N83447.AR.000335
NAS FORT WORTH
5090.3a

CLOSURE REPORT FOR GROUNDS MAINTENANCE YARD WITH TRANSMITTAL LETTER
NAS FORT WORTH TX
8/20/1997
CARSWELL AIR FORCE BASE

File: 17G
A.F.

NAVAL AIR STATION FORT WORTH JRB CARSWELL FIELD TEXAS

ADMINISTRATIVE RECORD COVER SHEET

AR File Number 396

File: 17 B-20
A.F.

396

Closure Document for Grounds Maintenance Yard (AOC 05) Site ID OT-39 NAS JRB Fort Worth, TX

HQ Air Force Center for Environmental Excellence
Brooks Air Force Base, Texas 78235-3528

Closure Document for Grounds Maintenance Yard (AOC 05) Site ID OT-39 NAS JRB Fort Worth, TX

Table of Contents

1 Draft Letter Report
Results of Confirmatory Sampling at the
Grounds Maintenance Yard
NAS JRB Fort Worth, TX
Jacobs Engineering Group, Inc.

2 Comparison of Results from the Final Site
Investigation/Site Characterization
Technical Report to Background
at Grounds Maintenance Yard
NAS JRB Fort Worth, TX
Jacobs Engineering Group, Inc.

3 Final Report Demolition and Removal of
Structures/Disposal of Transformers With
PCB Oil at Grounds Maintenance Yard
NAS JRB Fort Worth, TX
Unified Services of Texas, Inc.

4 Applicable Portions of the
Draft Basewide Background Study
Vol. 1
Jacobs Engineering Group, Inc.

5 Applicable Portions of the Final Site
Investigation/Site Characterization
Technical Report for
the Ground Maintenance Yard
NAS JRB Fort Worth, TX
Law Environmental, Inc.

6 Tables

7 Figures

8

AVERY READY INDEX INDEXING SYSTEM

TAB

2

DEPARTMENT OF THE AIR FORCE
AIR FORCE BASE CONVERSION AGENCY

20 August 1997

MEMORANDUM FOR TNRCC

Industrial and Hazardous Waste Division
ATTN: Mr. Mark Weegar
Park 35 Circle, Building D, MC 127
12015 N. IH-35
Austin, TX 78753

FROM: AFBCA DC Carswell
6550 White Settlement Road
Fort Worth, TX 76114-3520

Subject: Closure of Grounds Maintenance Yard (AOC 05) Site ID OT-39
Naval Air Station Joint Reserve Base, Ft. Worth (NAS JRB Ft. Worth)

This letter report supports closure of the referenced site under the Texas Natural Resources Conservation Commission (TNRCC) Risk Reduction Standard Number 2 (RRSN 2) as promulgated under Subpart S, Risk Reduction Standards, Sections 335.551 through 335.551 through 335.569 of Title 30, Texas Administrative Codes. This site has been remediated to health-based standards, and all waste, waste residue, leachate, and contaminated media decontaminated or controlled to regulated standards and criteria such that any substantial present or future threat to human health or the environment is eliminated or reduced to the maximum extent practicable.

The RRSN 2 regulations require characterization of the nature and extent of contamination, evaluation of the potential for constituent migration, and calculation of proposed media cleanup levels. The nature, extent, direction of movement, volume, and composition of contamination have been described in previous investigative reports. These reports include: 1) Draft Letter Report Results of Sampling at the Aerospace Museum Site, NAS JRB Fort Worth, TX dated July 1997 by Jacobs Engineering Group, Inc., 2) Comparison of Results from the Final Site Investigation/Site Characterization Technical Report with the Background, 3) Final Report: Demolition and Removal of Structures/Disposal of Transformers with PCB Oil dated June 19, 1997 by Jacobs Engineering Group, Inc., 4) Draft Basewide Background Study Vol. I dated January 1997 by Jacobs Engineering Group, Inc., and 5) Final Site Investigation/Site Characterization Technical Report for the Aerospace Museum Site and Grounds Maintenance Yard at NAS JRB Fort Worth, TX dated July 1996 by Law

Environmental, Inc. Copies or applicable portions of the these reports are provided as attachments to document efforts undertaken by the Air Force to close this site.

