temp °C	ORP (mV)	Salinity (%)	Other	Incremental Volume (mL)
4/11/07	14:28	17.70	130	Clear	6.42	0.669	3.71	0.00	12.26	233	N/A		1300
4/11/07	14:38	17.70	130	Clear	6.42	0.668	3.68	0.00	12.30	231	N/A		1300
4/11/07	14:48	17.70	130	Clear	6.42	0.668	3.70	0.00	12.28	230	N/A		1300

Page 2 of 3

Final Purge / Sample Data

One Casing Volume	16.06	Method	Low flow - bladder	Dissolved Oxygen (mg/L)	3.70
Total Vo. Purge (L)	13	Waterlevel (ft.)	17.70	Turbidity (NTUs)	0.00
Start Purge (hrs.)	2:08:00 PM	Flowrate (mL/min)	130	Temp (C)	12.28
End Purge (hrs.)	3:48:00 PM	Color	Clear	ORP (mV)	230
Total Purge Time (min.)	100	pH (S.U.)	6.42	Salinity	N/A
		Conductivity (mS/cm)	0.668	Other	



MNA Sampling - SWMU 12 - CRANE NSWC

Analysis Records

Collected	Date	Time	Analysis / Method	Description of Analysis	Preservative	Count	Type	Requirements	Comments	Chain#
✓	4/11/07	14:48	SW-846 6850	Perchlorate	4°C	2	Plastic - PP	250ml		112G00041-4132007-1
✓	4/11/07	14:48	SW-846 8330	Nitroaromatics and Nitramines	4°C	2	Glass - Amber	1L		112G00041-4132007-2

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General Observations and Notes

None

- End of Report -

Created By
Created DateJames Goerd
4/2/07Modified By
Modified DateJames Goerd
5/9/07Printed By
Printed DateJames Goerd
5/9/07

Project Information

MNA Sampling - SWMU 12 - CRANE NSWC

Facility Name	CRANE NSWC	Sample ID #	12GWT3807
TtNUS Project #	112G00041	Well ID	12MWT38
Task/Contract #	CTO 0377	Well Type	Monitoring Well
WBS Code #		Sampled By	Walt Pryor
Status	Complete	Concentration	Low concentration

Well and Sample Data

Date		Static Water Level (ft.)	9.30	Water Quality Meter	4143008
Purge Method	Low flow - bladder	Total Well Depth (ft.)	25.00	Pump Control Box	MP10-2191
Sampling Method	Low flow - bladder	Well Riser Diameter (in.)	2	Turbidity Meter	1757-1800
MS/MSD Collected?		Well Volumes Req.	1		
Duplicate Sample Collected?	N	Monitor Reading (ppm)	N/A		
Corresponding Duplicate Sample ID					

Purge Entries

Date	Time	Water Level (ft.)	Flow Rate (mL/min)	Color	pH (S.U.)	S.C. (ms/cm)	DO (mg/L)	Turbidity (NTUs)	Temp °C	ORP (mV)	Salinity (%)	Other	Incremental Volume (mL)
4/14/07	08:20	9.30	200	Clear	3.45	0.490	6.12	4.1	11.12	503	N/A		0
4/14/07	08:30	11.54	130	Clear	3.44	0.490	4.77	5.7	10.90	484	N/A		1300
4/14/07	08:40	12.50	130	Clear	3.46	0.488	4.31	6.1	10.81	461	N/A		1300
4/14/07	08:50	12.90	115	Clear	3.46	0.490	4.30	4.7	10.48	460	N/A		1150
4/14/07	09:00	13.40	115	Clear	3.49	0.489	4.11	4.0	10.43	455	N/A		1150
4/14/07	09:10	13.60	55	Clear	3.49	0.489	4.14	4.1	10.01	448	N/A		550
4/14/07	09:20	13.83	55	Clear	3.50	0.489	4.08	4.1	10.01	446	N/A		550
4/14/07	09:30	14.10	55	Clear	3.51	0.489	3.96	4.5	9.94	445	N/A		550

MNA Sampling - SWMU 12 - CRANE NSWC

Purge Entries

Date	Time	Water Level (ft.)	Flow Rate (mL/min)	Color	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTUs)	Temp °C	ORP (mV)	Salinity (%)	Other	Incremental Volume (mL)
4/14/07	09:40	14.30	55	Clear	3.50	0.486	3.90	4.4	9.99	445	N/A		550
4/14/07	09:50	14.45	55	Clear	3.52	0.485	3.98	5.1	10.12	442	N/A		550
4/14/07	10:00	14.60	55	Clear	3.52	0.485	3.94	4.5	10.14	439	N/A		550
4/14/07	10:10	14.90	55	Clear	3.53	0.487	3.90	4.6	10.13	438	N/A		550
4/14/07	10:20	15.30	55	Clear	3.54	0.485	3.91	4.3	10.12	434	N/A		550
4/14/07	10:30	15.03	55	Clear	3.55	0.486	3.89	4.2	9.99	433	N/A		550
4/14/07	10:40	15.15	55	Clear	3.56	0.489	3.81	3.9	9.98	430	N/A		550
4/14/07	10:50	15.25	55	Clear	3.56	0.486	3.79	4.0	9.97	427	N/A		550
4/14/07	11:00	15.35	55	Clear	3.56	0.486	3.78	3.6	9.94	426	N/A		550
4/14/07	11:10	15.40	55	Clear	3.57	0.488	3.71	3.4	9.94	424	N/A		550
4/14/07	11:20	15.45	55	Clear	3.58	0.486	3.67	3.1	9.95	423	N/A		550
4/14/07	11:30	15.50	55	Clear	3.61	0.486	3.50	2.7	10.11	420	N/A		550
4/14/07	11:40	15.55	55	Clear	3.61	0.488	3.51	2.8	10.05	419	N/A		550
4/14/07	11:50	15.60	55	Clear	3.62	0.490	3.50	2.6	10.12	418	N/A		550
4/14/07	12:00	15.65	55	Clear	3.62	0.488	3.45	2.7	10.21	416	N/A		550
4/14/07	12:10	15.70	55	Clear	3.64	0.487	3.46	2.6	10.30	415	N/A		550
4/14/07	12:20	15.75	55	Clear	3.64	0.488	3.41	2.6	10.27	414	N/A		550

Page 2 of 3

Final Purge / Sample Data

One Casing Volume	9.7	Method	Low flow - bladder	Dissolved Oxygen (mg/L)	3.41
Total Vo. Purge (L)	15.9	Waterlevel (ft.)	15.75	Turbidity (NTUs)	2.6
Start Purge (hrs.)	9:20:00 AM	Flowrate (mL/min)	55	Temp (C)	10.27
End Purge (hrs.)	1:20:00 PM	Color	Clear	ORP (mV)	414
Total Purge Time (min.)	240	pH (S.U.)	3.64	Salinity	N/A
		Conductivity (mS/cm)	0.488	Other	



MNA Sampling - SWMU 12 - CRANE NSWC

Analysis Records

Collected	Date	Time	Analysis / Method	Description of Analysis	Preservative	Count	Type	Requirements	Comments	Chain #
✓	4/14/07	12:20	SW-846 6850	Perchlorate	4°C	2	Plastic - PP	250ml		112G00041-4152007-3
✓	4/14/07	12:20	SW-846 8330	Nitroaromatics and Nitramines	4°C	2	Glass - Amber	1L		112G00041-4162007-4

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General Observations and Notes

None

- End of Report -

Project Information

MNA Sampling - SWMU 12 - CRANE NSWC

Facility Name	CRANE NSWC	Sample ID #	12GWT4107
TtNUS Project #	112G00041	Well ID	12MWT41
Task/Contract #	CTO 0377	Well Type	Monitoring Well
WBS Code #		Sampled By	David Hickey
Status	Complete	Concentration	Low concentration

Well and Sample Data

Date		Static Water Level (ft.)	19.56	Water Quality Meter	924025
Purge Method	Low flow - bladder	Total Well Depth (ft.)	35.00	Pump Control Box	MP10-1588
Sampling Method	Low flow - bladder	Well Riser Diameter (in.)	2	Turbidity Meter	1157-1899
MS/MSD Collected?		Well Volumes Req.	1		
Duplicate Sample Collected?	N	Monitor Reading (ppm)	NA		
Corresponding Duplicate Sample ID					

Purge Entries

Date	Time	Water Level (ft.)	Flow Rate (mL/min)	Color	pH (S.U.)	S.C. (ms/cm)	DO (mg/L)	Turbidity (NTUs)	Temp °C	ORP (mV)	Salinity (%)	Other	Incremental Volume (mL)
4/30/07	09:05	19.56	240	Slightly Turbid	5.91	0.839	2.96	150	13.9	243	na	na	0
4/30/07	09:35	23.25	110	Slightly Turbid	6.33	0.822	1.55	75	13.8	108	na	na	3300
4/30/07	10:12	22.95	110	Clear	6.48	0.913	1.38	27	13.8	72	na	na	4070
4/30/07	11:30	21.97	110	Clear	6.55	0.952	1.21	17	14.9	-9	na	na	8580

Final Purge / Sample Data

One Casing Volume	9.54	Method	Low flow - bladder	Dissolved Oxygen (mg/L)	1.21
Total Vo. Purge (L)	15.95	Waterlevel (ft.)	21.97	Turbidity (NTUs)	17
Start Purge (hrs.)	10:05:00 AM	Flowrate (mL/min)	110	Temp (C)	14.9
End Purge (hrs.)	12:30:00 PM	Color	Clear	ORP (mV)	-9
Total Purge Time (min.)	145	pH (S.U.)	6.55	Salinity	na
		Conductivity (mS/cm)	0.952	Other	na



MNA Sampling - SWMU 12 - CRANE NSWC

Analysis Records

Collected	Date	Time	Analysis / Method	Description of Analysis	Preservative	Count	Type	Requirements	Comments	Chain #
✓	4/30/07	11:43	SW-846 6850	Perchlorate	4°C	1	Plastic - PP	250ml		112G00041-4302007-6
✓	4/30/07	11:43	SW-846 8330	Nitroaromatics and Nitramines	4°C	2	Glass - Amber	1L		112G00041-4302007-5

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General Observations and Notes

None

- End of Report -

Created By
Created DateJames Goerd
4/2/07Modified By
Modified DateJames Goerd
5/9/07Printed By
Printed DateJames Goerd
5/9/07

Project Information

MNA Sampling - SWMU 12 - CRANE NSWC

Facility Name	CRANE NSWC	Sample ID #	12GWT4207
TtNUS Project #	112G00041	Well ID	12MWT42
Task/Contract #	CTO 0377	Well Type	Monitoring Well
WBS Code #		Sampled By	Walt Pryor
Status	Complete	Concentration	Low concentration

Well and Sample Data

Date		Static Water Level (ft.)	11.00	Water Quality Meter	4143008
Purge Method	Low flow - bladder	Total Well Depth (ft.)	29.00	Pump Control Box	MP10-2191
Sampling Method	Low flow - bladder	Well Riser Diameter (in.)	2	Turbidity Meter	1757-1800
MS/MSD Collected?		Well Volumes Req.	1		
Duplicate Sample Collected?	N	Monitor Reading (ppm)	N/A		
Corresponding Duplicate Sample ID					

Purge Entries

Date	Time	Water Level (ft.)	Flow Rate (mL/min)	Color	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTUS)	Temp °C	ORP (mV)	Salinity (%)	Other	Incremental Volume (mL)
4/15/07	13:15	11.00	80	Clear	4.07	0.435	6.26	4.9	11.85	422	N/A		0
4/15/07	13:25	12.00	80	Clear	4.04	0.404	5.42	4.6	12.37	426	N/A		800
4/15/07	13:35	12.55	80	Clear	4.06	0.398	5.06	3.2	12.35	424	N/A		800
4/15/07	13:45	12.99	80	Clear	4.04	0.395	4.09	1.9	12.22	427	N/A		800
4/15/07	13:55	13.35	80	Clear	4.03	0.396	4.05	1.2	12.29	430	N/A		800
4/15/07	14:05	13.67	80	Clear	4.02	0.395	4.38	1.1	12.10	430	N/A		800
4/15/07	14:15	13.95	80	Clear	4.02	0.399	4.79	0.80	12.02	429	N/A		800
4/15/07	14:25	14.19	80	Clear	4.01	0.403	4.29	0.95	12.03	433	N/A		800



MNA Sampling - SWMU 12 - CRANE NSWC

Purge Entries

Date	Time	Water Level (ft.)	Flow Rate (mL/min)	Color	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTUs)	Temp °C	ORP (mV)	Salinity (%)	Other	Incremental Volume (ml)
4/15/07	14:35	14.40	80	Clear	4.00	0.406	3.70	1.2	11.82	435	N/A		800
4/15/07	14:45	14.65	80	Clear	3.99	0.409	3.40	1.1	11.75	438	N/A		800
4/15/07	14:55	14.85	80	Clear	3.99	0.413	3.24	1.5	11.32	439	N/A		800
4/15/07	15:05	15.10	80	Clear	3.97	0.420	3.05	1.4	11.41	442	N/A		800
4/15/07	15:15	15.30	80	Clear	3.97	0.425	2.89	1.0	11.45	443	N/A		800
4/15/07	15:25	15.45	80	Clear	3.97	0.429	2.84	1.1	11.49	443	N/A		800
4/15/07	15:35	15.65	80	Clear	3.98	0.432	2.80	0.70	11.45	443	N/A		800
4/15/07	15:45	15.65	50	Clear	3.98	0.434	2.85	0.60	11.48	441	N/A		500
4/15/07	15:55	15.50	50	Clear	3.99	0.437	2.87	1.0	11.49	441	N/A		500
4/15/07	16:05	15.50	50	Clear	3.99	0.442	3.08	0.90	11.42	442	N/A		500
4/15/07	16:15	15.50	50	Clear	3.99	0.443	3.08	0.85	11.44	441	N/A		500
4/15/07	16:25	15.50	50	Clear	3.99	0.444	3.04	0.85	11.46	441	N/A		500
4/15/07	16:35	15.50	50	Clear	3.99	0.445	3.02	0.60	11.48	441	N/A		500

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Final Purge / Sample Data

One Casing Volume	11.12	Method	Low flow - bladder	Dissolved Oxygen (mg/L)	3.02
Total Vo. Purge (L)	14.2	Waterlevel (ft.)	15.50	Turbidity (NTUs)	0.60
Start Purge (hrs.)	2:15:00 PM	Flowrate (mL/min)	50	Temp (C)	11.48
End Purge (hrs.)	5:35:00 PM	Color	Clear	ORP (mV)	441
Total Purge Time (min.)	200	pH (S.U.)	3.99	Salinity	N/A
		Conductivity (mS/cm)	0.445	Other	



MNA Sampling - SWMU 12 - CRANE NSWC

Analysis Records

Collected	Date	Time	Analysis / Method	Description of Analysis	Preservative	Count	Type	Requirements	Comments	Chain #
✓	4/15/07	16:35	SW-846 6850	Perchlorate	4°C	2	Plastic - PP	250ml		112G00041-4152007-3
✓	4/15/07	16:35	SW-846 8330	Nitroaromatics and Nitramines	4°C	2	Glass - Amber	1L		112G00041-4162007-4

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General Observations and Notes

None

- End of Report -

Created By
Created DateJames Goerdts
4/2/07Modified By
Modified DateJames Goerdts
5/9/07Printed By
Printed DateJames Goerdts
5/9/07

Project Information

MNA Sampling - SWMU 12 - CRANE NSWC

Facility Name	CRANE NSWC	Sample ID #	12GWT4707
TtNUS Project #	112G00041	Well ID	12MWT47
Task/Contract #	CTO 0377	Well Type	Monitoring Well
WBS Code #		Sampled By	Walt Pryor
Status	Complete	Concentration	Low concentration

Well and Sample Data

Date		Static Water Level (ft.)	12.75	Water Quality Meter	4143008
Purge Method	Low flow - bladder	Total Well Depth (ft.)	25.00	Pump Control Box	MP10-2191
Sampling Method	Low flow - bladder	Well Riser Diameter (in.)	2	Turbidity Meter	1757-1800
MS/MSD Collected?		Well Volumes Req.	1		
Duplicate Sample Collected?	N	Monitor Reading (ppm)	N/A		
Corresponding Duplicate Sample ID					

Purge Entries

Date	Time	Water Level (ft.)	Flow Rate (mL/min)	Color	pH (S.U.)	S.C. (ms/cm)	DO (mg/L)	Turbidity (NTUs)	Temp °C	ORP (mV)	Salinity (%)	Other	Incremental Volume (mL)
4/30/07	13:40	12.75	200	Clear	6.35	1.26	10.81	2.2	13.51	320	N/A		0
4/30/07	13:50	12.75	200	Clear	6.33	1.24	8.60	0.00	13.44	315	N/A		2000
4/30/07	14:00	12.75	200	Clear	6.34	1.24	6.97	0.00	13.34	298	N/A		2000
4/30/07	14:10	12.75	200	Clear	6.36	1.23	6.38	0.00	13.31	289	N/A		2000
4/30/07	14:20	12.75	200	Clear	6.38	1.22	6.12	0.00	13.33	283	N/A		2000
4/30/07	14:30	12.75	200	Clear	6.38	1.22	6.00	0.00	13.33	278	N/A		2000
4/30/07	14:35	12.75	200	Clear	6.39	1.22	6.04	0.00	13.32	275	N/A		1000
4/30/07	14:40	12.75	200	Clear	6.39	1.22	6.00	0.00	13.33	274	N/A		1000

Final Purge / Sample Data

One Casing Volume	7.57	Method	Low flow - bladder	Dissolved Oxygen (mg/L)	6.00
Total Vo. Purge (L)	12	Waterlevel (ft.)	12.75	Turbidity (NTUs)	0.00
Start Purge (hrs.)	2:40:00 PM	Flowrate (mL/min)	200	Temp (C)	13.33
End Purge (hrs.)	3:40:00 PM	Color	Clear	ORP (mV)	274
Total Purge Time (min.)	60	pH (S.U.)	6.39	Salinity	N/A
		Conductivity (mS/cm)	1.22	Other	



MNA Sampling - SWMU 12 - CRANE NSWC

Analysis Records

Collected	Date	Time	Analysis / Method	Description of Analysis	Preservative	Count	Type	Requirements	Comments	Chain #
✓	4/30/07	14:40	SW-846 6850	Perchlorate	4°C	1	Plastic - PP	250ml		112G00041-4302007-6
✓	4/30/07	14:40	SW-846 8330	Nitroaromatics and Nitramines	4°C	2	Glass - Amber	1L		112G00041-4302007-5

Page 2 of 2

General Observations and Notes

None

- End of Report -

APPENDIX A.2
SWMU 12
SURFACE WATER SAMPLE LOG SHEETS
ROUND 7



MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Facility Name	CRANE NSWC	Project Manager (PM)	Ralph Basinski	Created By	James Goerdt
TtNUS Project #	112G00041	PM Telephone		Created Date	4/14/07
Task/Contract #	CTO 0377	Field Op Leader (FOL)	James Goerdt	Modified By	
WBS Code #	TP0050125	FOL Phone		Modified Date	
Sample ID Number	12SW0907	Status	Complete	Printed By	James Goerdt
Sample Location ID				Printed Date	5/9/07

Sample Collection Records

Date	5/2/07	Color	clear	Temp (C)	17.7
Time	11:30	pH (S.U.)	6.47	ORP (mV)	274
Depth (ft.)	.3	S.C. (mS/cm)	0.247	Salinity (%)	NA
Method		DO (mg/L)	9.92		
MS/MSD Collected		Turbidity (NTUs)	8.9		
Duplicate Collected	N				
Duplicate ID					

Laboratory Analysis Records

Collected	Date	Time	Analysis / Method	Description of Analysis	Count	Type	Requirements	Preservative	Comments	Chain of Custody #
✓	5/2/07	11:30	Perchlorate	SW-846 6850	1	Plastic - PP	250ml	4°C		112G00041-532007-9
✓	5/2/07	11:30	Nitroaromatics and Nitramines	SW-846 6850	2	Glass - Amber	1L	4°C		112G00041-532007-10

General Observations and Notes

Coming down HWY ? (towards DRMO) off of HWY 45. Down on the left is a grassy road/trail. If you get to the first guardrail on the left you've gone a bit too far. Drive back to last old SWMU 25 well. Walk down to main stream and follow northwest to the first fork. Sample location just north of main stream on this tributary.

- End of Report -



MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Facility Name	CRANE NSWC	Project Manager (PM)	Ralph Basinski	Created By	James Goerdt
TtNUS Project #	112G00041	PM Telephone		Created Date	4/14/07
Task/Contract #	CTO 0377	Field Op Leader (FOL)	James Goerdt	Modified By	
WBS Code #	TP0050125	FOL Phone		Modified Date	
Sample ID Number	12SW1107	Status	Complete	Printed By	James Goerdt
Sample Location ID				Printed Date	5/9/07

Sample Collection Records

Date	5/2/07	Color	clear	Temp (C)	15.5
Time	10:30	pH (S.U.)	5.96	ORP (mV)	228
Depth (ft.)	1	S.C. (mS/cm)	0.277	Salinity (%)	NA
Method		DO (mg/L)	11.20		
MS/MSD Collected		Turbidity (NTUs)	4.6		
Duplicate Collected	N				
Duplicate ID					

Laboratory Analysis Records

Collected	Date	Time	Analysis / Method	Description of Analysis	Count	Type	Requirements	Preservative	Comments	Chain of Custody #
✓	5/2/07	10:30	Nitroaromatics and Nitramines	SW-846 6850	2	Glass - Amber	1L	4°C		112G00041-532007-10
✓	5/2/07	10:30	Perchlorate	SW-846 6850	1	Plastic - PP	250ml	4°C		112G00041-532007-9

General Observations and Notes

Located near Bridge 3368 on HWY 8. Walk RR tracks along stream approximately 500 from the road. Enter woods right in the middle of the first turn of the tracks. Pink flagging on tree. Stream location also marked with pink flagging in tree.

- End of Report -



MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Facility Name	CRANE NSWC	Project Manager (PM)	Ralph Basinski	Created By	James Goerd
TtNUS Project #	112G00041	PM Telephone		Created Date	4/14/07
Task/Contract #	CTO 0377	Field Op Leader (FOL)	James Goerd	Modified By	
WBS Code #	TP0050125	FOL Phone		Modified Date	
Sample ID Number	12SW1406	Status	Complete	Printed By	James Goerd
Sample Location ID				Printed Date	5/9/07

Sample Collection Records

Date	5/2/07	Color	NA	Temp (C)	NA
Time	12:10	pH (S.U.)	NA	ORP (mV)	NA
Depth (ft.)	0	S.C. (mS/cm)	NA	Salinity (%)	NA
Method		DO (mg/L)	NA		
MS/MSD Collected		Turbidity (NTUs)	NA		
Duplicate Collected	N				
Duplicate ID					

Laboratory Analysis Records

Collected	Date	Time	Analysis / Method	Description of Analysis	Count	Type	Requirements	Preservative	Comments	Chain of Custody #
X			Nitroaromatics and Nitramines	SW-846 6850	2	Glass - Amber	1L	4°C		
X			Perchlorate	SW-846 6850	1	Plastic - PP	250ml	4°C		

General Observations and Notes

Location completely dry. Sample location in same place as 12SG01 near well 12MWT13.

- End of Report -



MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Facility Name	CRANE NSWC	Project Manager (PM)	Ralph Basinski	Created By	James Goerdt
TtNUS Project #	112G00041	PM Telephone		Created Date	4/14/07
Task/Contract #	CTO 0377	Field Op Leader (FOL)	James Goerdt	Modified By	
WBS Code #	TP0050125	FOL Phone		Modified Date	
Sample ID Number	12SW2407	Status	Complete	Printed By	James Goerdt
Sample Location ID				Printed Date	5/9/07

Sample Collection Records

Date	5/2/07	Color	clear	Temp (C)	17.3
Time	11:00	pH (S.U.)	5.81	ORP (mV)	265
Depth (ft.)	.5	S.C. (mS/cm)	0.319	Salinity (%)	NA
Method		DO (mg/L)	9.65		
MS/MSD Collected		Turbidity (NTUs)	2.5		
Duplicate Collected	N				
Duplicate ID					

Laboratory Analysis Records

Collected	Date	Time	Analysis / Method	Description of Analysis	Count	Type	Requirements	Preservative	Comments	Chain of Custody #
✓	5/2/07	11:00	Nitroaromatics and Nitramines	SW-846 6850	2	Glass - Amber	1L	4°C		112G00041-532007-10
✓	5/2/07	11:00	Perchlorate	SW-846 6850	1	Plastic - PP	250ml	4°C		112G00041-532007-9

General Observations and Notes

Sample location near Bridge 3367 on HWY 8. Walk the stream on the north side for about 500 feet. Follow first large tributary north about 75 feet. Flagging visible on nearby trees.

- End of Report -



MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Facility Name	CRANE NSWC	Project Manager (PM)	Ralph Basinski	Created By	James Goerdt
TtNUS Project #	112G00041	PM Telephone		Created Date	4/14/07
Task/Contract #	CTO 0377	Field Op Leader (FOL)	James Goerdt	Modified By	
WBS Code #	TP0050125	FOL Phone		Modified Date	
Sample ID Number	12SW2507	Status	Complete	Printed By	James Goerdt
Sample Location ID				Printed Date	5/9/07

Sample Collection Records

Date	5/2/07	Color	clear	Temp (C)	14.9
Time	09:45	pH (S.U.)	5.48	ORP (mV)	257
Depth (ft.)	3	S.C. (mS/cm)	0.204	Salinity (%)	NA
Method		DO (mg/L)	11.40		
MS/MSD Collected		Turbidity (NTUs)	2.7		
Duplicate Collected	N				
Duplicate ID					

Laboratory Analysis Records

Collected	Date	Time	Analysis / Method	Description of Analysis	Count	Type	Requirements	Preservative	Comments	Chain of Custody #
✓	5/2/07	09:45	Perchlorate	SW-846 6850	1	Plastic - PP	250ml	4°C		112G00041-532007-9
✓	5/2/07	09:45	Nitroaromatics and Nitramines	SW-846 6850	2	Glass - Amber	1L	4°C		112G00041-532007-10

General Observations and Notes

Located at Bridge 3367 on HWY 8.

- End of Report -



Tetra Tech NUS, Inc.

SURFACE WATER SAMPLING LOG

MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Facility Name	CRANE NSWC	Project Manager (PM)	Ralph Basinski	Created By	James Goerdt
TtNUS Project #	112G00041	PM Telephone		Created Date	4/14/07
Task/Contract #	CTO 0377	Field Op Leader (FOL)	James Goerdt	Modified By	
WBS Code #	TP0050125	FOL Phone		Modified Date	
Sample ID Number	12SW2707	Status	Complete	Printed By	James Goerdt
Sample Location ID				Printed Date	5/9/07

Sample Collection Records

Date	5/2/07	Color	clear	Temp (C)	15.5
Time	10:05	pH (S.U.)	5.74	ORP (mV)	263
Depth (ft.)		S.C. (mS/cm)	0.221	Salinity (%)	NA
Method		DO (mg/L)	11.19		
MS/MSD Collected		Turbidity (NTUs)	2.3		
Duplicate Collected	N				
Duplicate ID					

Laboratory Analysis Records

Collected	Date	Time	Analysis / Method	Description of Analysis	Count	Type	Requirements	Preservative	Comments	Chain of Custody #
✓	5/2/07	10:05	Nitroaromatics and Nitramines	SW-846 6850	2	Glass - Amber	1L	4°C		112G00041-532007-10
✓	5/2/07	10:05	Perchlorate	SW-846 6850	1	Plastic - PP	250ml	4°C		112G00041-532007-9

General Observations and Notes

Located at Bridge 3368 on HWY 8.

- End of Report -



MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Facility Name	CRANE NSWC	Project Manager (PM)	Ralph Basinski	Created By	James Goerdt
TtNUS Project #	112G00041	PM Telephone		Created Date	4/14/07
Task/Contract #	CTO 0377	Field Op Leader (FOL)	James Goerdt	Modified By	
WBS Code #	TP0050125	FOL Phone		Modified Date	
Sample ID Number	12SW3105	Status	Complete	Printed By	James Goerdt
Sample Location ID				Printed Date	5/9/07

Sample Collection Records

Date	5/2/07	Color	NA	Temp (C)	NA
Time	13:00	pH (S.U.)	NA	ORP (mV)	NA
Depth (ft.)	0	S.C. (mS/cm)	NA	Salinity (%)	NA
Method		DO (mg/L)	NA		
MS/MSD Collected		Turbidity (NTUs)	NA		
Duplicate Collected	N				
Duplicate ID					

Laboratory Analysis Records

Collected	Date	Time	Analysis / Method	Description of Analysis	Count	Type	Requirements	Preservative	Comments	Chain of Custody #
X			Perchlorate	SW-846 6850	2	Plastic - PP	250ml	4°C		
X			Perchlorate	SW-846 6850	2	Plastic - PP	250ml	4°C		

General Observations and Notes

Location dry.

- End of Report -



MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Facility Name	CRANE NSWC	Project Manager (PM)	Ralph Basinski	Created By	James Goerdt
TtNUS Project #	112G00041	PM Telephone		Created Date	4/14/07
Task/Contract #	CTO 0377	Field Op Leader (FOL)	James Goerdt	Modified By	
WBS Code #	TP0050125	FOL Phone		Modified Date	
Sample ID Number	12SW3406	Status	Complete	Printed By	James Goerdt
Sample Location ID				Printed Date	5/9/07

Sample Collection Records

Date	5/2/07	Color	cloudy	Temp (C)	17.8
Time	12:30	pH (S.U.)	6.47	ORP (mV)	186
Depth (ft.)	.1	S.C. (mS/cm)	0.701	Salinity (%)	NA
Method		DO (mg/L)	7.42		
MS/MSD Collected		Turbidity (NTUs)	25		
Duplicate Collected	N				
Duplicate ID					

Laboratory Analysis Records

Collected	Date	Time	Analysis / Method	Description of Analysis	Count	Type	Requirements	Preservative	Comments	Chain of Custody #
✓	5/2/07	12:30	Perchlorate	SW-846 6850	1	Plastic - PP	250ml	4°C		112G00041- 532007-9
✓	5/2/07	12:30	Nitroaromatics and Nitramines	SW-846 6850	2	Glass - Amber	1L	4°C		112G00041- 532007-10

General Observations and Notes

Located approximately 200 feet north of well 12MWT06 inside tree line. Right where RR tracks split.

- End of Report -

APPENDIX A.3
SWMU 12
CHAIN OF CUSTODY RECORDS
ROUND 7



MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Facility Name	CRANE NSWC	Project Manager (PM)	Ralph Basinski	Created By	James Goerd
TtNUS Project #	112G00041	PM Telephone		Created Date	4/13/07
Task/Contract #	CTO 0377	Field Op Leader (FOL)	James Goerd	Modified By	
WBS Code #	TP0050125	FOL Phone		Modified Date	
Chain of Custody ID	112G00041-4132007-2	Carrier	Federal Express	Printed By	James Goerd
		Carrier/Waybill No.	8494 1921 6279	Printed Date	5/9/07

Chain of Custody Information

Chain of Custody #	112G00041-4132007-2	Lab Name	Laucks Testing Laboratories, Inc.	Relinquished By	James Goerd
Carrier	Federal Express	Address	940 South Harney Street	Date	04/13/2007
Carrier/Waybill No.	8494 1921 6279	City, State, Zip	Seattle, Washington 98108	Time	18:00
		Lab Contact	Hugh Prentice	Received By:	Federal Express
		Lab Telephone	206-767-5060	Date	4/13/07
				Time	18:00

Sample Records

Date	Sample ID #	Time	Analysis	Description	Loc ID	Matrix	Preservative	No.	Type	Requirements	Comments
4/11/07	12GWT2007	15:30	SW-846 8330	Nitroaromatics and Nitramines	12MWT20	GW	4°C	2	Glass - Amber	1L	
4/11/07	12GWT3207	12:55	SW-846 8330	Nitroaromatics and Nitramines	12MWT32	GW	4°C	2	Glass - Amber	1L	
4/11/07	12GWT3607	14:48	SW-846 8330	Nitroaromatics and Nitramines	12MWT36	GW	4°C	2	Glass - Amber	1L	
4/12/07	12FD04120701	01:00	SW-846 8330	Nitroaromatics and Nitramines	QC	GW	4°C	2	Glass - Amber	1L	
4/12/07	12GWT0307	16:50	SW-846 8330	Nitroaromatics and Nitramines	12MWT03	GW	4°C	2	Glass - Amber	1L	
4/12/07	12GWT0907	10:30	SW-846 8330	Nitroaromatics and Nitramines	12MWT09	GW	4°C	2	Glass - Amber	1L	
4/12/07	12GWT1807	07:57	SW-846 8330	Nitroaromatics and Nitramines	12MWT18	GW	4°C	2	Glass - Amber	1L	
4/13/07	12GWT2207	13:05	SW-846 8330	Nitroaromatics and Nitramines	12MWT22	GW	4°C	2	Glass - Amber	1L	



MNA Sampling - SWMU 12 - CRANE NSWC

Sample Records

Date	Sample ID #	Time	Analysis	Description	Loc ID	Matrix	Preservative	No.	Type	Requirements	Comments
4/13/07	12GWT2307	09:45	SW-846 8330	Nitroaromatics and Nitramines	12MWT23	GW	4°C	1	Glass - Amber	1L	Minimum Vol collected (1 L)
4/13/07	12GWT2807	08:58	SW-846 8330	Nitroaromatics and Nitramines	12MWT28	GW	4°C	2	Glass - Amber	1L	

Page 2 of 2

General Observations and Notes

Min Vol (1 Liter) on 12GWT2307

- End of Report -



MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Facility Name	CRANE NSWC	Project Manager (PM)	Ralph Basinski	Created By	James Goerd
TtNUS Project #	112G00041	PM Telephone		Created Date	4/13/07
Task/Contract #	CTO 0377	Field Op Leader (FOL)	James Goerd	Modified By	
WBS Code #	TP0050125	FOL Phone		Modified Date	
Chain of Custody ID	112G00041-4132007-1	Carrier	Federal Express	Printed By	James Goerd
		Carrier/Waybill No.	849419216268	Printed Date	5/9/07

Chain of Custody Information

Chain of Custody #	112G00041-4132007-1	Lab Name	Data Chem	Relinquished By	James Goerd
Carrier	Federal Express	Address	960 West LeVoy Drive	Date	04/13/2007
Carrier/Waybill No.	849419216268	City, State, Zip	Salt Lake City, Utah 84123	Time	18:00
		Lab Contact	Kevin Griffiths	Received By:	Federal Express
		Lab Telephone	801-904-4302	Date	4/13/07
				Time	18:00

Sample Records

Date	Sample ID#	Time	Analysis	Description	Loc ID	Matrix	Preservative	No.	Type	Requirements	Comments
4/11/07	12GWT2007	15:30	SW-846 6850	Perchlorate	12MWT20	GW	4°C	2	Plastic - pp	250ml	
4/11/07	12GWT3207	12:55	SW-846 6850	Perchlorate	12MWT32	GW	4°C	2	Plastic - pp	250ml	
4/11/07	12GWT3607	14:48	SW-846 6850	Perchlorate	12MWT36	GW	4°C	2	Plastic - pp	250ml	
4/12/07	12FD04120701	01:00	SW-846 6850	Perchlorate	QC	GW	4°C	2	Plastic - pp	250ml	
4/12/07	12GWT0307	16:50	SW-846 6850	Perchlorate	12MWT03	GW	4°C	2	Plastic - pp	250ml	
4/12/07	12GWT0907	10:30	SW-846 6850	Perchlorate	12MWT09	GW	4°C	2	Plastic - pp	250ml	
4/12/07	12GWT1807	07:57	SW-846 6850	Perchlorate	12MWT18	GW	4°C	2	Plastic - pp	250ml	
4/13/07	12GWT2207	13:05	SW-846 6850	Perchlorate	12MWT22	GW	4°C	2	Plastic - pp	250ml	



MNA Sampling - SWMU 12 - CRANE NSWC

Sample Records

Date	Sample ID#	Time	Analysis	Description	Loc ID	Matrix	Preservative	No.	Type	Requirements	Comments
4/13/07	12GWT2307	09:45	SW-846 6850	Perchlorate	12MWT23	GW	4°C	2	Plastic - pp	250ml	
4/13/07	12GWT2807	08:58	SW-846 6850	Perchlorate	12MWT28	GW	4°C	2	Plastic - pp	250ml	

Page 2 of 2

General Observations and Notes

No Notes

- End of Report -



MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Facility Name	CRANE NSWC	Project Manager (PM)	Ralph Basinski	Created By	James Goerd
TtNUS Project #	112G00041	PM Telephone		Created Date	4/15/07
Task/Contract #	CTO 0377	Field Op Leader (FOL)	James Goerd	Modified By	
WBS Code #	TP0050125	FOL Phone		Modified Date	
Chain of Custody ID	112G00041-4152007-3	Carrier	Federal Express	Printed By	James Goerd
		Carrier/Waybill No.		Printed Date	5/9/07

Chain of Custody Information

Chain of Custody #	112G00041-4152007-3	Lab Name	Data Chem	Relinquished By	James Goerd
Carrier	Federal Express	Address	960 West LeVoy Drive	Date	
Carrier/Waybill No.		City, State, Zip	Salt Lake City, Utah 84123	Time	
		Lab Contact	Kevin Griffiths	Received By:	Federal Express
		Lab Telephone	801-904-4302	Date	
				Time	