Sampling performed by Law Environmental, Inc. in October 1995 indicated that all volatiles and polynuclear aromatic hydrocarbons (PAHs) did not exceed the industrial medium specific concentrations (Ind-MSCs). All phthalates detected were at concentrations less than the MSC except for bis(2-ethylhexyl)phthalate. However, phthalates are common laboratory as well as environmental contaminants. Additionally, the detected exceedance was below the practical quantitation limit (PQL) of the bis(2-ethylhexyl)phthalate. Other detections above the Ind-MSCs include chlorinated pesticides 4,4'-DDT, 4,4"-DDE, and dieldrin and Aroclor 1254, - a polychlorinated biphenyl (PCB), and metals including; antimony, arsenic, barium, beryllium, chromium, lead, and nickel.

Due to the high degree of variability that was observed in the background concentrations for several metals during the October 1995 sampling, a Base-wide background study was conducted by Jacobs, Engineering Group, Inc. in January 1997. Based on this study, an analyte was deemed to require further evaluation if any results exceeded either the background Upper Tolerance Limit ($UTL_{95,95}$ or $UTL_{95,99}$ as applicable), or the Soil/Air and Ingestion Standard for Industrial Use (SAI-Ind) MSC, where established for that analyte. Based on this criteria, four of the 20 metal analytes were evaluated using the following approaches:

- Qualifying the results because the analyte is an essential nutrient and probably does not present a health risk at any concentration.
- Comparing the results to Environmental Protection Agency Risk-Based Concentrations (EPA RBCs).
- Subject the site data to non-parametric tests.

Preliminary application of the first two of these methods eliminated all metal analytes except arsenic at the Grounds Maintenance Yard. The study also recommended further evaluation of Aroclor 1254, and the other chlorinated pesticides 4,4'-DDT, 4,4"-DDE, and dieldrin.

Confirmatory sampling was conducted by Jacobs, Engineering Group, Inc. in May 1997 to confirm analytical results and to further evaluate the pesticides and PCB exceedances during the October 1995 investigation. Arsenic, chromium, and nickel concentrations were all below the RRSN 2 criteria. For antimony the method detection limit (MDL) of 0.02 mg/L is above the MSC of 0.006 mg/L. In this case, the MDL can be used to satisfy the requirements of the RRSN 2 standard because MDL is the lowest achievable in the laboratory as a result of the 10x sample dilution required due to analytical interference with sodium. Lead was detected four times at concentrations ranging from 0.0186 to 0.0719 mg/L. Three of the four detections were between the MDL and the practical quantitation limit (PQL). The MDL of 0.016 mg/L only slightly exceeded the RRSN 2 standard of 0.015 mg/L. The difference, 0.001 mg/L, may very well be within the allowable percent error of the analytical method. Beryllium was detected in every sample at concentrations between the MDL and the PQL. The maximum concentration detected in the soil leachate was 0.0166 mg/L. Beryllium was

also detected in all laboratory blank samples at concentrations ranging from 0.0005 to 0.0162 mg/L. Since all the beryllium detections were less than five times the blank concentrations, the concentrations detected were likely due to laboratory contamination.

Several chlorinated pesticides were also detected in the confirmatory samples. Endrin was detected but at a concentration less than the RRSN 2 criteria. Aldrin and dieldrin were detected using MDLs above the RRSN 2 criteria but these MDLs were the lowest achievable by the laboratory. No RRSN 2 criteria existed for alpha-BHC, beta-BHC, delta-BHC, and endrin aldehyde. No PCBs were detected during this sampling.

In May 1997 Unified Services of Texas, Inc. (UST) demolished one structures and one concrete pad located at the Grounds Maintenance Yard. Demolition activities included removing, transporting, and disposing of the structure and concrete pad. Following the demolition and removal activities, the site was backfilled and compacted to 95%. UST disposed of 23 transformers of varying sizes located on a concrete pad to the northeast of the Grounds Maintenance Yard. The transformers were segregated into two categories based on the PCB concentration of the transformer oils. Each transformer was transported to a TNRCC approved disposal/recycling facility. All generated debris were removed, disposed of, and the site was restored to satisfactory condition.

In order for contaminants to pose a threat to human health or the environment, a pathway must be present for the contaminant to reach the receptor. A pathway is composed of four elements namely: source, transport medium, point of receptor contact, and exposure route. Without all the four elements, pathways are incomplete and should be eliminated for further consideration. The ultimate end use of the site is heavy industrial manufacturing that will continue to restrict access to the site. In the case of surface soil, any chemicals at concentrations above the MSCs are controlled at the site by these restrictions. The sources of the contaminants observed are believed to be the previously observed asphalt, railroad ties, and debris that are no longer present at the site based on the visual site inspection conducted in December 17-18, 1996.

Ground water and subsurface soil have not been identified as media of concern at the site. Ground-water remediation is currently in place down gradient of the AMS to remediate trichloroethene contaminants from Air Force Plant 4 in the ground water at the upper most aquifer.

Considering the above discussion, no further action is recommended for the Aerospace Museum Site (AOC 08). If you have need of further information in this matter, please contact me at (817) 731-8284 or Mr. Charles Rice at (210) 536-6452.

Mr. Olen R. Long, GM-13
Installation Management Officer

ENCLOSURE 1:

STATE OF TEXAS

Tarrant County Industrial Solid Waste
Certification of Remediation

KNOW ALL MEN BY THESE PRESENTS THAT:

Pursuant to the rules of the Texas Natural Resource Conservation Commission pertaining to Industrial Solid Waste Management, this document is hereby filed in the Deed Records of ____Tarrant___ County, Texas in compliance with the recordation requirements of said rules:

I

Naval Air Station Joint Reserve Base, Ft. Worth, (NAS JRB Ft. Worth) formally Carswell Air Force Base has performed a remediation of the land described herein. A copy of the Solid Waste Registration 65004, including a description of the facility, is attached hereto and is made part of this filing. A list of the known waste constituents, including known concentrations (i.e., soil and ground water, if applicable), which have been left in place is attached hereto and is made part of this filing. Further information concerning this matter may be found by an examination of Air Force records or in the Solid Waste Registration 65004 files, which are available for inspection upon request at the central office of the Texas Natural Resource Conservation Commission in Austin, Texas.

The Texas Natural Resource Conservation Commission derives its authority to review the remediation of this tract of land from the Texas Solid Waste Disposal Act §361.002, Texas Health and Safety Code, Chapter 361, which enables the Texas Natural Resource Conservation Commission to promulgate closure and remediation standards to safeguard the heath, welfare and physical property of the people of the State and to protect the environment by controlling the management of solid waste. In addition pursuant to the Texas Water Code §5.012 and §5.013, Texas Water Code, Annotated, Chapter 5, the Texas Natural Resource Conservation Commission is given primary responsibility for implementing the laws of the State of Texas relating to water and shall adopt any rules necessary to carry out its powers and duties under the Texas Water Code. In accordance with this authority, the Texas Natural Resource Conservation Commission requires certain persons to provide certification and/or recordation in the real property records to notify the public of the conditions of the land and/or the occurrence of remediation. This deed certification is not a representation or warranty by the Texas Natural Resource Conservation Commission of the suitability of this land for any purpose, nor does it constitute any guarantee by the Texas Natural Resource Conservation Commission that the remediation standards specified in this certification have been met by NAS JRB Ft. Worth.

II

Being a 2.27 acres tract, more or less, out of the J. FARMER SURVEY A-514 TARRANT COUNTY TEXAS:

COMMENCING AT THE SOUTH WEST CORNER OF THE JOINT RESERVE BASE CARSWELL FIELD.
SAID COMMENCING POINT BEING A CORPS OF ENGINEER'S
MONUMENT BRASS DISK IN CONCRETE AND MARKED 106.
THENCE NORTH 7213.55'
THENCE EAST 7663.10' TO THE POINT OF BEGINNING.
BEGINNING AT THE SOUTH WEST CORNER OF THE GROUND MAINTENANCE YARD AT
THE JOINT RESERVE BASE AT CARSWELL FIELD.
THENCE: N01°26'33"W A DISTANCE OF 85.00' TO A POINT.
THENCE: N87°37'14"E A DISTANCE OF 109.00' TO A POINT.
THENCE: N02°49'45"E A DISTANCE OF 301.40' TO A POINT.
THENCE: S89°28'08"E A DISTANCE OF 224.97' TO A POINT.
THENCE: S00°12'18"E A DISTANCE OF 377.94' TO A POINT.
THENCE: S88°16'12"W A DISTANCE OF 348.11' THE POINT OF BEGINNING
AND CONTAINING 2.27 ACRES OR 99,039 SQ. FEET MORE OR LESS