Sample Records

Date	Sample ID#	Time	Analysis	Description	Loc ID	Matrix	Preservative	No.	Type	Requirements	Comments
4/14/07	12GWT1207	10:50	SW-846 6850	Perchlorate	12MWT12	GW	4°C	2	Plastic - PP	250ml	
4/14/07	12GWT1607	13:55	SW-846 6850	Perchlorate	12MWT16	GW	4°C	2	Plastic - PP	250ml	
4/14/07	12GWT1707	14:40	SW-846 6850	Perchlorate	12MWT17	GW	4°C	2	Plastic - PP	250ml	
4/14/07	12GWT3107	16:30	SW-846 6850	Perchlorate	12MWT31	GW	4°C	2	Plastic - PP	250ml	
4/14/07	12GWT3807	12:20	SW-846 6850	Perchlorate	12MWT38	GW	4°C	2	Plastic - PP	250ml	
4/15/07	12GWT0607	13:55	SW-846 6850	Perchlorate	12MWT06	GW	4°C	2	Plastic - PP	250ml	
4/15/07	12GWT1007	11:05	SW-846 6850	Perchlorate	12MWT10	GW	4°C	2	Plastic - PP	250ml	
4/15/07	12GWT1107	10:45	SW-846 6850	Perchlorate	12MWT11	GW	4°C	6	Plastic - PP	250ml	MS/MSD



MNA Sampling - SWMU 12 - CRANE NSWC

Sample Records

Date	Sample ID #	Time	Analysis	Description	Loc ID	Matrix	Preservative	No.	Type	Requirements	Comments
4/15/07	12GWT4207	16:35	SW-846 6850	Perchlorate	12MWT42	GW	4°C	2	Plastic - pp	250ml	

Page 2 of 2

General Observations and Notes

No Notes

- End of Report -



MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Facility Name	CRANE NSWC	Project Manager (PM)	Ralph Basinski	Created By	James Goerd
TtNUS Project #	112G00041	PM Telephone		Created Date	4/16/07
Task/Contract #	CTO 0377	Field Op Leader (FOL)	James Goerd	Modified By	
WBS Code #	TP0050125	FOL Phone		Modified Date	
Chain of Custody ID	112G00041-4162007-4	Carrier	Federal Express	Printed By	James Goerd
		Carrier/Waybill No.	8494 1921 6198	Printed Date	5/9/07

Chain of Custody Information

Chain of Custody #	112G00041-4162007-4	Lab Name	Laucks Testing Laboratories, Inc.	Relinquished By	James Goerd
Carrier	Federal Express	Address	940 South Harney Street	Date	04/16/2007
Carrier/Waybill No.	8494 1921 6198	City, State, Zip	Seattle, Washington 98108	Time	13:00
		Lab Contact	Hugh Prentice	Received By:	Federal Express
		Lab Telephone	206-767-5060	Date	4/16/07
				Time	13:00

Sample Records

Date	Sample ID#	Time	Analysis	Description	Loc ID	Matrix	Preservative	No.	Type	Requirements	Comments
4/14/07	12GWT1207	10:50	SW-846 8330	Nitroaromatics and Nitramines	12MWT12	GW	4°C	2	Glass - Amber	1L	
4/14/07	12GWT1607	13:55	SW-846 8330	Nitroaromatics and Nitramines	12MWT16	GW	4°C	2	Glass - Amber	1L	
4/14/07	12GWT1707	14:40	SW-846 8330	Nitroaromatics and Nitramines	12MWT17	GW	4°C	1	Glass - Amber	1L	Only one 1L amber was collected not enough volume for two.
4/14/07	12GWT3107	16:30	SW-846 8330	Nitroaromatics and Nitramines	12MWT31	GW	4°C	2	Glass - Amber	1L	
4/14/07	12GWT3807	12:20	SW-846 8330	Nitroaromatics and Nitramines	12MWT38	GW	4°C	2	Glass - Amber	1L	
4/15/07	12GWT0607	13:55	SW-846 8330	Nitroaromatics and Nitramines	12MWT06	GW	4°C	2	Glass - Amber	1L	
4/15/07	12GWT1007	11:05	SW-846	Nitroaromatics	12MWT10	GW	4°C	2	Glass -	1L	

			8330	and Nitramines					Amber		
4/15/07	12GWT1107	10:45	SW-846 8330	Nitroaromatics and Nitramines	12MWT11	GW	4°C	6	Glass - Amber	1L	MS/MSD



MNA Sampling - SWMU 12 - CRANE NSWC

Sample Records

Date	Sample ID #	Time	Analysis	Description	Loc ID	Matrix	Preservative	No.	Type	Requirements	Comments
4/15/07	12GWT4207	16:35	SW-846 8330	Nitroaromatics and Nitramines	12MWT42	GW	4°C	2	Glass - Amber	1L	

Page 2 of 2

General Observations and Notes

No Notes

- End of Report -

MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Facility Name	CRANE NSWC	Project Manager (PM)	Ralph Basinski	Created By	Walt Pryor
TtNUS Project #	112G00041	PM Telephone		Created Date	4/30/07
Task/Contract #	CTO 0377	Field Op Leader (FOL)	James GoerdT	Modified By	
WBS Code #	TP0050125	FOL Phone		Modified Date	
Chain of Custody ID	112G00041-4302007-6	Carrier	-Select-	Printed By	James GoerdT
		Carrier/Waybill No.		Printed Date	5/9/07

Chain of Custody Information

Chain of Custody #	112G00041-4302007-6	Lab Name	Data Chem	Relinquished By	Walt Pryor
Carrier	-Select-	Address	960 West LeVoy Drive	Date	04/30/2007
Carrier/Waybill No.		City, State, Zip	Salt Lake City, Utah 84123	Time	18:06
		Lab Contact	Kevin Griffiths	Received By:	-Select-
		Lab Telephone	801-904-4302	Date	4/30/07
				Time	19:06

Sample Records

Date	Sample ID#	Time	Analysis	Description	Loc ID	Matrix	Preservative	No.	Type	Requirements	Comments
4/26/07	13GWT1709	14:30	SW-846 6850	Perchlorate	13MWT17	GW	4°C	1	Plastic - PE	250ml	
4/26/07	13GWT5107	11:20	SW-846 6850	Perchlorate	13MWT51	GW	4°C	1	Plastic - PE	250ml	
4/28/07	13FD04280701	00:00	SW-846 6850	Perchlorate	QC	GW	4°C	1	Plastic - PE	250ml	
4/28/07	13GWT2109	14:32	SW-846 6850	Perchlorate	13MWT21	GW	4°C	1	Plastic - PE	250ml	
4/28/07	13GWT4508	15:19	SW-846 6850	Perchlorate	13MWT45	GW	4°C	2	Plastic - PE	250ml	
4/29/07	13GWT3108	15:30	SW-846 6850	Perchlorate	13MWT31	GW	4°C	1	Plastic - PE	250ml	
4/29/07	13GWT4708	12:00	SW-846 6850	Perchlorate	13MWT47	GW	4°C	1	Plastic - PE	250ml	
4/30/07	12GWT4107	11:43	SW-846 6850	Perchlorate	12MWT41	GW	4°C	1	Plastic - PP	250ml	



MNA Sampling - SWMU 12 - CRANE NSWC

Sample Records

Date	Sample ID#	Time	Analysis	Description	Loc ID	Matrix	Preservative	No.	Type	Requirements	Comments
4/30/07	12GWT4707	14:40	SW-846 6850	Perchlorate	12MWT47	GW	4°C	1	Plastic - PP	250ml	
4/30/07	13GWT4008	14:00	SW-846 6850	Perchlorate	13MWT40	GW	4°C	1	Plastic - PE	250ml	

Page 2 of 2

General Observations and Notes

No Notes

- End of Report -

MNA Sampling - SWMU 12 - CRANE NSWC
Project Information

Facility Name	CRANE NSWC	Project Manager (PM)	Ralph Basinski	Created By	Walt Pryor
TtNUS Project #	112G00041	PM Telephone		Created Date	4/30/07
Task/Contract #	CTO 0377	Field Op Leader (FOL)	James GoerdT	Modified By	
WBS Code #	TP0050125	FOL Phone		Modified Date	
Chain of Custody ID	112G00041-4302007-5	Carrier	Federal Express	Printed By	James GoerdT
		Carrier/Waybill No.		Printed Date	5/9/07

Chain of Custody Information

Chain of Custody #	112G00041-4302007-5	Lab Name	Laucks Testing Laboratories, Inc.	Relinquished By	Walt Pryor
Carrier	Federal Express	Address	940 South Harney Street	Date	04/30/2007
Carrier/Waybill No.		City, State, Zip	Seattle, Washington 98108	Time	18:05
		Lab Contact	Hugh Prentice	Received By:	Federal Express
		Lab Telephone	206-767-5060	Date	4/30/07
				Time	19:05

Sample Records

Date	Sample ID #	Time	Analysis	Description	Loc ID	Matrix	Preservative	No.	Type	Requirements	Comments
4/26/07	13GWT1709	14:30	SW-846 8330	Nitroaromatics and Nitramines	13MWT17	GW	4°C	2	Glass - Amber	1L	
4/26/07	13GWT5107	11:20	SW-846 8330	Nitroaromatics and Nitramines	13MWT51	GW	4°C	2	Glass - Amber	1L	
4/28/07	13FD04280701	01:00	SW-846 8330	Nitroaromatics and Nitramines	QC	GW	4°C	2	Glass - Amber	1L	
4/28/07	13GWT2109	14:32	SW-846 8330	Nitroaromatics and Nitramines	13MWT21	GW	4°C	2	Glass - Amber	1L	
4/28/07	13GWT4508	15:19	SW-846 8330	Nitroaromatics and Nitramines	13MWT45	GW	4°C	2	Glass - Amber	1L	
4/29/07	13GWT3108	15:30	SW-846 8330	Nitroaromatics and Nitramines	13MWT31	GW	4°C	2	Glass - Amber	1L	
4/29/07	13GWT4708	12:00	SW-846 8330	Nitroaromatics and Nitramines	13MWT47	GW	4°C	2	Glass - Amber	1L	
4/30/07	12GWT4107	11:43	SW-846 8330	Nitroaromatics and Nitramines	12MWT41	GW	4°C	2	Glass - Amber	1L	



MNA Sampling - SWMU 12 - CRANE NSWC

Sample Records

Date	Sample ID #	Time	Analysis	Description	Loc ID	Matrix	Preservative	No.	Type	Requirements	Comments
4/30/07	12GWT4707	14:40	SW-846 8330	Nitroaromatics and Nitramines	12MWT47	GW	4°C	2	Glass - Amber	1L	
4/30/07	13GWT4008	14:00	SW-846 8330	Nitroaromatics and Nitramines	13MWT40	GW	4°C	2	Glass - Amber	1L	

Page 2 of 2

General Observations and Notes

No Notes

- End of Report -



MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Facility Name	CRANE NSWC	Project Manager (PM)	Ralph Basinski	Created By	James Goerd
TtNUS Project #	112G00041	PM Telephone		Created Date	4/30/07
Task/Contract #	CTO 0377	Field Op Leader (FOL)	James Goerd	Modified By	
WBS Code #	TP0050125	FOL Phone		Modified Date	
Chain of Custody ID	112G00041-4302007-5	Carrier	Federal Express	Printed By	James Goerd
		Carrier/Waybill No.	849419216224	Printed Date	5/9/07

Chain of Custody Information

Chain of Custody #	112G00041-4302007-5	Lab Name	Laucks Testing Laboratories, Inc.	Relinquished By	Dave Hickey
Carrier	Federal Express	Address	940 South Harney Street	Date	04/30/2007
Carrier/Waybill No.	849419216224	City, State, Zip	Seattle, Washington 98108	Time	17:43
		Lab Contact	Hugh Prentice	Received By:	Federal Express
		Lab Telephone	206-767-5060	Date	4/30/07
				Time	17:43

Sample Records

Date	Sample ID #	Time	Analysis	Description	Loc ID	Matrix	Preservative	No.	Type	Requirements	Comments
4/26/07	13GWT1709	14:30	SW-846 8330	Nitroaromatics and Nitramines	13MWT17	GW	4°C	2	Glass - Amber	1L	
4/26/07	13GWT5107	11:20	SW-846 8330	Nitroaromatics and Nitramines	13MWT51	GW	4°C	2	Glass - Amber	1L	
4/28/07	13FD04280701	01:00	SW-846 8330	Nitroaromatics and Nitramines	QC	GW	4°C	2	Glass - Amber	1L	
4/28/07	13GWT2109	14:32	SW-846 8330	Nitroaromatics and Nitramines	13MWT21	GW	4°C	2	Glass - Amber	1L	
4/28/07	13GWT4508	15:19	SW-846 8330	Nitroaromatics and Nitramines	13MWT45	GW	4°C	2	Glass - Amber	1L	
4/29/07	13GWT3108	15:30	SW-846 8330	Nitroaromatics and Nitramines	13MWT31	GW	4°C	2	Glass - Amber	1L	
4/29/07	13GWT4708	12:00	SW-846 8330	Nitroaromatics and Nitramines	13MWT47	GW	4°C	2	Glass - Amber	1L	
4/30/07	12GWT4107	11:43	SW-846 8330	Nitroaromatics and Nitramines	12MWT41	GW	4°C	2	Glass - Amber	1L	



MNA Sampling - SWMU 12 - CRANE NSWC

Sample Records

Date	Sample ID#	Time	Analysis	Description	Loc ID	Matrix	Preservative	No.	Type	Requirements	Comments
4/30/07	12GWT4707	14:40	SW-846 8330	Nitroaromatics and Nitramines	12MWT47	GW	4°C	2	Glass - Amber	1L	
4/30/07	13GWT4008	14:00	SW-846 8330	Nitroaromatics and Nitramines	13MWT40	GW	4°C	2	Glass - Amber	1L	

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General Observations and Notes

No Notes

- End of Report -



MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Facility Name	CRANE NSWC	Project Manager (PM)	Ralph Basinski	Created By	James Goerd
TtNUS Project #	112G00041	PM Telephone		Created Date	4/30/07
Task/Contract #	CTO 0377	Field Op Leader (FOL)	James Goerd	Modified By	
WBS Code #	TP0050125	FOL Phone		Modified Date	
Chain of Custody ID	112G00041-4302007-6	Carrier	Federal Express	Printed By	James Goerd
		Carrier/Waybill No.	854567329220	Printed Date	5/9/07

Chain of Custody Information

Chain of Custody #	112G00041-4302007-6	Lab Name	Data Chem	Relinquished By	David Hickey
Carrier	Federal Express	Address	960 West LeVoy Drive	Date	04/30/2007
Carrier/Waybill No.	854567329220	City, State, Zip	Salt Lake City, Utah 84123	Time	17:47
		Lab Contact	Kevin Griffiths	Received By:	Federal Express
		Lab Telephone	801-904-4302	Date	4/30/07
				Time	17:47

Sample Records

Date	Sample ID#	Time	Analysis	Description	Loc ID	Matrix	Preservative	No.	Type	Requirements	Comments
4/26/07	13GWT1709	14:30	SW-846 6850	Perchlorate	13MWT17	GW	4°C	1	Plastic - PE	250ml	
4/26/07	13GWT5107	11:20	SW-846 6850	Perchlorate	13MWT51	GW	4°C	1	Plastic - PE	250ml	
4/28/07	13FD04280701	00:00	SW-846 6850	Perchlorate	QC	GW	4°C	1	Plastic - PE	250ml	
4/28/07	13GWT2109	14:32	SW-846 6850	Perchlorate	13MWT21	GW	4°C	1	Plastic - PE	250ml	
4/28/07	13GWT4508	15:19	SW-846 6850	Perchlorate	13MWT45	GW	4°C	2	Plastic - PE	250ml	
4/29/07	13GWT3108	15:30	SW-846 6850	Perchlorate	13MWT31	GW	4°C	1	Plastic - PE	250ml	
4/29/07	13GWT4708	12:00	SW-846 6850	Perchlorate	13MWT47	GW	4°C	1	Plastic - PE	250ml	
4/30/07	12GWT4107	11:43	SW-846 6850	Perchlorate	12MWT41	GW	4°C	1	Plastic - PP	250ml	



MNA Sampling - SWMU 12 - CRANE NSWC

Sample Records

Date	Sample ID#	Time	Analysis	Description	Loc ID	Matrix	Preservative	No.	Type	Requirements	Comments
4/30/07	12GWT4707	14:40	SW-846 6850	Perchlorate	12MWT47	GW	4°C	1	Plastic - pp	250ml	
4/30/07	13GWT4008	14:00	SW-846 6850	Perchlorate	13MWT40	GW	4°C	1	Plastic - PE	250ml	

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General Observations and Notes

No Notes

- End of Report -



MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Facility Name	CRANE NSWC	Project Manager (PM)	Ralph Basinski	Created By	James Goerd
TtNUS Project #	112G00041	PM Telephone		Created Date	5/3/07
Task/Contract #	CTO 0377	Field Op Leader (FOL)	James Goerd	Modified By	
WBS Code #	TP0050125	FOL Phone		Modified Date	
Chain of Custody ID	112G00041-532007-10	Carrier	Federal Express	Printed By	James Goerd
		Carrier/Waybill No.	8494 1921 7551	Printed Date	5/9/07

Chain of Custody Information

Chain of Custody #	112G00041-532007-10	Lab Name	Laucks Testing Laboratories, Inc.	Relinquished By	James Goerd
Carrier	Federal Express	Address	940 South Harney Street	Date	05/03/2007
Carrier/Waybill No.	8494 1921 7551	City, State, Zip	Seattle, Washington 98108	Time	17:00
		Lab Contact	Hugh Prentice	Received By:	Federal Express
		Lab Telephone	206-767-5060	Date	5/3/07
				Time	17:00

Sample Records

Date	Sample ID #	Time	Analysis	Description	Loc ID	Matrix	Preservative	No.	Type	Requirements	Comments
5/2/07	12SW0907	11:30	SW-846 6850	Nitroaromatics and Nitramines		SW	4°C	2	Glass - Amber	1L	
5/2/07	12SW1107	10:30	SW-846 6850	Nitroaromatics and Nitramines		SW	4°C	2	Glass - Amber	1L	
5/2/07	12SW2407	11:00	SW-846 6850	Nitroaromatics and Nitramines		SW	4°C	2	Glass - Amber	1L	
5/2/07	12SW2507	09:45	SW-846 6850	Nitroaromatics and Nitramines		SW	4°C	2	Glass - Amber	1L	
5/2/07	12SW2707	10:05	SW-846 6850	Nitroaromatics and Nitramines		SW	4°C	2	Glass - Amber	1L	
5/2/07	12SW3406	12:30	SW-846 6850	Nitroaromatics and Nitramines		SW	4°C	2	Glass - Amber	1L	

No Notes

- End of Report -



MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Facility Name	CRANE NSWC	Project Manager (PM)	Ralph Basinski	Created By	James Goerd
TtNUS Project #	112G00041	PM Telephone		Created Date	5/3/07
Task/Contract #	CTO 0377	Field Op Leader (FOL)	James Goerd	Modified By	
WBS Code #	TP0050125	FOL Phone		Modified Date	
Chain of Custody ID	112G00041-532007-9	Carrier	Federal Express	Printed By	James Goerd
		Carrier/Waybill No.	8494 1921 7548	Printed Date	5/9/07

Chain of Custody Information

Chain of Custody #	112G00041-532007-9	Lab Name	Data Chem	Relinquished By	James Goerd
Carrier	Federal Express	Address	960 West LeVoy Drive	Date	05/03/2007
Carrier/Waybill No.	8494 1921 7548	City, State, Zip	Salt Lake City, Utah 84123	Time	17:00
		Lab Contact	Kevin Griffiths	Received By:	Federal Express
		Lab Telephone	801-904-4302	Date	5/3/07
				Time	17:00

Sample Records

Date	Sample ID #	Time	Analysis	Description	Loc ID	Matrix	Preservative	No.	Type	Requirements	Comments
5/2/07	12SW0907	11:30	SW-846 6850	Perchlorate		SW	4°C	1	Plastic - PP	250ml	
5/2/07	12SW1107	10:30	SW-846 6850	Perchlorate		SW	4°C	1	Plastic - PP	250ml	
5/2/07	12SW2407	11:00	SW-846 6850	Perchlorate		SW	4°C	1	Plastic - PP	250ml	
5/2/07	12SW2507	09:45	SW-846 6850	Perchlorate		SW	4°C	1	Plastic - PP	250ml	
5/2/07	12SW2707	10:05	SW-846 6850	Perchlorate		SW	4°C	1	Plastic - PP	250ml	
5/2/07	12SW3406	12:30	SW-846 6850	Perchlorate		SW	4°C	1	Plastic - PP	250ml	

General Observations and Notes

No Notes

- End of Report -

APPENDIX A.4
SWMU 12
WATER LEVEL MEASUREMENTS
ROUND 7



Tetra Tech NUS, Inc.