For Standard 2 cleanups: Contaminants deposited hereon have been remediated to meet non-residential (i.e., industrial) soil criteria, in accordance with a plan designed to meet the Texas Natural Resource Conservation Commission's requirements in 30 Texas Administrative Code §335.555), which mandates that the remedy be designed to eliminate substantial present and future risk such that no post-closure care or engineering or institutional control measures are required to protect human health and the environment. Future land use is considered suitable for (non-residential (i.e., industrial)) purposes in accordance with risk reduction standards applicable at the time of this filing. Future land use is intended to be non-residential.

For both Standard 2 cleanups where the remedy is based upon non-residential soil criteria: The current or future owner must undertake actions as necessary to protect human health or the environment in accordance with the rules of the Texas Natural Resource Conservation Commission.

III

The owner of the site is **NAS JRB Ft. Worth**, and its address is **301st Fighter Wing, 1654 Lyons drive Fort Worth, Texas 76127-6200**, where more specific information may be obtained from the **Installation Management Officer**.

EXECUTED this the 30 day of Sept, 19 97

NAS JRB Ft. Worth

Mr. Olen R. Long
Installation Management Officer

STATE OF TEXAS

TARRANT COUNTY

BEFORE ME, on this the 30th of the September, 19 97, personally appeared Mr. Olen R. Long, Installation Management Officer of **NAS JRB Ft. Worth**, known to me to be the person and agent of said facility whose name is subscribed to the foregoing instrument, and he acknowledged to me that he executed the same for the purposes and in the capacity therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the 30th of the September, 19 97

Ronald J. Surprenant
Notary Public in and for the State of Texas, County of

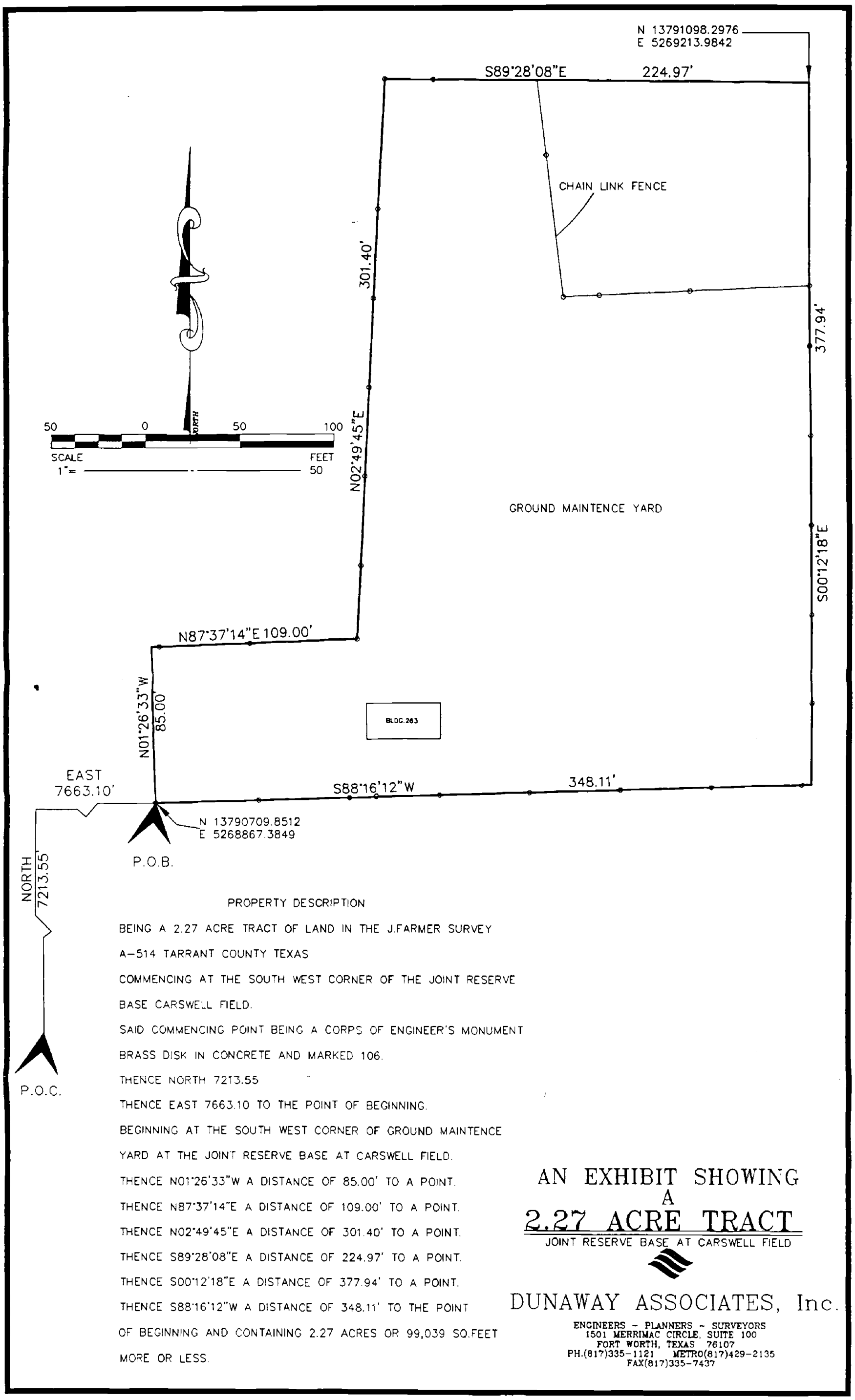
10-28-98
My Commission Expires

GROUND YARD DESCRIPTION

PROPERTY DESCRIPTION

BEING A 2.27 ACRE TRACT OF LAND IN THE J.FARMER SURVEY
A-514 TARRANT COUNTY TEXAS
COMMENCING AT THE SOUTH WEST CORNER OF THE JOINT RESERVE
BASE CARSWELL FIELD.
SAID COMMENCING POINT BEING A CORPS OF ENGINEER'S MONUMENT
BRASS DISK IN CONCRETE AND MARKED 106.
THENCE NORTH 7213.55
THENCE EAST 7663.10 TO THE POINT OF BEGINNING.
BEGINNING AT THE SOUTH WEST CORNER OF GROUND MAINTENCE
YARD AT THE JOINT RESERVE BASE AT CARSWELL FIELD.
THENCE N01°26'33"W A DISTANCE OF 85.00' TO A POINT.
THENCE N87°37'14"E A DISTANCE OF 109.00' TO A POINT.
THENCE N02°49'45"E A DISTANCE OF 301.40' TO A POINT.
THENCE S89°28'08"E A DISTANCE OF 224.97' TO A POINT.
THENCE S00°12'18"E A DISTANCE OF 377.94' TO A POINT.
THENCE S88°16'12"W A DISTANCE OF 348.11' TO THE POINT
OF BEGINNING AND CONTAINING 2.27 ACRES OR 99,039 SQ.FEET
MORE OR LESS.

DUNAWAY ASSOCIATES, Inc.
ENGINEERS - PLANNERS - SURVEYORS
1501 MERRIMAC CIRCLE, SUITE 100
FORT WORTH, TEXAS 76107
PH.(817)335-1121 METRO(817)429-2135
FAX(817)335-7437



PROPERTY DESCRIPTION

BEING A 2.27 ACRE TRACT OF LAND IN THE J.FARMER SURVEY A-514 TARRANT COUNTY TEXAS

COMMENCING AT THE SOUTH WEST CORNER OF THE JOINT RESERVE BASE CARSWELL FIELD.

SAID COMMENCING POINT BEING A CORPS OF ENGINEER'S MONUMENT BRASS DISK IN CONCRETE AND MARKED 106.

THENCE NORTH 7213.55

THENCE EAST 7663.10 TO THE POINT OF BEGINNING.

BEGINNING AT THE SOUTH WEST CORNER OF GROUND MAINTENCE YARD AT THE JOINT RESERVE BASE AT CARSWELL FIELD.

THENCE N01°26'33"W A DISTANCE OF 85.00' TO A POINT.

THENCE N87°37'14"E A DISTANCE OF 109.00' TO A POINT.

THENCE N02°49'45"E A DISTANCE OF 301.40' TO A POINT.