MNA Sampling - SWMU 12 - CRANE NSWC

Well Inspection Log

Facility Name	CRANE NSWC	Well ID	12MWT01	Inspection Date	4/10/07
TINUS Project #	112G00041	Well Alias	None	Inspection Time	08:45
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	James Goerdts -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	37.81 ft-bgs
Riser Diameter	2 in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	24 BGS ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	34 BGS ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	9.67 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - Select-	-Select- - Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - Select-	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1312852.79	3026150.48	State Plane Indiana West - feet	NAD 83	N - Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT02	Inspection Date	4/10/07
TtNUS Project #	112G00041	Well Alias	None	Inspection Time	09:14
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	James Goerd -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	31.07 ft-bgs
Riser Diameter	2 in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	18 BGS ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	28 BGS ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	8.66 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - Select-	-Select- - Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - Select-	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1312701.31	3026218.56	State Plane Indiana West - feet	NAD 83	N - Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT03	Inspection Date	4/10/07
TtNUS Project #	112G00041	Well Alias	None	Inspection Time	09:05
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	James Goerd -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	28.05 ft-bgs
Riser Diameter	2 in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	15.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	25.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	15.00 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- -Select-	-Select- -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- -Select-	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1312747.34	3026026.9	State Plane Indiana West - feet	NAD 83	N - Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT04	Inspection Date	4/10/07
TINUS Project #	112G00041	Well Alias	None	Inspection Time	08:59
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	James Goerd -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	27.12 ft-bgs
Riser Diameter	2 in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	14.00 BGS ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	24.00 BGS ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	13.60 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - Select-	-Select- - Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - Select-	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1312647.57	3026082.64	State Plane Indiana West - feet	NAD 83	N - Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT05	Inspection Date	4/10/07
TtNUS Project #	112G00041	Well Alias	None	Inspection Time	08:57
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	James Goerd -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	27.46 ft-bgs
Riser Diameter	2 in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	14.00 BGS ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	24.00 BGS ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	8.88 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - -Select-	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1312511.09	3026137.13	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT06	Inspection Date	4/10/07
T/NUS Project #	112G00041	Well Alias	None	Inspection Time	10:36
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	James Goerd -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	26.11 ft-bgs
Riser Diameter	2 in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	13.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	23.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	9.90 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - -Select-	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1311833.50	3026562.65	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT07	Inspection Date	4/10/07
TINUS Project #	112G00041	Well Alias	None	Inspection Time	10:32
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	James Goerd -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	27.37 ft-bgs
Riser Diameter	2 in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	14.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	24.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	12:50 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - -Select-	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1311707.13	3026615.62	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT08	Inspection Date	4/10/07
TtNUS Project #	112G00041	Well Alias	None	Inspection Time	10:29
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	James Goerd -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	26.10 ft-bgs
Riser Diameter	2 in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	13.00 BGS ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	23.00 BGS ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	12.85 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - Select-	-Select- - Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - Select-	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1311609.35	3026660.1	State Plane Indiana West - feet	NAD 83	N - Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT09	Inspection Date	4/10/07
TtNUS Project #	112G00041	Well Alias	None	Inspection Time	10:45
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	Walt Pryor -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	25.00 ft-bgs
Riser Diameter	2 in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	14.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	24.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	12.20 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- -Select-	-Select- -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - 0	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1311595.76	3026580.09	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT10	Inspection Date	4/10/07
TtNUS Project #	112G00041	Well Alias	None	Inspection Time	10:26
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	James Goerdts -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	25.00 ft-bgs
Riser Diameter	2 in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	14.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	24.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	13.43 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - 0	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1311456.81	3026649.95	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT11	Inspection Date	4/10/07
TtNUS Project #	112G00041	Well Alias	None	Inspection Time	09:09
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	Walt Pryor -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	27.34 ft-bgs
Riser Diameter	2 in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	14.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	24.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	11.25 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - -Select-	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1313014.33	3026776.15	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT12	Inspection Date	4/10/07
TtNUS Project #	112G00041	Well Alias	None	Inspection Time	09:11
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	Walt Pryor -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	24.00 ft-bgs
Riser Diameter	2 in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	14.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	24.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	10.00 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - -Select-	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1312972.3	3026791.19	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT13	Inspection Date	4/10/07
TtNUS Project #	112G00041	Well Alias	None	Inspection Time	09:07
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	Walt Pryor -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	21.00 ft-bgs
Riser Diameter	in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	10.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	20.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	5.01 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - 0	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1313060.01	3026835.37	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT14	Inspection Date	4/10/07
TtNUS Project #	112G00041	Well Alias	None	Inspection Time	09:02
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	Walt Pryor -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	26.00 ft-bgs
Riser Diameter	in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	15.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	25.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	21.30 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - 0	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1312965.79	3026875.34	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT15	Inspection Date	4/10/07
TINUS Project #	112G00041	Well Alias	None	Inspection Time	08:55
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	Walt Pryor -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	25.00 ft-bgs
Riser Diameter	in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	14.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	24.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	18.67 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - 0	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1312876.08	3026906.85	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT16	Inspection Date	4/10/07
TINUS Project #	112G00041	Well Alias	None	Inspection Time	09:33
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	Walt Pryor -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	25.00 ft-bgs
Riser Diameter	2 in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	14.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	24.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	21.50 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - 0	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1312096.13	3027182.94	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT17	Inspection Date	4/10/07
TtNUS Project #	112G00041	Well Alias	None	Inspection Time	09:35
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	Walt Pryor -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	26.00 ft-bgs
Riser Diameter	2 in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	15.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	25.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	23.90 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - 0	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1312047.38	3027205.14	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT18	Inspection Date	4/10/07
TtNUS Project #	112G00041	Well Alias	None	Inspection Time	09:28
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	Walt Pryor -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	26.00 ft-bgs
Riser Diameter	2 in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	15.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	25.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	22.33 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - 0	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1312114.82	3027253.63	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT19	Inspection Date	4/10/07
T/NUS Project #	112G00041	Well Alias	None	Inspection Time	09:37
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	James Goerd -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	27.00 ft-bgs
Riser Diameter	in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	16.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	26.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	27.55 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - 0	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1312026.45	3027292.38	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT20	Inspection Date	4/10/07
TtNUS Project #	112G00041	Well Alias	None	Inspection Time	09:46
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	Ralph Basinski -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	26.00 ft-bgs
Riser Diameter	2 in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	15.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	25.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	DRY ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - 0	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1311919.4	3027337.61	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT21	Inspection Date	4/10/07
TtNUS Project #	112G00041	Well Alias	None	Inspection Time	08:50
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	James Goerdts -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	25.00 ft-bgs
Riser Diameter	in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	14.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	24.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	19.70 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - 0	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1312878	3026436.5	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT22	Inspection Date	4/10/07
TtNUS Project #	112G00041	Well Alias	None	Inspection Time	10:41
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	Walt Pryor -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	25.00 ft-bgs
Riser Diameter	2 in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	14.00 ft-bgs
Tidally Influenced	No	Reference Point	Top of Riser	Bottom of Screen Depth (constructed)	24.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	17.20 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - 0	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1311937.84	3026901.94	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT23	Inspection Date	4/10/07
TtNUS Project #	112G00041	Well Alias	None	Inspection Time	10:02
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	Walt Pryor -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	31.00 ft-bgs
Riser Diameter	2 in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	20.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	30.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	28.10 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - Select-	-Select- - Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - 0	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1311150.87	3027466.57	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT24	Inspection Date	4/10/07
TNUS Project #	112G00041	Well Alias	None	Inspection Time	10:13
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	Walt Pryor -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	31.00 ft-bgs
Riser Diameter	in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	20.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	30.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	32.38 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - 0	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1310974.75	3027184.02	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT24A	Inspection Date	4/10/07
TtNUS Project #	112G00041	Well Alias	None	Inspection Time	10:12
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	Walt Pryor -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	54.00 ft-bgs
Riser Diameter	in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	44.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	54.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	34.51 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - 0	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1310968.91	3027192.97	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT25	Inspection Date	4/10/07
TtNUS Project #	112G00041	Well Alias	None	Inspection Time	09:23
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	Walt Pryor -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	26.00 ft-bgs
Riser Diameter	in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	15.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	25.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	16.70 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - Select-	-Select- - Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - 0	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1313924.59	3026269.42	State Plane Indiana West - feet	NAD 83	N - Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT26	Inspection Date	4/10/07
TtNUS Project #	112G00041	Well Alias	None	Inspection Time	11:56
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	Walt Pryor -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	25.00 ft-bgs
Riser Diameter	in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	14.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	24.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	10.10 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - Select-	-Select- - Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - 0	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1313638.57	3025981.12	State Plane Indiana West - feet	NAD 83	N - Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT27	Inspection Date	4/10/07
TtNUS Project #	112G00041	Well Alias	None	Inspection Time	09:17
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	Walt Pryor -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	26.00 ft-bgs
Riser Diameter	in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	15.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	25.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	9.21 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - 0	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1313736.63	3026477.23	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT28	Inspection Date	4/10/07
TtNUS Project #	112G00041	Well Alias	None	Inspection Time	11:51
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	Walt Pryor -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	28.26 ft-bgs
Riser Diameter	2 in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	15.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	25.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	11.90 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - -Select-	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1313506.96	3026352.09	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT29	Inspection Date	4/10/07
TtNUS Project #	112G00041	Well Alias	None	Inspection Time	09:00
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	James Goerdt -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	89.00 ft-bgs
Riser Diameter	in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	70.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	88.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	59.12 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-	Cracked	No action taken	Repair concrete pad	None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - 0	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1312653.54	3026079.78	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT30	Inspection Date	4/10/07
TtNUS Project #	112G00041	Well Alias	None	Inspection Time	10:48
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	Walt Pryor -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	90.50 ft-bgs
Riser Diameter	2 in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	70.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	90.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	92.59 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - 0	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1311604.34	3026576.32	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT31	Inspection Date	4/10/07
TINUS Project #	112G00041	Well Alias	None	Inspection Time	09:05
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	Walt Pryor -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	88 ft-bgs
Riser Diameter	2 in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	68.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	88.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	67.75 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - Select-	-Select- - Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - Select-	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1312970.99	3026872.87	State Plane Indiana West - feet	NAD 83	N - Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT32	Inspection Date	4/10/07
TINUS Project #	112G00041	Well Alias	None	Inspection Time	09:40
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	Walt Pryor - Edward Sedlmayr

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	102.93 ft-bgs
Riser Diameter	2 in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	79.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	99.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	84.50 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
Concrete pad - -Select-	Grass - Flat	Cracked	No action taken	Repair concrete pad	1/4" crack down middle of pad.
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - -Select-	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1312015.49	3027297.24	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT33	Inspection Date	4/10/07
TINUS Project #	112G00041	Well Alias	None	Inspection Time	09:18
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	Walt Pryor -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	95.00 ft-bgs
Riser Diameter	in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	74.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	94.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	40.91 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	Outer casing cover with riser cap/plug	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
Engraved metal plate with well name/number + data	On well	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - 4	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1313725.86	3026481.26	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT34	Inspection Date	4/10/07
TtNUS Project #	112G00041	Well Alias	None	Inspection Time	10:16
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	Walt Pryor -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	87.00 ft-bgs
Riser Diameter	in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	76.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	86.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	87.90 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - 0	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1310967.35	3027183.73	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT35	Inspection Date	4/10/07
Tetras Project #	112G00041	Well Alias	None	Inspection Time	08:49
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	Walt Pryor -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	27.00 ft-bgs
Riser Diameter	in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	16.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	26.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	12.49 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - 0	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1312711.38	3027111.95	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT36	Inspection Date	4/10/07
TtNUS Project #	112G00041	Well Alias	None	Inspection Time	08:45
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	Walt Pryor -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	26.00 ft-bgs
Riser Diameter	2 in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	15.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	25.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	14.20 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - 0	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1312466.54	3027186.16	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT37	Inspection Date	4/10/07
TtNUS Project #	112G00041	Well Alias	None	Inspection Time	09:57
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	Walt Pryor -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	25.00 ft-bgs
Riser Diameter	in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	14.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	24.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	26.25 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - 0	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1311630.57	3027496.41	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT38	Inspection Date	4/10/07
T&NUS Project #	112G00041	Well Alias	None	Inspection Time	10:53
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	Walt Pryor -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	25.00 ft-bgs
Riser Diameter	2 in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	14.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	24.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	9.50 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	Outer casing cover with riser cap/plug	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
Engraved metal plate with well name/number + data	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - 4	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1312353.89	3026531.17	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT39	Inspection Date	4/10/07
TtNUS Project #	112G00041	Well Alias	None	Inspection Time	10:05
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	Walt Pryor -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	35.00 ft-bgs
Riser Diameter	in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	24.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	34.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	35.25 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - 0	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1311015.63	3027662.97	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT40	Inspection Date	4/10/07
TTNUS Project #	112G00041	Well Alias	None	Inspection Time	12:00
Task/Contract #	TP0050125	Site Name	SWMU12 -	Field Inspector(s)	James Goerdts -

Type of Well	Monitoring Well	Riser Material	-Select-	Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing	-Select-	Total Depth (constructed)	29.0 ft-bgs
Riser Diameter	in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	18.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	28.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	23.15 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - 0	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1310616.56	3027037.67	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT41	Inspection Date	4/10/07
TtNUS Project #	112G00041	Well Alias	None	Inspection Time	15:50
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	James Goerd -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	35.00 ft-bgs
Riser Diameter	2 in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	24.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	34.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	19.51 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - 0	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1310642	3026376.75	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT42	Inspection Date	4/10/07
TtNUS Project #	112G00041	Well Alias	None	Inspection Time	08:55
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	James Goerdts -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	29.00 ft-bgs
Riser Diameter	2 in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	13.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	28.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	11.73 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	Outer casing cover with riser cap/plug	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - Select-	-Select- - Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
Engraved metal plate with well name/number + data	On well	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - 4	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1312364.7	3026127.28	State Plane Indiana West - feet	NAD 83	N - Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT43	Inspection Date	4/10/07
TtNUS Project #	112G00041	Well Alias	None	Inspection Time	15:55
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	James Goerd -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	81.00 ft-bgs
Riser Diameter	in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	65.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	80.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	78.35 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - 0	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1310955.52	3026125.55	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT44	Inspection Date	4/10/07
TtNUS Project #	112G00041	Well Alias	None	Inspection Time	15:45
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	James Goerd -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	35.5 ft-bgs
Riser Diameter	in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	25.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	35.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	26.15 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - 0	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1310276.64	3026617.87	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT45	Inspection Date	4/10/07
TITNUS Project #	112G00041	Well Alias	None	Inspection Time	15:05
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	Walt Pryor -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	25.00 ft-bgs
Riser Diameter	in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	14.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	24.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	15.05 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - -Select-	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1313384.3	3027614.01	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT46	Inspection Date	4/10/07
TtNUS Project #	112G00041	Well Alias	None	Inspection Time	15:53
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	Walt Pryor -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	24.5 ft-bgs
Riser Diameter	in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	14.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	24.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	17.90 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - -Select-	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1312828.63	3027864.12	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT47	Inspection Date	4/10/07
TtNUS Project #	112G00041	Well Alias	None	Inspection Time	15:56
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	Walt Pryor -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	25.00 ft-bgs
Riser Diameter	2 in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	14.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	24.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	12.45 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
----------------------	------

Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - 0	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1312455.99	3028025	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT48	Inspection Date	4/10/07
TtNUS Project #	112G00041	Well Alias	None	Inspection Time	16:01
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	Walt Pryor -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	30.00 ft-bgs
Riser Diameter	in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	19.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	29.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	30.32 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	Outer casing cover with riser cap/plug	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
Engraved metal plate with well name/number + data	On well	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - 2	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1312052.61	3028122.5	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT49	Inspection Date	4/10/07
TtNUS Project #	112G00041	Well Alias	None	Inspection Time	16:08
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	Walt Pryor -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	30.0 ft-bgs
Riser Diameter	in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	19.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	29.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	25.40 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - 0	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1310956.27	3028138.17	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Facility Name	CRANE NSWC	Well ID	12MWT50	Inspection Date	4/10/07
TtNUS Project #	112G00041	Well Alias	None	Inspection Time	16:13
Task/Contract #	CTO 0377	Site Name	SWMU12 -	Field Inspector(s)	Walt Pryor -

Type of Well	Monitoring Well	Riser Material		Total Well Depth from Reference Point	N/A
Status of Well		Protective Casing		Total Depth (constructed)	35.00 ft-bgs
Riser Diameter	in	Protective Casing Material	N/A	Top of Screen Depth (constructed)	24.00 ft-bgs
Tidally Influenced	No	Reference Point		Bottom of Screen Depth (constructed)	34.00 ft-bgs

Odor Detected in Well?	No	Depth to Top of Light Phase Free Product Measured?	No
PID/OVA at Well Opening Measured?	Yes-ND	Depth to Bottom of Light Phase Free Product Measured?	No
PID/OVA in Breathing Zone Measured?	No	Depth to Top of Dense Phase Free Product Measured?	No
Depth to Water Measured?	35.35 ft	Depth to Bottom of Dense Phase Free Product Measured?	No
Total Depth of Well Measured?	No	Barometric Pressure Measured?	No
Condition of Well Bottom?	Unknown	Air Temperature Measured?	No
Depth to Silt in Well Measured?	No	Water Temperature Measured?	No

Measurement Comments	None
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Well Completion	Condition	Action Taken	Preliminary Field Recommendation	Additional Comments
-Select-				None
Dedicated Sampling Equipment	Equipment Condition	Action Taken	Preliminary Field Recommendation	Equipment Comments
-Select-		-Select-	-Select-	None

Lock Type	Well Cap Type	Well Cap Condition	Action Taken	Preliminary Field Recommendation	Security Comments
-Select-	-Select-	-Select-			None
Surface Construction Type	Surrounding Surface	Surface Condition	Action Taken	Preliminary Field Recommendation	Surface Base Comments
-Select- - -Select-	-Select- - -Select-				None
Well Label/Tag Type	Label Location	Label/Tag Condition	Action Taken	Preliminary Field Recommendation	Label/Tag Comments
-Select-	-Select-	-Select-			None
Protective Devices at Well and Quantity	Shared With Other Wells?	Condition	Action Taken	Preliminary Field Recommendation	Protection Comments
-Select- - 0	N/A				None

Survey Northing	Survey Easting	XY System	XY Datum	Was location verified during inspection?	Is field data to be used to update location?
1310582.27	3028100.87	State Plane Indiana West - feet	NAD 83	N - -Select-	None
Field GPS Northing	Field GPS Easting	Field XY Coordinate System	Field XY Datum	Field GPS Method	Location Comments
N/A	N/A	N/A	N/A	N/A	None

General Notes	Access Notes	Health and Safety Notes
None	None	None

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Site:	SWMU 12	Measuring Device:	M-scope
Weather Conditions:	Sunny low 60's	Remarks:	
Tidally Influenced:	N		
Sampled By:	James Goerdts		

Location ID.	12SG01
Date [Today]	04/16/2007
Time [Now]	16:39
Estimated Flow Rate	Dry
Measurement from Reference Point to Water Level (Ft)	0
Depth	0
Average Flow Width (ft)	0
Average Flow Depth (ft)	0
Velocity of Flow ft-sec	0

Observations/Notes
 Very little stagnant water in ditch but dry where staff gauge is located.