THENCE S89°28'08"E A DISTANCE OF 224.97' TO A POINT.

THENCE S00°12'18"E A DISTANCE OF 377.94' TO A POINT.

THENCE S88°16'12"W A DISTANCE OF 348.11' TO THE POINT OF BEGINNING AND CONTAINING 2.27 ACRES OR 99,039 SQ.FEET MORE OR LESS.

AN EXHIBIT SHOWING A 2.27 ACRE TRACT

JOINT RESERVE BASE AT CARSWELL FIELD

DUNAWAY ASSOCIATES, Inc.

ENGINEERS - PLANNERS - SURVEYORS
1501 MERRIMAC CIRCLE, SUITE 100
FORT WORTH, TEXAS 76107
PH.(817)335-1121 METRO(817)429-2135
FAX(817)335-7437

DRAFT LETTER REPORT

RESULTS OF SAMPLING AT THE GROUNDS MAINTENANCE YARD NAVAL AIR STATION, FORT WORTH JRB FORT WORTH, TEXAS

July 1997

Jacobs Engineering Group, Inc.
600 Seventeenth Street, Suite 1100N
Denver, Colorado 80202

GROUNDS MAINTENANCE YARD

Soil and Sediment Sampling

Thirty-two soil and sediment samples were collected at the Grounds Maintenance Yard from May 18 to May 20, 1997, in order to confirm the analytical results from soil samples collected in October of 1995 (Figure 1). Additionally, six field duplicate and three equipment blank samples were collected. Samples were analyzed by EMAX Laboratories, Inc. for arsenic, beryllium, chromium, and lead by method SW6010A; antimony by method SW7041; nickel by method SW7520; and pesticides and PCBs by method SW8081. All samples were first prepared using the synthetic precipitate leaching procedure (SPLP) method SW1312. The number of samples analyzed for each method is as follows (samples were often analyzed by a combination of methods):

Analyses	Number of Samples
Antimony, arsenic, beryllium, chromium, lead, and nickel	17
PCBs	12
Pesticides	14

The results were compared to either the Medium Specific Risk Reduction Standard Number 2 (RRS2), or the Environmental Protection Agency (EPA) Maximum Contaminant Level (MCL) for each analyte.

Data Evaluation

Arsenic, chromium, nickel, and antimony were not detected in any of the samples (Table 1). The method detection limit (MDL) for arsenic, chromium, and nickel were all below the applicable RRS2 standard. For antimony, the MDL of 0.02 mg/L is above the RRS2 concentration of 0.006 mg/L. The MDL was the lowest achievable by the laboratory. Because of interference problems with sodium, the leachate was diluted 10 to 1 raising the MDL from 0.002 to 0.02 mg/L.

Beryllium was detected in every sample at concentrations between the MDL and the practical quantitation limit (PQL). All of the beryllium results received a "B" qualifier, indicating the detected concentrations were less than 5 times the lab blank concentrations. This qualifier indicates that the beryllium is likely due to laboratory contamination and is not present in soil or sediment at these concentrations. Beryllium was detected in all seven lab blank samples at concentrations ranging from 0.0005 to 0.0162 mg/L, while the highest concentration in a soil sample was 0.0166 mg/L.

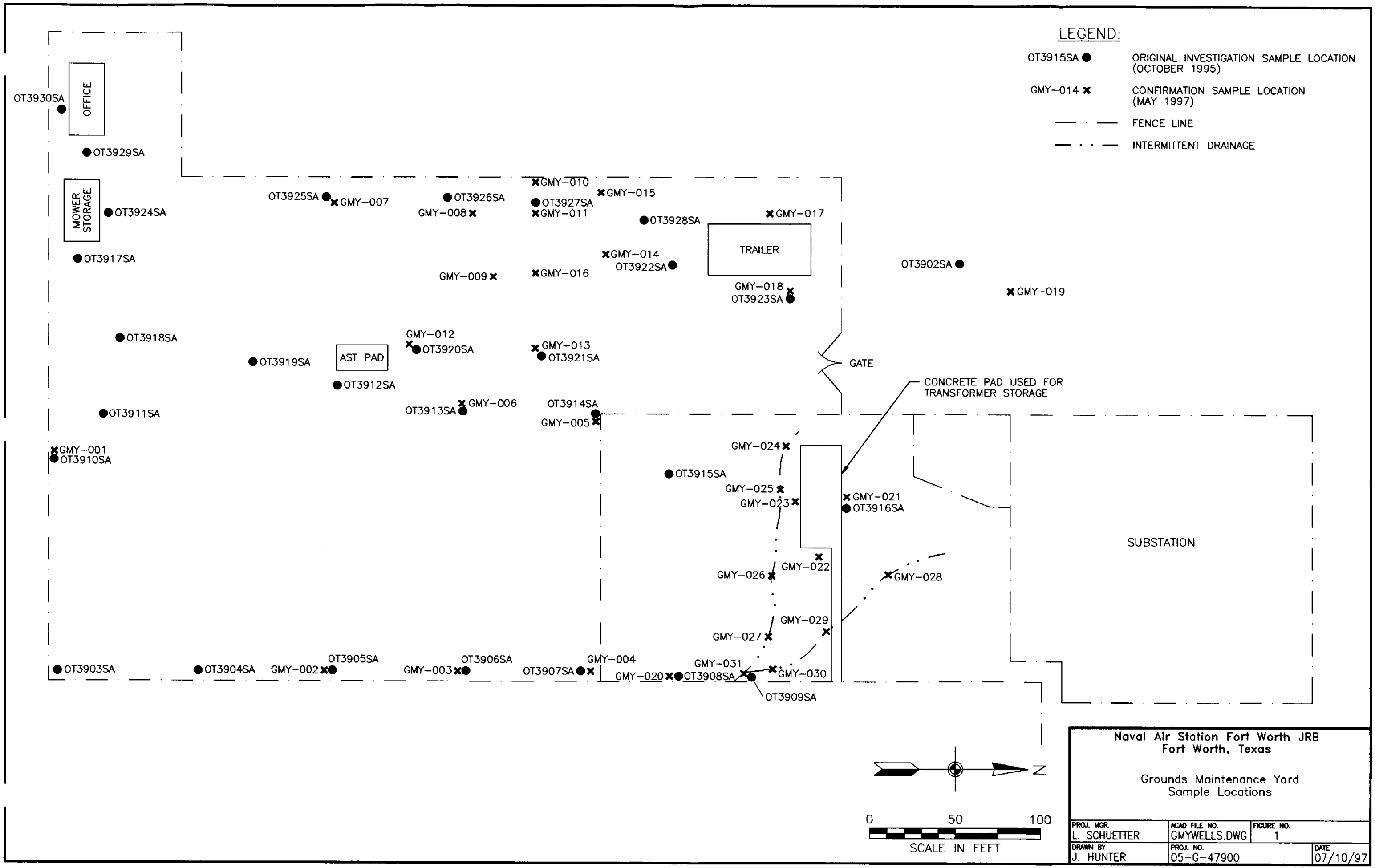
Lead was detected four times at concentrations ranging from 0.0186 to 0.0719 mg/L. Three of the four detections were between the MDL and the PQL. The MDL of 0.016 mg/L only slightly exceeded the RRS2 standard of 0.015 mg/L

Endrin (0.0714 μg/L) was detected at a concentration between the MDL and the PQL. The detected concentration is below the RRS2 concentration. No other pesticides or PCBs were detected.

For Aldrin and Dieldrin, the MDL was above the RRS2 concentration, however this MDL was the lowest achievable by the laboratory. No RRS2 or EPA MCL concentration existed for alpha-BHC, beta-BHC, delta-BHC, and endrin aldehyde.