Reference Point Description
 On top of concrete culvert.

Description of Location
 Located near 12MWT13.



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Site:	SWMU 12	Measuring Device:	NA
Weather Conditions:	Sunny low 60's	Remarks:	
Tidally Influenced:	N		
Sampled By:	James Goerdts		

Location ID.	12SG02	Observations/Notes NA Reference Point Description Mark on top of concrete culvert. Description of Location Located next to 12MWT35.
Date [Today]	04/16/2007	
Time [Now]	16:46	
Estimated Flow Rate	Dry	
Measurement from Reference Point to Water Level (Ft)	0	
Depth	0	
Average Flow Width (ft)	0	
Average Flow Depth (ft)	0	
Velocity of Flow ft-sec	0	



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Site:	SWMU 12	Measuring Device:	M-scope
Weather Conditions:	Sunny low 60's	Remarks:	
Tidally Influenced:	N		
Sampled By:	James Goerdts		

Location ID.	12SG03
Date [Today]	04/16/2007
Time [Now]	16:51
Estimated Flow Rate	Stagnant
Measurement from Reference Point to Water Level (Ft)	1.90
Depth	3"
Average Flow Width (ft)	NA
Average Flow Depth (ft)	NA
Velocity of Flow ft-sec	0

Observations/Notes

Small pool of stagnant water.

Reference Point Description

Mark on top of concrete culvert.

Description of Location

Located at back of gravel parking lot next to RR tracks. Between wells 12MWT36 and 12MWT18.



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Site:	SWMU 12	Measuring Device:	M-scope
Weather Conditions:	Sunny low 60's	Remarks:	
Tidally Influenced:	N		
Sampled By:	James Goerdts		

Location ID.	12SG04	Observations/Notes Stagnant pools in ditch. Occasional trickle of water movement. Reference Point Description Black marker on top of concrete culvert. Description of Location Located next to 12MWT37.
Date [Today]	04/16/2007	
Time [Now]	16:56	
Estimated Flow Rate	Stagnant	
Measurement from Reference Point to Water Level (Ft)	4.1	
Depth	.5"	
Average Flow Width (ft)	NA	
Average Flow Depth (ft)	NA	
Velocity of Flow ft-sec	0	



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Site:	SWMU 12	Measuring Device:	NA
Weather Conditions:	NA	Remarks:	
Tidally Influenced:	N		
Sampled By:	James Goerdts		

Location ID.	12SG05	Observations/Notes
Date [Today]	04/16/2007	Dry
Time [Now]	17:02	Reference Point Description
Estimated Flow Rate	Dry	NA
Measurement from Reference Point to Water Level (Ft)	Dry	Description of Location
Depth	0	NA
Average Flow Width (ft)	0	
Average Flow Depth (ft)	0	
Velocity of Flow ft-sec	0	



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Site:	SWMU 12	Measuring Device:	M-scope
Weather Conditions:	Sunny low 60's	Remarks:	
Tidally Influenced:	N		
Sampled By:	James Goerdts		

Location ID.	12SG06	Observations/Notes Small pools of stagnant water. Very difficult to see any water movement at all Reference Point Description Barely visible black mark on top of eroding concrete culvert. Description of Location Located approximately 200 feet north of well 12MWT06 inside tree line. Right where RR tracks split.
Date [Today]	04/16/2007	
Time [Now]	17:05	
Estimated Flow Rate	Stagnant	
Measurement from Reference Point to Water Level (Ft)	3.27	
Depth	2"	
Average Flow Width (ft)	NA	
Average Flow Depth (ft)	NA	
Velocity of Flow ft-sec	0	



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Site:	SWMU 12	Measuring Device:	M-scope
Weather Conditions:	Sunny low 60's	Remarks:	
Tidally Influenced:	N		
Sampled By:	James Goerdt		

Location ID.	12SG07
Date [Today]	04/16/2007
Time [Now]	17:17
Estimated Flow Rate	Estimated
Measurement from Reference Point to Water Level (Ft)	4.25
Depth	3"
Average Flow Width (ft)	2
Average Flow Depth (ft)	.2
Velocity of Flow sec-ft	3

Observations/Notes

Very low flow.

Reference Point Description

Black mark on side of concrete culvert.

Description of Location

Directly across the road from the gate leading to well 12MWT42. Just inside treeline next to small white shed.



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Site:	SWMU 12	Measuring Device:	M-scope
Weather Conditions:	Sunny upper 50's	Remarks:	
Tidally Influenced:	N		
Sampled By:	James Goerdts		

Location ID.	12SG08
Date [Today]	04/16/2007
Time [Now]	15:33
Estimated Flow Rate	Estimated
Measurement from Reference Point to Water Level (Ft)	6.08
Depth	6.5"
Average Flow Width (ft)	5
Average Flow Depth (ft)	.15
Velocity of Flow ft-sec	1

Observations/Notes

Reference Point Description
Middle of concrete culvert. Black painted arrow on front side of culvert.

Description of Location
First left after you pass the cafeteria. Approximately 1 mile down on east side of road.



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Site:	SWMU 12	Measuring Device:	M-scope
Weather Conditions:	Sunny low 60's	Remarks:	
Tidally Influenced:	N		
Sampled By:	James Goerdts		

Location ID.	12SG09
Date [Today]	04/16/2007
Time [Now]	16:11
Estimated Flow Rate	Estimated
Measurement from Reference Point to Water Level (Ft)	17.23
Depth	7"
Average Flow Width (ft)	7
Average Flow Depth (ft)	0.5
Velocity of Flow ft-sec	1

Observations/Notes

NA

Reference Point Description

Black arrow on water facing side of bridge. North side of Hwy 58.

Description of Location

Bridge 3215 on Hwy 58 next to DRMO.



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Site:	SWMU 12	Measuring Device:	M-scope
Weather Conditions:	Sunny low 60's	Remarks:	
Tidally Influenced:	N		
Sampled By:	James Goerdts		

Location ID.	12SG10	Observations/Notes
Date [Today]	04/16/2007	NA
Time [Now]	15:58	Reference Point Description
Estimated Flow Rate	Estimated	Black arrow on east side.
Measurement from Reference Point to Water Level (Ft)	14.54	Description of Location
Depth	3'	Bridge 3367. Black marker on water side of the concrete. Marker on east side of bridge.
Average Flow Width (ft)	35	
Average Flow Depth (ft)	3	
Velocity of Flow ft-sec	0	



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Site:	SWMU 12	Measuring Device:	M-scope
Weather Conditions:	Sunny low 60's	Remarks:	
Tidally Influenced:	N		
Sampled By:	James Goerdts		

Location ID.	12SG11	Observations/Notes
Date [Today]	04/16/2007	NA
Time [Now]	15:53	Reference Point Description
Estimated Flow Rate	Estimated	NA
Measurement from Reference Point to Water Level (Ft)	19.68	Description of Location
Depth	2.5	Bridge 3368.
Average Flow Width (ft)	15	
Average Flow Depth (ft)	.9	
Velocity of Flow ft-sec	2	



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Site:	SWMU 12	Measuring Device:	M-scope
Weather Conditions:	Sunny low 60's	Remarks:	
Tidally Influenced:	N		
Sampled By:	James Goerdts		

Location ID.	12SG12
Date [Today]	04/16/2007
Time [Now]	16:15
Estimated Flow Rate	Estimated
Measurement from Reference Point to Water Level (Ft)	5.98
Depth	1"
Average Flow Width (ft)	7
Average Flow Depth (ft)	0.1
Velocity of Flow sec-ft	2

Observations/Notes

Steep grade...Measure from down below.

Reference Point Description

Black arrow on water side of concrete culvert.

Description of Location

Located approximately 500 feet west of the DRMO on Hwy 58. Park near DRMO and walk up Hwy to culvert on north side of road 1/2 way up guard rail.

APPENDIX A.5
SWMU 12
EQUIPMENT CALIBRATION FORMS
ROUND 7



Tetra Tech NUS, Inc.

EQUIPMENT CALIBRATION LOG

MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Facility Name	CRANE NSWC	Instrument	2020	Created By	James Goerdt
TtNUS Project #	112G00041	Manufacturer	LaMotte	Created Date	4/12/07
Task/Contract #	CTO 0377	Serial Number	1157-1899	Modified By	James Goerdt
WBS Code #	TP0050125			Modified Date	5/9/07
Client				Printed By	James Goerdt
Status	Complete			Printed Date	5/9/07

Calibration Records

Date	Calibrator	Turbidity (0 NTU)	Turbidity (10 NTU)	Comments
4/30/07	Walt Pryor	Pre: 0 Post: 0 Std: Exp:	Pre: 11 Post: 10 Std: Exp:	
4/30/07	David Hickey	Pre: 0 Post: 0 Std: Exp:	Pre: 9.96 Post: 10.01 Std: Exp:	
4/29/07	David Hickey	Pre: 0 Post: 0 Std: Exp:	Pre: 9.97 Post: 10.01 Std: Exp:	
4/28/07	David Hickey	Pre: 0 Post: 0 Std: Exp:	Pre: 10.14 Post: 9.98 Std: Exp:	
4/27/07	David Hickey	Pre: 0 Post: 0 Std: Exp:	Pre: 9.73 Post: 10.0 Std: Exp:	
4/26/07	David Hickey	Pre: 0 Post: 0 Std: Exp:	Pre: 9.79 Post: 10.0 Std: Exp:	
4/25/07	David Hickey	Pre: 0 Post: 0 Std: Exp:	Pre: 9.82 Post: 10.0 Std: Exp:	
4/24/07	Walt Pryor	Pre: 0 Post: 0 Std: Exp:	Pre: 9.69 Post: 10 Std: Exp:	
4/17/07	Walt Pryor	Pre: 0 Post: 0 Std: Exp:	Pre: 10.42 Post: 10 Std: Exp:	

4/16/07	Walt Pryor	Pre: 0.14 Post: 0 Std: Exp:	Pre: 9.84 Post: 10 Std: Exp:	
4/15/07	Walt Pryor	Pre: 0 Post: 0 Std: Exp:	Pre: 9.87 Post: 10 Std: Exp:	
4/15/07	James Goerdts	Pre: 0.0 Post: 0.0 Std: Exp:	Pre: 9.64 Post: 9.99 Std: Exp:	
4/14/07	Walt Pryor	Pre: 0.07 Post: 0 Std: Exp:	Pre: 10.05 Post: 10 Std: Exp:	None
4/14/07	James Goerdts	Pre: 0.0 Post: 0.0 Std: Exp:	Pre: 11.0 Post: 9.94 Std: Exp:	
4/13/07	James Goerdts	Pre: 0.0 Post: 0.0 Std: Exp:	Pre: 9.90 Post: 10.03 Std: Exp:	
4/12/07	James Goerdts	Pre: 0.0 Post: 0.0 Std: Exp:	Pre: 9.16 Post: 10.02 Std: Exp:	
4/11/07	James Goerdts	Pre: 0.0 Post: 0.0 Std: Exp:	Pre: 9.62 Post: 10.01 Std: Exp:	



MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Facility Name	CRANE NSWC	Instrument	2020	Created By	James Goerdt
TtNUS Project #	112G00041	Manufacturer	Photovac	Created Date	4/12/07
Task/Contract #	CTO 0377	Serial Number	PPXJ0015	Modified By	James Goerdt
WBS Code #	TP0050125			Modified Date	5/9/07
Client				Printed By	James Goerdt
Status	Complete			Printed Date	5/9/07

Calibration Records

Date	Calibrator	Isobutylene (100 ppm)	Comments
5/10/07	Walt Pryor	Pre: 90 Post: 100 Std: Exp:	



MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Facility Name	CRANE NSWC	Instrument	U-22	Created By	James Goerd
TtNUS Project #	112G00041	Manufacturer	Horiba	Created Date	4/12/07
Task/Contract #	CTO 0377	Serial Number	4103008	Modified By	James Goerd
WBS Code #	TP0050125			Modified Date	5/9/07
Client				Printed By	James Goerd
Status	Complete			Printed Date	5/9/07

Calibration Records

Date	Calibrator	PH (4 SU)	Conductivity (mS/cm)	DO (mg/L)	Temperature (°C)	Temperature (°C)	Comments
4/30/07	Walt Pryor	Pre: 4.28 Post: 4.00 Std: 5480 Exp: 11/03/2007	Pre: 4.72 Post: 4.48 Std: 5480 Exp: 11/03/2007	Pre: 9.30 Post: 9.17 Std: 5480 Exp: 11/03/2007	Pre: 19.4 Post: 19.4 Std: NA Exp:	Pre: 314 Post: 297 Std: 5480 Exp: 11/03/2007	
4/27/07	Walt Pryor	Pre: 4.27 Post: 4.00 Std: 5480 Exp: 11/03/2007	Pre: 4.37 Post: 4.48 Std: 5480 Exp: 11/03/2007	Pre: 9.39 Post: 9.29 Std: 5480 Exp: 11/03/2007	Pre: 18.7 Post: 18.7 Std: NA Exp:	Pre: 333 Post: 318 Std: 5480 Exp: 11/03/2007	
4/24/07	Walt Pryor	Pre: 3.52 Post: 4.00 Std: 5480 Exp: 11/03/2007	Pre: 4.46 Post: 4.49 Std: 5480 Exp: 11/03/2007	Pre: 9.60 Post: 9.17 Std: 5480 Exp: 11/03/2007	Pre: 19.4 Post: 19.4 Std: NA Exp:	Pre: 328 Post: 327 Std: 5480 Exp: 11/03/2007	
4/17/07	Walt Pryor	Pre: 4.02 Post: 3.99 Std: 5480 Exp: 11/03/2007	Pre: 4.65 Post: 4.50 Std: 5480 Exp: 11/03/2007	Pre: 9.74 Post: 9.62 Std: 5480 Exp: 11/03/2007	Pre: 17.0 Post: 16.9 Std: NA Exp:	Pre: 291 Post: 284 Std: 5480 Exp: 11/03/2007	
4/16/07	Walt Pryor	Pre: 4.00 Post: 4.00 Std: 5480 Exp: 11/03/2007	Pre: 4.55 Post: 4.49 Std: 5480 Exp: 11/03/2007	Pre: 9.77 Post: 9.68 Std: 5480 Exp: 11/03/2007	Pre: 16.7 Post: 16.7 Std: NA Exp:	Pre: 333 Post: 324 Std: 5480 Exp: 11/03/2007	
4/15/07	Walt Pryor	Pre: 4.23 Post: 3.99 Std: 5480 Exp: 11/03/2007	Pre: 4.50 Post: 4.49 Std: 5480 Exp: 11/03/2007	Pre: 9.20 Post: 9.59 Std: 5480 Exp: 11/03/2007	Pre: 16.2 Post: 16.1 Std: NA Exp:	Pre: 322 Post: 316 Std: 5480 Exp: 11/03/2007	None
4/14/07	Walt Pryor	Pre: 3.99 Post: 4.00 Std: 5480 Exp: 11/03/2007	Pre: 4.43 Post: 4.46 Std: 5480 Exp: 11/03/2007	Pre: 8.81 Post: 9.46 Std: 5480 Exp: 11/03/2007	Pre: 17.5 Post: 17.4 Std: NA Exp:	Pre: 329 Post: 315 Std: 5480 Exp: 11/03/2007	None
4/13/07	Walt Pryor	Pre: 4.08 Post: 4.00 Std: 5480 Exp: 11/03/2007	Pre: 4.53 Post: 4.49 Std: 5480 Exp: 11/03/2007	Pre: 9.53 Post: 9.59 Std: 5480 Exp: 11/03/2007	Pre: 16.8 Post: 16.8 Std: NA Exp:	Pre: 307 Post: 296 Std: 5480 Exp: 11/03/2007	

4/12/07	James Goerd	Pre: 4.02 Post: 4.00 Std: 5480 Exp: 11/03/2007	Pre: 4.54 Post: 4.49 Std: 5480 Exp: 11/03/2007	Pre: 9.60 Post: 9.59 Std: 5480 Exp: 11/03/2007	Pre: 16.9 Post: 16.9 Std: NA Exp:	Pre: 319 Post: 313 Std: 5480 Exp: 11/03/2007	
4/11/07	James Goerd	Pre: 3.96 Post: 4.00 Std: 5480 Exp:	Pre: 4.45 Post: 4.49 Std: 5480 Exp:	Pre: 9.59 Post: 9.88 Std: 5480 Exp:	Pre: 16.7 Post: 16.7 Std: Exp:	Pre: 330 Post: 321 Std: 5480 Exp:	



MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Facility Name	CRANE NSWC	Instrument	U-22	Created By	James Goerd
TtNUS Project #	112G00041	Manufacturer	Horiba	Created Date	4/12/07
Task/Contract #	CTO 0377	Serial Number	4143008	Modified By	James Goerd
WBS Code #	TP0050125			Modified Date	5/9/07
Client				Printed By	James Goerd
Status	Complete			Printed Date	5/9/07

Calibration Records

Date	Calibrator	pH (4 SU)	Conductivity (mS/cm)	DO (mg/L)	Temperature (°C)	Temperature (°C)	Comments
4/30/07	Walt Pryor	Pre: 4.07 Post: 4.00 Std: 5480 Exp:	Pre: 4.53 Post: 4.49 Std: 5480 Exp:	Pre: 8.91 Post: 9.04 Std: 5480 Exp:	Pre: 19.81 Post: 19.82 Std: NA Exp:	Pre: 289 Post: 285 Std: Exp:	
4/29/07	Walt Pryor	Pre: 4.04 Post: 4.00 Std: 5480 Exp:	Pre: 4.51 Post: 4.49 Std: 5480 Exp:	Pre: 9.98 Post: 9.15 Std: 5480 Exp:	Pre: 18.78 Post: 18.80 Std: NA Exp:	Pre: 290 Post: 289 Std: Exp:	
4/28/07	Walt Pryor	Pre: 4.28 Post: 4.00 Std: 5480 Exp:	Pre: 4.59 Post: 4.49 Std: 5480 Exp:	Pre: 8.38 Post: 9.19 Std: 5480 Exp:	Pre: 18.71 Post: 18.70 Std: NA Exp:	Pre: 300 Post: 297 Std: Exp:	
4/27/07	Walt Pryor	Pre: 4.02 Post: 4.00 Std: 5480 Exp:	Pre: 4.42 Post: 4.49 Std: 5480 Exp:	Pre: 9.74 Post: 9.11 Std: 5480 Exp:	Pre: 19.15 Post: 19.16 Std: NA Exp:	Pre: 293 Post: 286 Std: Exp:	
4/26/07	Walt Pryor	Pre: 4.01 Post: 4.00 Std: 5480 Exp:	Pre: 4.49 Post: 4.49 Std: 5480 Exp:	Pre: 8.85 Post: 8.92 Std: 5480 Exp:	Pre: 20.39 Post: 20.39 Std: NA Exp:	Pre: 318 Post: 311 Std: Exp:	
4/25/07	Walt Pryor	Pre: 3.86 Post: 4.00 Std: 5480 Exp:	Pre: 4.57 Post: 4.48 Std: 5480 Exp:	Pre: 9.13 Post: 8.71 Std: 5480 Exp:	Pre: 21.27 Post: 21.24 Std: NA Exp:	Pre: 296 Post: 286 Std: Exp:	
4/24/07	Walt Pryor	Pre: 4.02 Post: 4.00 Std: 5480 Exp:	Pre: 4.61 Post: 4.49 Std: 5480 Exp:	Pre: 9.55 Post: 9.12 Std: 5480 Exp:	Pre: 19.48 Post: 19.49 Std: NA Exp:	Pre: 362 Post: 346 Std: Exp:	
4/17/07	Walt Pryor	Pre: 3.95 Post: 3.99 Std: 5480 Exp:	Pre: 4.36 Post: 4.49 Std: 5480 Exp:	Pre: 9.66 Post: 9.68 Std: 5480 Exp:	Pre: 16.29 Post: 16.31 Std: NA Exp:	Pre: 291 Post: 289 Std: Exp:	
4/16/07	Walt Pryor	Pre: 4.01 Post: 4.00 Std: 5480 Exp:	Pre: 4.64 Post: 4.49 Std: 5480 Exp:	Pre: 9.84 Post: 9.42 Std: 5480 Exp:	Pre: 17.22 Post: 17.20 Std: NA Exp:	Pre: 356 Post: 339 Std: Exp:	
4/15/07	Walt Pryor	Pre: 4.09 Post: 4.00 Std: 5480	Pre: 4.32 Post: 4.49 Std: 5480	Pre: 8.42 Post: 9.66 Std: 5480	Pre: 16.49 Post: 16.52 Std: NA	Pre: 367 Post: 340 Std:	None

		Exp:	Exp:	Exp:	Exp:	Exp:	
4/14/07	Walt Pryor	Pre: 3.95 Post: 4.01 Std: 5480 Exp:	Pre: 4.44 Post: 4.49 Std: 5480 Exp:	Pre: 10.89 Post: 9.18 Std: 5480 Exp:	Pre: 17.40 Post: 17.41 Std: NA Exp:	Pre: 301 Post: 301 Std: Exp:	None
4/13/07	Walt Pryor	Pre: 4.05 Post: 3.99 Std: 5480 Exp:	Pre: 4.68 Post: 4.49 Std: 5480 Exp:	Pre: 10.95 Post: 9.10 Std: 5480 Exp:	Pre: 17.40 Post: 17.40 Std: NA Exp:	Pre: 301 Post: 300 Std: Exp:	
4/12/07	James Goerd	Pre: 4.01 Post: 4.00 Std: 5480 Exp:	Pre: 4.44 Post: 4.49 Std: 5480 Exp:	Pre: 8.85 Post: 9.34 Std: 5480 Exp:	Pre: 17.62 Post: 17.64 Std: NA Exp:	Pre: 304 Post: 304 Std: Exp:	
4/11/07	James Goerd	Pre: 4.24 Post: 4.01 Std: 5480 Exp:	Pre: 4.50 Post: 4.49 Std: 5480 Exp:	Pre: 10.47 Post: 9.67 Std: 5480 Exp:	Pre: 16.76 Post: 16.77 Std: NA Exp:	Pre: 306 Post: 304 Std: Exp:	

MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Facility Name	CRANE NSWC	Instrument	2020	Created By	Walt Pryor
TtNUS Project #	112G00041	Manufacturer	LaMotte	Created Date	4/13/07
Task/Contract #	CTO 0377	Serial Number	1757-1800	Modified By	James Goerd
WBS Code #	TP0050125			Modified Date	5/9/07
Client				Printed By	James Goerd
Status	Complete			Printed Date	5/9/07

Calibration Records

Date	Calibrator	Turbidity (0 NTU)	Turbidity (1 NTU)	Turbidity (10 NTU)	Comments
4/30/07	Walt Pryor	Pre: 0 Post: 0 Std: Exp:	Pre: Delete Post: Std: Exp:	Pre: 10 Post: 10 Std: Exp:	
4/29/07	Walt Pryor	Pre: 0 Post: 0 Std: Exp:	Pre: Delete Post: Std: Exp:	Pre: 10 Post: 10 Std: Exp:	
4/28/07	Walt Pryor	Pre: 0 Post: 0 Std: Exp:	Pre: Delete Post: Std: Exp:	Pre: 10 Post: 10 Std: Exp:	
4/27/07	Walt Pryor	Pre: 0 Post: 0 Std: Exp:	Pre: Delete Post: Std: Exp:	Pre: 10 Post: 10 Std: Exp:	
4/26/07	Walt Pryor	Pre: 0 Post: 0 Std: Exp:	Pre: Delete Post: Std: Exp:	Pre: 10 Post: 10 Std: Exp:	
4/25/07	Walt Pryor	Pre: 0 Post: 0 Std: Exp:	Pre: Delete Post: Std: Exp:	Pre: 10 Post: 10 Std: Exp:	
4/24/07	Walt Pryor	Pre: 0 Post: 0 Std: Exp:	Pre: Delete Post: Std: Exp:	Pre: 10 Post: 10 Std: Exp:	
4/17/07	Walt Pryor	Pre: 0 Post: 0 Std: Exp:	Pre: Delete Post: Std: Exp:	Pre: 10 Post: 10 Std: Exp:	
4/16/07	Walt Pryor	Pre: 0 Post: 0 Std: Exp:	Pre: Delete Post: Std: Exp:	Pre: 10 Post: 10 Std: Exp:	
4/15/07	Walt Pryor	Pre: 0 Post: 0 Std: Exp:	Pre: Delete Post: Std: Exp:	Pre: 10 Post: 10 Std: Exp:	

4/14/07	Walt Pryor	Pre: 0 Post: 0 Std: Exp:	Pre: Delete Post: Std: Exp:	Pre: 10 Post: 10 Std: Exp:	None
4/13/07	Walt Pryor	Pre: 0 Post: 0 Std: Exp:	Pre: delete Post: Std: Exp:	Pre: 10 Post: 10 Std: Exp:	

APPENDIX B

APPENDIX B
SWMU 12
DAILY ACTIVITIES RECORD
ROUND 7



MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Activity Date	4/4/07	Weather/Temp	NA	Created By	James Goerdt
Facility Name	CRANE NSWC	TtNUS Personnel	J. Goerdt (JG)	Created Date	4/4/07
TtNUS Project #	112G00041	Subcontractor Personnel	NA	Modified By	James Goerdt
Task/Contract #	CTO 0377	Visitors	NA	Modified Date	5/9/07
WBS Code #	TP0050125	Status	Complete	Printed By	James Goerdt
Client				Printed Date	5/9/07

Daily Activity

Date	Time	Author	Notes
4/4/07	11:41	James Goerdt	<p>**NOTE: Activities are occurring simultaneously at SWMUs 12, 13, and 16 during the course of these Rounds of MNA sampling. Data gaps in the SWMU 12 daily activity reports indicates activity at a different SWMU. All equipment calibration logs for all field activities at SWMUs 12, 13, and 16 will be located under SWMU 12.</p>



MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Activity Date	4/9/07	Weather/Temp	NA	Created By	James Goerdt
Facility Name	CRANE NSWC	TtNUS Personnel	JG = Jim Goerdt; WP = Walt Pryor	Created Date	4/10/07
TtNUS Project #	112G00041	Subcontractor Personnel	NA	Modified By	James Goerdt
Task/Contract #	CTO 0377	Visitors	NA	Modified Date	5/9/07
WBS Code #	TP0050125	Status	Complete	Printed By	James Goerdt
Client				Printed Date	5/9/07

Daily Activity

Date	Time	Author	Notes
4/9/07	15:00	James Goerdt	Travel day to NSWC Crane. JG and WP arrive at NSWC Crane and secure visitor passes. Contacted Tom Brent and received key to Bldg 3245. Checked in all equipment and bottleware. JG gave WP a quick tour of the main areas at Crane. Left Crane at 17:00 to purchase supplies and check in at hotels.



MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Activity Date	4/10/07	Weather/Temp	AM: PC upper 20's / PM: PC upper 50's	Created By	James Goerdt
Facility Name	CRANE NSWC	TtNUS Personnel	JG = Jim Goerdt; WP = Walt Pryor	Created Date	4/10/07
TtNUS Project #	112G00041	Subcontractor Personnel	NA	Modified By	James Goerdt
Task/Contract #	CTO 0377	Visitors	NA	Modified Date	5/9/07
WBS Code #	TP0050125	Status	Complete	Printed By	James Goerdt
Client				Printed Date	5/9/07

Daily Activity

Date	Time	Author	Notes
4/10/07	06:45	James Goerdt	JG and WP arrived at Building 3245. Calibrated PIDs and checked bottleware. Completed Health & Safety Meeting. Completed Med data sheets and OSHA requirements.
4/10/07	08:00	James Goerdt	JG and WP left for SWMU 12 to start round of groundwater and staff gauge water level measurements.
4/10/07	11:30	James Goerdt	JG received a call from Ralph Basinski asking that he attend the walk through of Boggs Creek at SWMU 17. JG was at SWMU 17 from 11:30 - 13:20. WP remained at SWMU 12 and continued measuring GW levels in wells until 13:20. JG and WP then moved onto SWMU 13 to measure water levels.
			JG and WP continued

4/10/07	15:30	James Goerd	measuring water levels in GW wells on the RR tracks and power lines until 16:25
4/10/07	17:30	James Goerd	Left Crane.

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- End of Report -



MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Activity Date	4/11/07	Weather/Temp	AM: Rain low 40's / PM: Rain low 50's	Created By	James Goerdt
Facility Name	CRANE NSWC	TtNUS Personnel	JG = James Goerdt; WP = Walt Pryor	Created Date	4/11/07
TtNUS Project #	112G00041	Subcontractor Personnel	NA	Modified By	James Goerdt
Task/Contract #	CTO 0377	Visitors	NA	Modified Date	4/12/07
WBS Code #	TP0050125	Status	Complete	Printed By	James Goerdt
Client				Printed Date	5/9/07

Daily Activity

Date	Time	Author	Notes
4/11/07	07:15	James Goerdt	JG arrives at Crane. WP on-site. Calibration of field equipment. Preparing vehicles for GW monitoring. Will set up at two wells close by so JG can train WP on use of E-Data.
4/11/07	09:30	James Goerdt	JG and WP leave for SWMU 12 for GW sampling. JG purged/sampled 12GWT20 and 32. WP purged well 12GWT18 dry and then purged/sampled 12GWT36. Left SWMU 12 at ~14:30.
4/11/07	15:00	James Goerdt	Arrived back at Bldg 3245 and unloaded vehicles and processed samples.
4/11/07	17:30	James Goerdt	Left Crane enroute to purchase additional field supplies.



MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Activity Date	4/12/07	Weather/Temp	AM: Cloudy upper 30's / PM: Cloudy low 40's	Created By	James Goerd
Facility Name	CRANE NSWC			Created Date	4/12/07
TtNUS Project #	112G00041	TtNUS Personnel	JG = James Goerd; WP = Walt Pryor	Modified By	James Goerd
Task/Contract #	CTO 0377			Modified Date	4/12/07
WBS Code #	TP0050125	Subcontractor Personnel	NA	Printed By	James Goerd
Client		Visitors	NA	Printed Date	5/9/07
		Status	Complete		

Daily Activity

Date	Time	Author	Notes
4/12/07	07:00	James Goerd	JG and WP arrived at NSWC Crane. Calibrated equipment and selected wells for sampling.
4/12/07	08:15	James Goerd	JG and WP left Bldg 3245 for well sampling at SWMU 12.
4/12/07	11:45	James Goerd	JG returned to Bldg 3245 to grab an additional air tank. Checked pressure in remaining tanks and determined there are currently 4 full large tanks available. Contacted Indiana Oxygen to order 4 additional tanks. They indicated they would not be able to deliver until Tuesday. Will call back Friday or Monday and add 2-3 tanks to the order. Stopped for quick lunch, then on to well 12GWT03.

4/12/07	14:45	James Goerd	JG contacted Kevin Griffiths at Data Chem to make sure personnel would be at the lab to receive samples on Saturday that will be shipped on Friday. He indicated there would be.
4/12/07	15:05	James Goerd	WP informed JG that he collected the full sample allotment from 12GWT18 this morning which went dry during purging yesterday and that wells 12GWT23 and 28 went dry while purging today. He did collect enough purge water to be used as for sample should the wells not recharge. WP heading back to Bldg 3245 to unload and process samples.
4/12/07	17:30	James Goerd	JG returned to Bldg 3245 to drop off equipment and process samples. Spoke with Ralph Basinski regarding sample protocol. Left Crane at 18:00.



MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Activity Date	4/13/07	Weather/Temp	AM: PC upper 30's / PM: PC mid 50's	Created By	James Goerdt
Facility Name	CRANE NSWC	TtNUS Personnel	JG = James Goerdt; WP = Walt Pryor	Created Date	4/14/07
TtNUS Project #	112G00041	Subcontractor Personnel	NA	Modified By	James Goerdt
Task/Contract #	CTO 0377	Visitors	NA	Modified Date	5/9/07
WBS Code #	TP0050125	Status	Complete	Printed By	James Goerdt
Client				Printed Date	5/9/07

Daily Activity

Date	Time	Author	Notes
4/13/07	07:05	James Goerdt	JG and WP arrive at Crane. WP calibrating equipment and JG determining wells for days sampling.
4/13/07	08:00	James Goerdt	WP and JG to SWMU 12 for well purging/sampling. WP to collect samples first from the two wells that dried out the day before (12-23 and 12-28). JG set up on well 12-22.
4/13/07	10:00	James Goerdt	WP completed sample collection at wells 12-23 and 12-28. Moved on to wells 12-16 and 12-17 which were purged dry.
4/13/07	14:00	James Goerdt	JG completed purge/sample of well 12-22. Returned to Bldg 3245 to pack samples and complete COCs for Fed Ex shipping.
4/13/07	16:00	James Goerdt	WP returned to Bldg 3245 and assisted with packing.

4/13/07

17:00

James Goerdt

JG left Crane for Fed Ex. Shipping two coolers to Laucks Labs and one cooler to Data Chem. Also shipping the two PIDs back to US Environmental. WP remained at Bldg 3245 to finish clean up.



MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Activity Date	4/14/07	Weather/Temp	AM: Rain upper 30's / PM: Rain low 40's	Created By	James Goerdt
Facility Name	CRANE NSWC	TtNUS Personnel	JG = James Goerdt; WP = Walt Prior	Created Date	4/14/07
TtNUS Project #	112G00041	Subcontractor Personnel	NA	Modified By	James Goerdt
Task/Contract #	CTO 0377	Visitors	NA	Modified Date	5/9/07
WBS Code #	TP0050125	Status	Complete	Printed By	James Goerdt
Client				Printed Date	5/9/07

Daily Activity

Date	Time	Author	Notes
4/14/07	06:50	James Goerdt	JG and WP arrived at Crane. WP calibrating equipment. JG catching up on paperwork. Left message for Elaine Walker and Hugh Prentice at Laucks informing them that two coolers were shipped on Friday for Saturday pickup. Asked that one of them call back to confirm receipt of phone message.
4/14/07	18:00	James Goerdt	JG returned to Bldg 3245 to process samples. JG purged/sampled 12-12 and 12-31. WP sampled/purged 12-38 and sampled 12-16 and 12-17.
4/14/07	18:30	James Goerdt	Did not hear back from anyone at Laucks Labs so will assume they did not pick up samples at Fed

			Ex. Samples were packed well in ice and should be fine for Monday pick up. JG left Crane.
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- End of Report -



MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Activity Date	4/15/07	Weather/Temp	AM: PC mid 30's (wind) / PM: PC mid 50's (wind)	Created By	James Goerdt
Facility Name	CRANE NSWC			Created Date	4/15/07
TtNUS Project #	112G00041	TtNUS Personnel	JG = James Goerdt; WP = Walt Pryor	Modified By	James Goerdt
Task/Contract #	CTO 0377			Modified Date	5/9/07
WBS Code #	TP0050125	Subcontractor Personnel	NA	Printed By	James Goerdt
Client		Visitors	NA	Printed Date	5/9/07
		Status	Complete		

Daily Activity

Date	Time	Author	Notes
4/15/07	07:10	James Goerdt	JG and WP on-site at Crane. WP calibrating equipment and processing samples from previous day. JG planning out days activities.
4/15/07	08:00	James Goerdt	JG setting up on well 12-11. WP setting up on well 12-10.
4/15/07	14:45	James Goerdt	JG finished purge/sample at well 12-06. JG stopped to check on WP at well 12-42, and then returned to Bldg 3245 to process samples and clean out vehicle. JG plans for Monday and Tuesday include sampling surface waters, measuring staff gauges, and cutting back wells at SWMU 13 in which pvc risers had heaved up inside the metal casing. JG left phone message for Ed Sedlmyr to

			have the 250 ml poly bottles overnigheted on Monday for Tuesday delivery. JG also left phone message for Val Plachy to order silocon tubing for transferring surface water perchlorate samples from glass ambers to 250 ml poly bottles while filtering (0.2 micron).
4/15/07	16:15	James Goerd	JG left Crane enroute to Menards for additional field supplies. WP still in field purging well 12-42. JG left message at field office for WP to sync tough book and to call JG and let him know he made it out okay.
4/15/07	16:50	James Goerd	JG arrives at Menards for field supplies.
4/15/07	18:30	James Goerd	JG received call from WP who was at the Crane field office. WP completed sampling at 12-42 and did sync tough book.
4/15/07	18:50	James Goerd	JG completing COCs for both Laucks and Data Chem.



MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Activity Date	4/16/07	Weather/Temp	AM: Sun upper 30's / PM: Sun upper 50's	Created By	James Goerdt
Facility Name	CRANE NSWC	TtNUS Personnel	JG = James Goerdt; WP = Walt Pryor	Created Date	4/15/07
TtNUS Project #	112G00041	Subcontractor Personnel	NA	Modified By	James Goerdt
Task/Contract #	CTO 0377	Visitors	NA	Modified Date	5/9/07
WBS Code #	TP0050125	Status	Complete	Printed By	James Goerdt
Client				Printed Date	5/9/07

Daily Activity

Date	Time	Author	Notes
4/16/07	07:15	James Goerdt	JG arrived on-site at Crane. WP on-site and calibrating equipment and packing samples for shipping. JG completed COCs for Laucks and Data Chem and finished packing of samples. JG called Fed Ex to schedule a pick up at Bldg 3245 (2 coolers to Laucks and one to Data Chem). Spoke with John Wright regarding E-Data issues. JG spoke with Val Plachy requesting she order approximately 25 feet of silicon tubing for use in the peristaltic pump for transferring sample water through filter to 250 ml bottle.
4/16/07	08:25	James Goerdt	WP enroute to SWMU 16 for GW sampling. I asked him to

			stop and check in.
4/16/07	09:10	James Goerd	JG enroute to SWMU 13 to begin measuring staff gauge locations.
4/16/07	12:45	James Goerd	Returned to Bldg 3245 to see if Fed Ex had picked up the coolers...they had.
4/16/07	13:05	James Goerd	Elaine Walker called to say she did receive the samples on Saturday. I told her to expect two more on Tuesday. She also said she was overnighting two cases of the 250 ml plastic bottles for perchlorate.
4/16/07	15:11	James Goerd	JG begins measuring staff gauge locations at SWMU 12.
4/16/07	17:21	James Goerd	JG completed measurements at staff gauge locations. Stopping by 12MWT30 to check if any water available for sample.
4/16/07	17:34	James Goerd	Well 12MWT30 determined to be dry. JG enroute to SWMU 8 to check on any progress regarding interim measures work.



MNA Sampling - SWMU 12 - CRANE NSWC

Daily Activity

Date	Time	Author	Notes
4/16/07	18:30	James Goerdts	JG leaves Crane. Received call from WP at 17:50 indicating he was finished sampling and was going to be leaving Crane soon.



MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Activity Date	4/18/07	Weather/Temp	NA	Created By	James Goerdt
Facility Name	CRANE NSWC	TtNUS Personnel	JG = James Goerdt; WP = Walt Pryor; DH = Dave Hickey	Created Date	4/27/07
TtNUS Project #	112G00041	Subcontractor Personnel	NA	Modified By	James Goerdt
Task/Contract #	CTO 0377	Visitors	NA	Modified Date	5/9/07
WBS Code #	TP0050125	Status	Complete	Printed By	James Goerdt
Client				Printed Date	5/9/07

Daily Activity

Date	Time	Author	Notes
4/18/07	00:00	James Goerdt	JG and WP demob from NSWC Crane back to respective office locations. DH remains on-site to continue with sampling.



MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Activity Date	4/23/07	Weather/Temp	NA	Created By	James Goerd
Facility Name	CRANE NSWC	TtNUS Personnel	WP = Walt Pryor;DH = Dave Hickey	Created Date	4/27/07
TtNUS Project #	112G00041	Subcontractor Personnel	NA	Modified By	James Goerd
Task/Contract #	CTO 0377	Visitors	NA	Modified Date	5/9/07
WBS Code #	TP0050125	Status	Complete	Printed By	James Goerd
Client				Printed Date	5/9/07

Daily Activity

Date	Time	Author	Notes
4/23/07	00:00	James Goerd	DH and WP return to NSWC Crane for start of 10-day shift.



MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Activity Date	4/20/07	Weather/Temp	NA	Created By	James Goerdt
Facility Name	CRANE NSWC	TtNUS Personnel	DH = Dave Hickey	Created Date	4/27/07
TtNUS Project #	112G00041	Subcontractor Personnel	NA	Modified By	James Goerdt
Task/Contract #	CTO 0377	Visitors	NA	Modified Date	5/9/07
WBS Code #	TP0050125	Status	Complete	Printed By	James Goerdt
Client				Printed Date	5/9/07

Daily Activity

Date	Time	Author	Notes
4/20/07	00:00	James Goerdt	DH demobs from NSWC Crane.



MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Activity Date	5/2/07	Weather/Temp	AM: Sun 70 / PM: early afternoon; MC low 80's, then rain	Created By	James Goerd
Facility Name	CRANE NSWC			Created Date	5/2/07
TtNUS Project #	112G00041	TtNUS Personnel	JG = James Goerd	Modified By	James Goerd
Task/Contract #	CTO 0377	Subcontractor Personnel	NA	Modified Date	5/9/07
WBS Code #	TP0050125	Visitors	NA	Printed By	James Goerd
Client		Status	Complete	Printed Date	5/9/07

Daily Activity

Date	Time	Author	Notes
5/2/07	07:15	James Goerd	JG picked up the tough book from Towne Place Suites hotel left there by Dave Hickey. Enroute to NSWC Crane.
5/2/07	08:00	James Goerd	JG arrives at Crane. Prepares vehicle and equipment for Surface Water sampling at SWMU 12. Boxed some of the equipment for shipping to return to rental company.
5/2/07	09:19	James Goerd	As a safety measure, JG contacted Valerie Plachy in the Pittsburgh office to inform her that I would be out at SWMU 12 collecting surface waters and that I would check back in with her later to let her know I completed the task.
5/2/07	09:25	James Goerd	JG enroute to SWMU 12 to begin collection

			of surface water samples.
5/2/07	13:00	James Goerd	JG completes surface water sampling at SWMU 12. Two locations were dry (12SW/SD14 and 31). JG enroute to SWMU 8.
5/2/07	13:45	James Goerd	JG returned to Bldg 3245 to unload vehicle, process samples/labels and update daily activity logs.
5/2/07	14:00	James Goerd	Contacted Valerie Plachy in the Pittsburgh office to inform her that I was finished sampling at SWMU 12.
5/2/07	17:30	James Goerd	JG departed NSWC Crane enroute to Fed Ex to pick up additional large handle tags.



MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Activity Date	4/30/07	Weather/Temp	NA	Created By	James Goerdt
Facility Name	CRANE NSWC	TtNUS Personnel	JG = James Goerdt; WP = Walt Pryor; DH = Dave Hickey	Created Date	5/3/07
TtNUS Project #	112G00041			Modified By	James Goerdt
Task/Contract #	CTO 0377	Subcontractor Personnel	NA	Modified Date	5/9/07
WBS Code #	TP0050125	Visitors	NA	Printed By	James Goerdt
Client		Status	Complete	Printed Date	5/9/07

Daily Activity

Date	Time	Author	Notes
4/30/07	13:00	James Goerdt	AM travel to site for JG. JG arrives on-site at Crane. Checked in at Bldg 3245, and doors to field office locked. Headed to SWMU 13 to look for DH and/or WP.
4/30/07	13:45	James Goerdt	JG met up with DH. WP on RR tracks at SWMU 12 sampling well. DH returning to Bldg 3245 to start processing samples for shipment while JG enroute to check on things at SWMU 8.
			JG arrives back at Bldg 3245. WP and DH on-site prepping samples. JG informed that syncing of toughbooks is taking a very long time with no progress. Decision made that DH and WP would generate COCs for each individual toughbook.

4/30/07	16:20	James Goerd	Having additional trouble getting WP's toughbook to print COC. Running out of time to make the 19:00 cut off time at Fed Ex in Bloomington, so since the samples are already on heavy ice the decision was made to hold samples and contact Fed Ex in the morning and have them pick up the samples.
4/30/07	18:00	James Goerd	JG, WP, and DH leave Crane.



MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Activity Date	5/1/07	Weather/Temp	NA	Created By	James Goerd
Facility Name	CRANE NSWC	TtNUS Personnel		Created Date	5/3/07
TtNUS Project #	112G00041	Subcontractor Personnel		Modified By	James Goerd
Task/Contract #	CTO 0377	Visitors		Modified Date	5/9/07
WBS Code #	TP0050125	Status	Complete	Printed By	James Goerd
Client				Printed Date	5/9/07

Daily Activity

Date	Time	Author	Notes
5/3/07	00:00	James Goerd	At SWMU 16



MNA Sampling - SWMU 12 - CRANE NSWC

Project Information

Activity Date	5/3/07	Weather/Temp	AM: Cloudy 60	Created By	James Goerdt
Facility Name	CRANE NSWC	TtNUS Personnel	JG = James Goerdt	Created Date	5/3/07
TtNUS Project #	112G00041	Subcontractor Personnel	NA	Modified By	James Goerdt
Task/Contract #	CTO 0377	Visitors	NA	Modified Date	5/9/07
WBS Code #	TP0050125	Status	Complete	Printed By	James Goerdt
Client				Printed Date	5/9/07

Daily Activity

Date	Time	Author	Notes
5/3/07	08:00	James Goerdt	JG on-site and began prep of shipping items back to rental companies and enroute to SWMU 8.
5/3/07	10:00	James Goerdt	JG stopped to fuel vehicle on base, and then returned to Bldg 3245 to continue with updating daily activity logs, preparing samples and equipment for shipping.

APPENDIX C
SWMU 12
HEALTH AND SAFETY DOCUMENTATION
ROUND 7



TETRA TECH NUS

CERTIFICATE OF TRAINING

THIS CERTIFIES THAT

Walter Pryor III

**has successfully completed an 8-hour course of instruction in
OSHA 29 CFR 1910.120**

**GENERAL SITE WORKER
REFRESHER TRAINING**

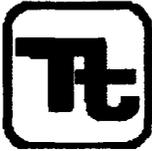
**prepared and instructed by
Tetra Tech NUS, Inc.
Pittsburgh, Pennsylvania**

January 23, 2007

Date of Award



**Matthew M. Soltis, CIH, CSP
Manager
Health and Safety**



WORK STATUS REPORT

Employer Copy

TYPE OF EXAMINATION: Periodic Examination

EMPLOYEE: Pryor, Walter III E
SSN: XXX-XX-7288
DATE OF EXAM: 12/22/2006
EXPIRATION DATE: 12/22/2008

COMPANY: TT/NUS
POSITION: Ground Water Sampling
LOCATION: TT/NUS-Germantown
SITE: Germantown

The following recommendations are based on a review of one or all of the following: a base history questionnaire, supporting diagnostic tests, physical examination, and the essential functions of the position applied for or occupied by the individual named above.

	<u>Yes</u>	<u>No</u>	<u>Undecided</u>
Has the employee any detected medical conditions that would increase his/her risk of material health impairment from occupational exposure in accordance with 29 CFR §1910.120?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

STATUS

1. **QUALIFIED** The examination indicates no significant medical condition. Employee can be assigned any work consistent with skills and training.
2. **QUALIFIED - WITH LIMITATIONS** The examination indicates that a medical condition currently exists that limits work assignments on the following basis:
3. **NOT QUALIFIED**
4. **DEFERRED** The examination indicated that additional information is necessary. The employee has been given the following instructions.

COMMENTS: Pending completion of pulmonary function test.

I have reviewed the medical data of the above named employee, and informed the employee of the results of the medical examination and any medical conditions that require follow-up examination or treatment.

Name of Physician: Peter P. Greaney, M.D.

Date: 12/29/06

Signature: Peter P Greaney MD

WorkCare
300 S. Harbor Blvd., Suite 600, Anaheim, CA 92805
(714) 978-7488 • (800) 455-6155 • FAX (714) 456-2154



TETRA TECH NUS

CERTIFICATE OF TRAINING

THIS CERTIFIES THAT

Jim Goerd

has successfully completed an 8-hour course of instruction in

OSHA 29 CFR 1910.120

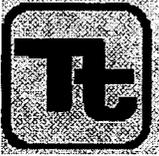
**GENERAL SITE WORKER
REFRESHER TRAINING**

prepared and instructed by
Tetra Tech NUS, Inc.
Pittsburgh, Pennsylvania

February 2, 2007

Date of Award

Matthew M. Soltis, CIH, CSP
Manager
Health and Safety



WORK STATUS REPORT

Employer Copy

TYPE OF EXAMINATION: Periodic Examination

EMPLOYEE: Goerd, James
SSN: XXX-XX-2691
DATE OF EXAM: 11/22/2005
EXPIRATION DATE: 11/22/2007

COMPANY: TT/NUS
POSITION: Environmental Scientist
LOCATION: TT/NUS-Pittsburgh
SITE: Pittsburgh

The following recommendations are based on a review of one or all of the following: a base history questionnaire, supporting diagnostic tests, physical examination, and the essential functions of the position applied for or occupied by the individual named above.

	<u>Yes</u>	<u>No</u>	<u>Undecided</u>
Has the employee any detected medical conditions that would increase his/her risk of material health impairment from occupational exposure in accordance with 29 CFR §1910.120?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Does the employee have any limitations in the use of respirators in accordance with 29 CFR §1910.134?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

STATUS

1. **QUALIFIED** The examination indicates no significant medical condition. Employee can be assigned any work consistent with skills and training.
2. **QUALIFIED - WITH LIMITATIONS** The examination indicates that a medical condition currently exists that limits work assignments on the following basis:
3. **NOT QUALIFIED**
4. **DEFERRED** The examination indicated that additional information is necessary. The employee has been given the following instructions.

COMMENTS:

I have reviewed the medical data of the above named employee, and informed the employee of the results of the medical examination and any medical conditions that require follow-up examination or treatment.

Name of Physician: Peter P. Greaney, M.D.

Date: 11/29/05

Signature: _____

WorkCare
300 S. Harbor Blvd., Suite 600, Anaheim, CA 92805
(714) 978-7488 • (800) 455-6155 • FAX (714) 456-2154



Certificate of Completion

Presented To

David A. Hickey Jr.

In Recognition of Having Successfully Completed
the Prescribed Course of Study for

**Hazardous Waste Site Activities
40-Hour Initial Health and Safety Training**

Orlando, Florida

January 7-11, 1991

Richard M. Miller

President
American Ecology Services, Inc.

Kevin J. Tomaly
Course Director
Geraghty & Miller, Inc.



WORK STATUS REPORT

Employer Copy

TYPE OF EXAMINATION: Periodic Examination

UPDATE

EMPLOYEE: Hickey, David
SSN: XXX-XX-9715
DATE OF EXAM: 11/22/2005
EXPIRATION DATE: 11/22/2007

COMPANY: TT/NUS
POSITION: Geologist
LOCATION: TT/NUS-Oak Ridge
SITE: Oak Ridge

The following recommendations are based on a review of one or all of the following: a base history questionnaire, supporting diagnostic tests, physical examination, and the essential functions of the position applied for or occupied by the individual named above.

	<u>Yes</u>	<u>No</u>	<u>Undecided</u>
Has the employee any detected medical conditions that would increase his/her risk of material health impairment from occupational exposure in accordance with 29 CFR §1910.120?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Does the employee have any limitations in the use of respirators in accordance with 29 CFR §1910.134?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

STATUS

1. **QUALIFIED** The examination indicates no significant medical condition. Employee can be assigned any work consistent with skills and training.
2. **QUALIFIED - WITH LIMITATIONS** The examination indicates that a medical condition currently exists that limits work assignments on the following basis:
3. **NOT QUALIFIED**
4. **DEFERRED** The examination indicated that additional information is necessary. The employee has been given the following instructions.

COMMENTS: *Approved for biennial status.*

I have reviewed the medical data of the above named employee, and informed the employee of the results of the medical examination and any medical conditions that require follow-up examination or treatment.

Name of Physician: Peter P. Greaney, M.D.

Date: 11/13/06

Signature: _____

Peter P. Greaney MD

WorkCare
300 S. Harbor Blvd., Suite 600, Anaheim, CA 92805
(714) 978-7488 • (800) 455-6155 • FAX (714) 456-2154

Date Completed:
1/20/2008



Receipt #

97780

**International Union of Operating Engineers
Hazmat Training Program**

Local DOE



This is to certify that

David Hickey, Jr

has successfully completed the
required annual 8-hour refresher class
specifically designed for workers in

accordance with OSHA at 29 CFR 1910.120.

Jeff Henderson
Certified Instructor

APPENDIX D
SWMU 12
ANALYTICAL DATA
ROUND 5

APPENDIX D.1
SWMU 12
ROUND 5
SUMMARY OF GROUNDWATER WATER
ANALYTICAL RESULTS

NSWC CRANE
SUMMARY OF ANALYTIC RESULTS - GROUNDWATER ROUND 7
PENNSYLVANIA UPPER WATER BEARING ZONE
SWMU 12 (MINE FILL A)
PAGE 1 OF 2

Site	MINE FILL A								
AOC	PUZ								
SWMU	12	12	12	12	12	12	12	12	12
Location	12MWT03	12MWT06	12MWT09	12MWT09	12MWT10	12MWT11	12MWT12	12MWT16	12MWT17
Sample	12GWT0307	12GWT0607	12GWT0907	12GWT0907-D	12GWT1007	12GWT1107	12GWT1207	12GWT1607	12GWT1707
Matrix	GW								
Sacode	NORMAL	NORMAL	ORIG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
Sample Date	20070412	20070415	20070412	20070412	20070415	20070415	20070414	20070414	20070414
Explosives (ug/L)									
1,3,5-Trinitrobenzene	0.28 U	11	0.27 U	0.28 U	0.24 U	110	0.25 U	2.4	0.54
1,3-Dinitrobenzene	0.28 U	7.9	0.27 U	0.28 U	0.24 U	11	0.25 U	0.24 U	0.24 U
2,4,6-Trinitrotoluene	0.28 U	140	0.27 U	0.38 J	0.24 U	160	1.5	11	2.5
2,4-Dinitrotoluene	0.28 U	3.2 J	0.27 U	0.28 U	0.24 U	4.1 J	0.25 U	0.35 J	0.28 J
2,6-Dinitrotoluene	0.28 U	0.29 U	0.27 U	0.28 U	0.24 U	0.24 U	0.25 U	1.5 J	1.3 J
2-Amino-4,6-Dinitrotoluene	0.28 U	0.29 U	3.4 J	4.5	0.24 U	0.24 U	5.5	150	45
2-Nitrotoluene	0.28 U	0.29 U	0.27 U	0.28 U	0.24 U	0.24 U	0.25 U	0.24 U	0.24 U
3-Nitrotoluene	0.28 U	0.29 U	0.27 U	0.28 U	0.24 U	0.24 U	0.25 U	0.24 U	0.24 U
4-Amino-2,6-Dinitrotoluene	0.28 U	29	3.4	4.5	0.24 U	24	5.5	250	49
4-Nitrotoluene	0.28 U	0.29 U	0.27 U	0.28 U	0.24 U	0.24 U	0.25 U	0.24 U	0.24 U
HMX	0.98	450	48	54	7.2	450	120	750	150
Nitrobenzene	0.28 U	0.29 U	0.27 U	0.28 U	0.24 U	0.24 U	0.25 U	0.24 U	0.24 U
RDX	0.28 U	5500	330	380	31	4000	420	7800	2700
Tetryl	0.28 U	0.29 U	0.27 U	0.28 U	0.24 U	0.24 U	0.25 U	0.24 U	0.24 U
Miscellaneous Parameters (ug/L)									
Perchlorate	0.2 U	0.0891 J	0.2 U	0.2 U					

NSWC CRANE
SUMMARY OF ANALYTIC RESULTS - GROUNDWATER ROUND 7
PENNSYLVANIA UPPER WATER BEARING ZONE
SWMU 12 (MINE FILL A)
PAGE 2 OF 2

Site	MINE FILL A							
AOC	PUZ	PUZ	PUZ	PUZ	PUZ-UPGRAD	PUZ	PUZ	PUZ
SWMU	12	12	12	12	12	12	12	12
Location	12MWT18	12MWT20	12MWT22	12MWT23	12MWT28	12MWT36	12MWT38	12MWT42
Sample	12GWT1807	12GWT2007	12GWT2207	12GWT2307	12GWT2807	12GWT3607	12GWT3807	12GWT4207
Matrix	GW							
Sacode	NORMAL							
Sample Date	20070412	20070411	20070413	20070413	20070413	20070411	20070414	20070415
Explosives (ug/L)								
1,3,5-Trinitrobenzene	0.24 U	0.29 U	0.27 U	0.24 U				
1,3-Dinitrobenzene	0.24 U	0.29 U	0.27 U	0.24 U				
2,4,6-Trinitrotoluene	0.24 U	0.29 U	0.74	0.24 U				
2,4-Dinitrotoluene	0.24 U	0.29 U	0.27 U	0.24 U				
2,6-Dinitrotoluene	0.24 U	0.29 U	0.27 U	0.24 U				
2-Amino-4,6-Dinitrotoluene	0.24 U	0.29 U	0.27 U	0.24 U				
2-Nitrotoluene	0.24 U	0.29 U	0.27 U	0.24 U				
3-Nitrotoluene	0.24 U	0.29 U	0.27 U	0.24 U				
4-Amino-2,6-Dinitrotoluene	0.24 U	0.29 U	0.27 U	0.24 U				
4-Nitrotoluene	0.24 U	0.29 U	0.27 U	0.24 U				
HMX	1.9	0.29 U	6	0.24 U	0.24 U	7.5	1 J	30
Nitrobenzene	0.24 U	0.29 U	0.27 U	0.24 U				
RDX	9.1	5.7	38	0.76 J	0.32 J	43	71	15
Tetryl	0.24 U	0.29 U	0.27 U	0.24 U				
Miscellaneous Parameters (ug/L)								
Perchlorate	0.2 U	0.114 J	0.2 U	0.116 J				

NSWC CRANE
SUMMARY OF ANALYTIC RESULTS - GROUNDWATER ROUND 7
PENNSYLVANIA MIDDLE WATER BEARING ZONE
SWMU 12 (MINE FILL A)

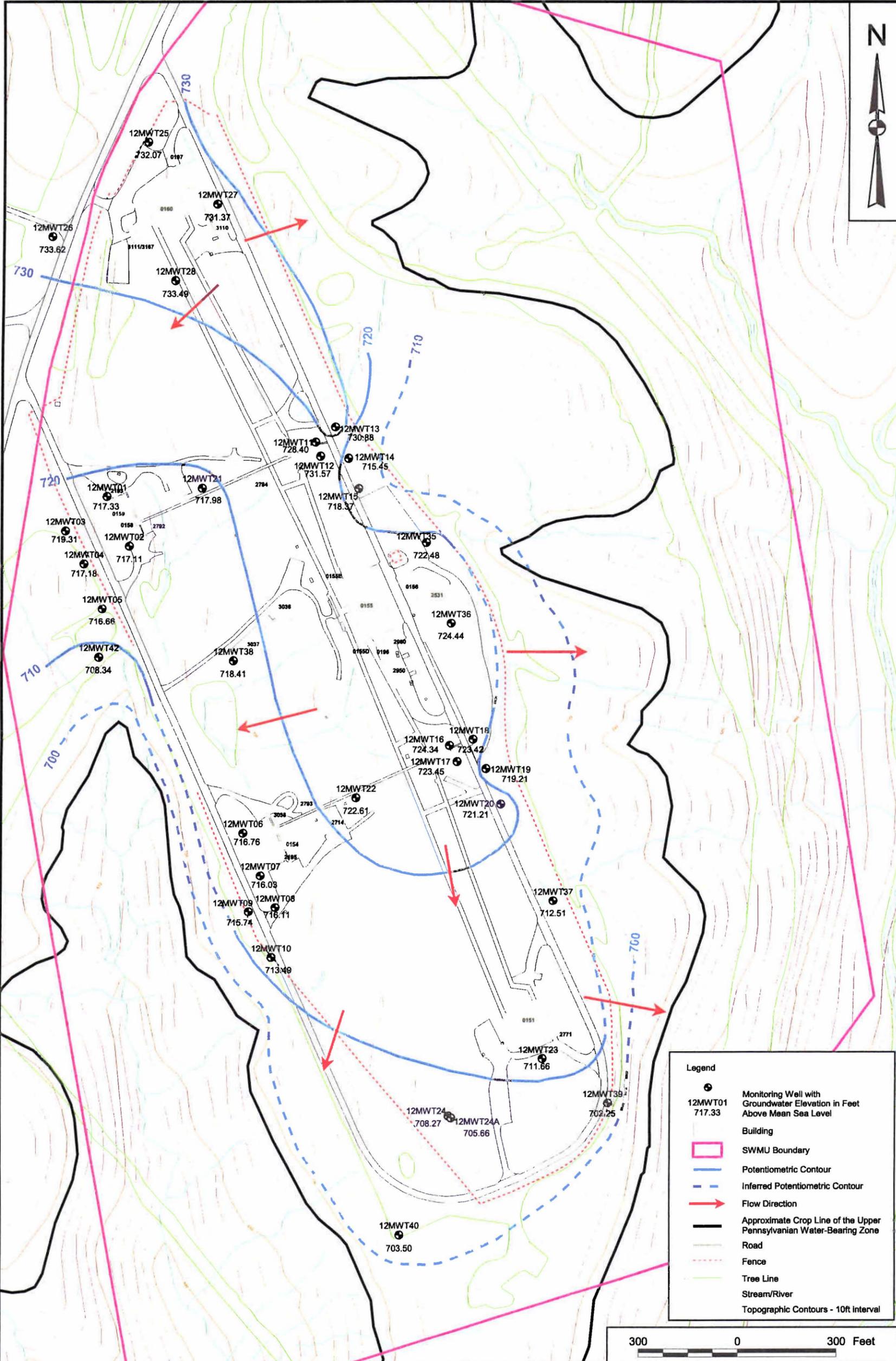
Site	MINE FILL A	MINE FILL A
AOC	PMZ	PMZ
SWMU	12	12
Location	12MWT31	12MWT32
Sample	12GWT3107	12GWT3207
Matrix	GW	GW
Sacode	NORMAL	NORMAL
Sample Date	20070414	20070411
Explosives (ug/L)		
1,3,5-Trinitrobenzene	0.28 U	0.26 U
1,3-Dinitrobenzene	0.28 U	0.26 U
2,4,6-Trinitrotoluene	0.28 U	0.26 U
2,4-Dinitrotoluene	0.28 U	0.26 U
2,6-Dinitrotoluene	0.28 U	0.26 U
2-Amino-4,6-Dinitrotoluene	0.28 U	0.26 U
2-Nitrotoluene	0.28 U	0.26 U
3-Nitrotoluene	0.28 U	0.26 U
4-Amino-2,6-Dinitrotoluene	0.28 U	0.26 U
4-Nitrotoluene	0.28 U	0.26 U
HMX	0.28 U	0.26 U
Nitrobenzene	0.28 U	0.26 U
RDX	0.28 U	0.26 U
Tetryl	0.28 U	0.26 U
Miscellaneous Parameters (ug/L)		
Perchlorate	0.2 U	0.2 U

**NSWC CRANE
SUMMARY OF ANALYTIC RESULTS - GROUNDWATER ROUND 7
MISSISSIPPIAN GLEN DEAN AQUIFER
SWMU 12 (MINE FILL A)**

Site	MINE FILL A
AOC	PLZMGD
SWMU	12
Location	12MWT41
Sample	12GWT4107
Matrix	GW
Sacode	NORMAL
Sample Date	20070430
Explosives (ug/L)	
1,3,5-Trinitrobenzene	0.26 U
1,3-Dinitrobenzene	0.26 U
2,4,6-Trinitrotoluene	0.26 U
2,4-Dinitrotoluene	0.26 U
2,6-Dinitrotoluene	0.26 U
2-Amino-4,6-Dinitrotoluene	0.26 U
2-Nitrotoluene	0.26 U
3-Nitrotoluene	0.26 U
4-Amino-2,6-Dinitrotoluene	0.26 U
4-Nitrotoluene	0.26 U
HMX	0.26 U
Nitrobenzene	0.26 U
RDX	0.26 U
Tetryl	0.26 U
Perchlorate	0.2 UJ

APPENDIX D.2
SWMU 12
ROUND 5
SUMMARY OF SURFACE WATER
ANALYTICAL RESULTS

APPENDIX E
SWMU 12
ROUND 4
POTENTIOMETRIC SURFACE MAPS



Legend

- 12MWT01 717.33
Monitoring Well with Groundwater Elevation in Feet Above Mean Sea Level
- ▭ Building
- ▭ SWMU Boundary
- Potentiometric Contour
- - - Inferred Potentiometric Contour
- Flow Direction
- Approximate Crop Line of the Upper Pennsylvanian Water-Bearing Zone
- Road
- - - Fence
- Tree Line
- Stream/River
- Topographic Contours - 10ft Interval

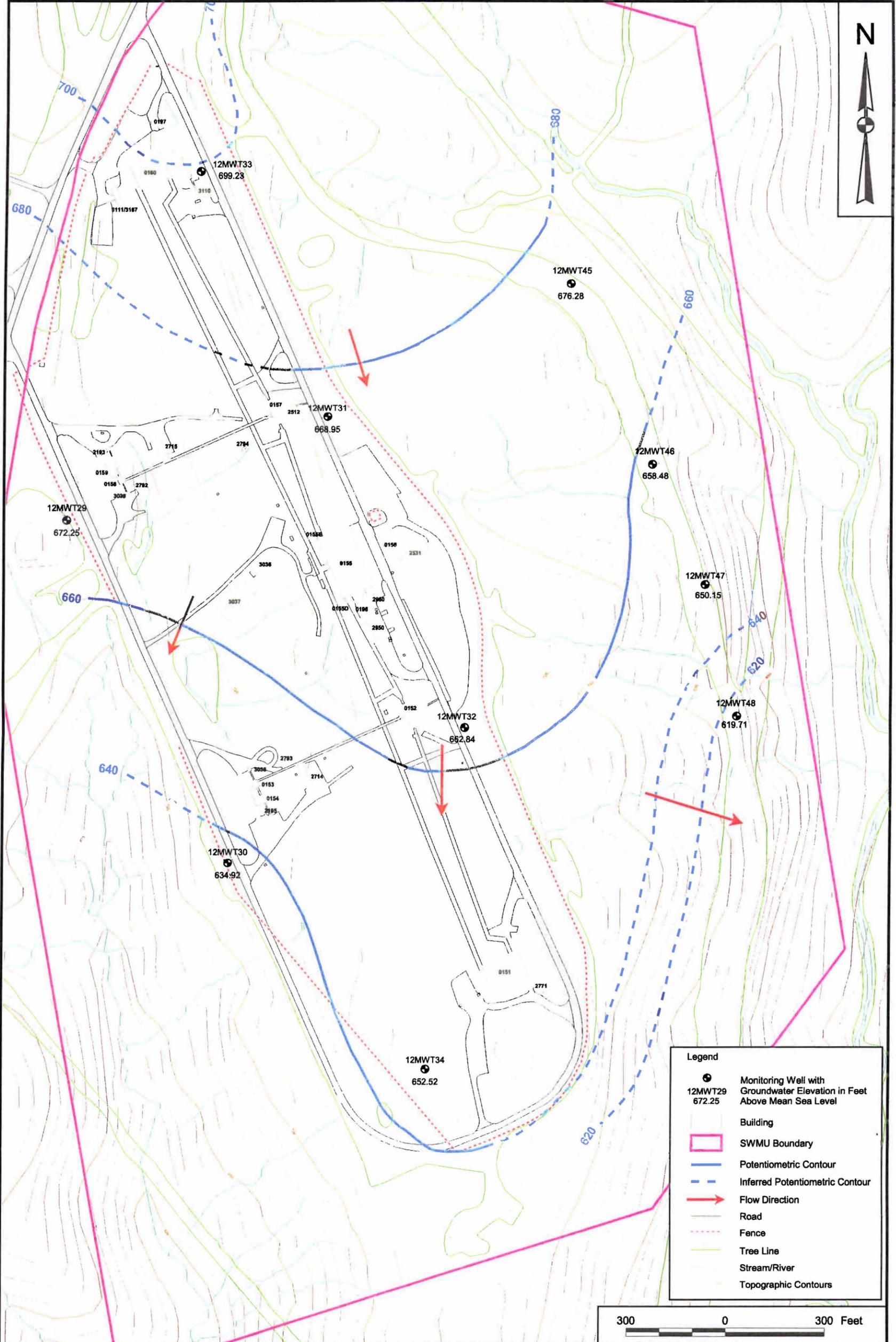


DRAWN BY	DATE
S. STROZ	5/16/06
CHECKED BY	DATE
J. LUCAS	2/28/07
COST/SCHEDULE-AREA	
SCALE AS NOTED	



POTENTIOMETRIC SURFACE MAP FOR THE UPPER PENNSYLVANIAN WATER-BEARING ZONE - MAY 5, 2006
ROUND 6
SWMU 12 MINE FILL A
NSWC CRANE
CRANE, INDIANA

CONTRACT NUMBER CTO 0357	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO.	REV
FIGURE 4 - 1	0



Legend

- Monitoring Well with Groundwater Elevation in Feet Above Mean Sea Level
- Building
- SWMU Boundary
- Potentiometric Contour
- Inferred Potentiometric Contour
- Flow Direction
- Road
- Fence
- Tree Line
- Stream/River
- Topographic Contours

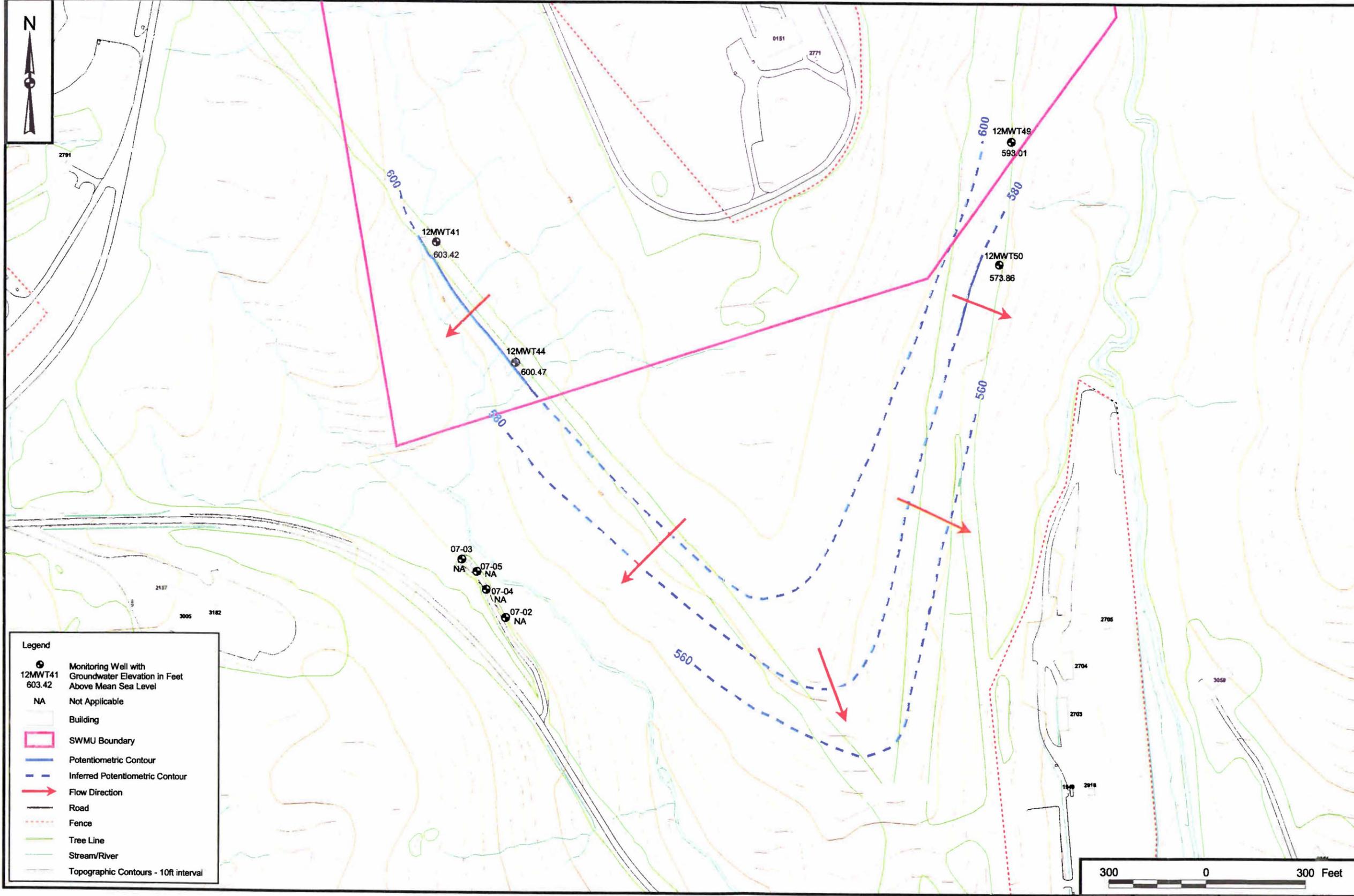
300 0 300 Feet

DRAWN BY	DATE
S. STROZ	5/17/06
CHECKED BY	DATE
J. LUCAS	2/27/07
COST/SCHEDULE-AREA	
SCALE AS NOTED	



POTENTIOMETRIC SURFACE MAP FOR THE MIDDLE PENNSYLVANIAN WATER-BEARING ZONE - MAY 5, 2006
ROUND 6
SWMU 12 MINE FILL A
NSWC CRANE
CRANE, INDIANA

CONTRACT NUMBER	
CTO 0357	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO.	REV
FIGURE 4 - 2	0



Legend	
● 12MWT41 603.42	Monitoring Well with Groundwater Elevation in Feet Above Mean Sea Level
NA	Not Applicable
□	Building
□	SWMU Boundary
—	Potentiometric Contour
- - -	Inferred Potentiometric Contour
→	Flow Direction
—	Road
- · - · -	Fence
—	Tree Line
—	Stream/River
—	Topographic Contours - 10ft interval

DRAWN BY S. STROZ		DATE 05/18/06	SCALE AS NOTED	
CHECKED BY J. LUCAS		DATE 02/27/07	COST/SCHED-AREA	
				
POTENTIOMETRIC SURFACE MAP FOR THE GLEN DEAN LIMESTONE (MISSISSIPPIAN) AQUIFER ON MAY 5, 2006 ROUND 6 SWMU 12 MINE FILL A NSWC CRANE CRANE, INDIANA				
APPROVED BY		DATE	CONTRACT NO. 6878	
APPROVED BY		DATE	DRAWING NO. FIGURE 4 - 3	
			REV 0	