TABLE 1
Summary of Results from Soil Sampling at the Grounds Maintenance Yard

SAMPLE ID	SAMPLE INTERVAL	UNITS	ANALYTE	VALUE	PARVQ	MDL	PQL	LABQ	JEGQ	RRS2 or MCL Standard	Result Exceeds Standard?	MDL Exceeds Standard?
GMY-001	0 - 0.75	MG/L	Arsenic	0.0000	ND	0.0490	0.1000	U		0.05	No	No
GMY-001B	0.75 - 1.5	MG/L	Arsenic	0.0000	ND	0.0490	0.1000	U		0.05	No	No
GMY-002	0 - 2	MG/L	Arsenic	0.0000	ND	0.0490	0.1000	U		0.05	No	No
GMY-003	0 - 0	MG/L	Arsenic	0.0000	ND	0.0490	0.1000	U		0.05	No	No
GMY-004	0 - 2	MG/L	Arsenic	0.0000	ND	0.0490	0.1000	U		0.05	No	No
GMY-005	0 - 2	MG/L	Arsenic	0.0000	ND	0.0490	0.1000	U		0.05	No	No
GMY-006	0 - 2	MG/L	Arsenic	0.0000	ND	0.0490	0.1000	U		0.05	No	No
GMY-012	0 - 2	MG/L	Arsenic	0.0000	ND	0.0490	0.1000	U		0.05	No	No
GMY-012FD	0 - 2	MG/L	Arsenic	0.0000	ND	0.0490	0.1000	U		0.05	No	No
GMY-013	0 - 2	MG/L	Arsenic	0.0000	ND	0.0490	0.1000	U		0.05	No	No
GMY-017	0 - 2	MG/L	Arsenic	0.0000	ND	0.0490	0.1000	U		0.05	No	No
GMY-018	0.5 - 2	MG/L	Arsenic	0.0000	ND	0.0490	0.1000	U		0.05	No	No
GMY-018FD	0 - 2	MG/L	Arsenic	0.0000	ND	0.0490	0.1000	U		0.05	No	No
GMY-019	0 - 2	MG/L	Arsenic	0.0000	ND	0.0490	0.1000	U		0.05	No	No
GMY-020	0 - 2	MG/L	Arsenic	0.0000	ND	0.0490	0.1000	U		0.05	No	No
GMY-031	0 - 0.2	MG/L	Arsenic	0.0000	ND	0.0490	0.1000	U		0.05	No	No
GMY-031FD	0 - 0.2	MG/L	Arsenic	0.0000	ND	0.0490	0.1000	U		0.05	No	No
	-											
GMY-001B	0.75 - 1.5	MG/L	Beryllium	0.0108	TR	0.0030	0.0300	F	B	0.004	Yes	No
GMY-001	0 - 0.75	MG/L	Beryllium	0.0107	TR	0.0030	0.0300	F	B	0.004	Yes	No
GMY-002	0 - 2	MG/L	Beryllium	0.0113	TR	0.0030	0.0300	F	B	0.004	Yes	No
GMY-003	0 - 0	MG/L	Beryllium	0.0113	TR	0.0030	0.0300	F	B	0.004	Yes	No
GMY-004	0 - 2	MG/L	Beryllium	0.0115	TR	0.0030	0.0300	F	B	0.004	Yes	No
GMY-005	0 - 2	MG/L	Beryllium	0.0139	TR	0.0030	0.0300	F	B	0.004	Yes	No
GMY-006	0 - 2	MG/L	Beryllium	0.0108	TR	0.0030	0.0300	F	B	0.004	Yes	No
GMY-012	0 - 2	MG/L	Beryllium	0.0149	TR	0.0030	0.0300	F	B	0.004	Yes	No
GMY-012FD	0 - 2	MG/L	Beryllium	0.0090	TR	0.0030	0.0300	F	B	0.004	Yes	No
GMY-013	0 - 2	MG/L	Beryllium	0.0158	TR	0.0030	0.0300	F	B	0.004	Yes	No
GMY-017	0 - 2	MG/L	Beryllium	0.0166	TR	0.0030	0.0300	F	B	0.004	Yes	No
GMY-018	0.5 - 2	MG/L	Beryllium	0.0126	TR	0.0030	0.0300	F	B	0.004	Yes	No
GMY-018FD	0 - 2	MG/L	Beryllium	0.0106	TR	0.0030	0.0300	F	B	0.004	Yes	No
GMY-019	0 - 2	MG/L	Beryllium	0.0053	TR	0.0030	0.0300	F	B	0.004	Yes	No
GMY-020	0 - 2	MG/L	Beryllium	0.0068	TR	0.0030	0.0300	F	B	0.004	Yes	No
GMY-031	0 - 0.2	MG/L	Beryllium	0.0055	TR	0.0030	0.0300	F	B	0.004	Yes	No
GMY-031FD	0 - 0.2	MG/L	Beryllium	0.0049	TR	0.0030	0.0300	F	B	0.004	Yes	No
	-											
GMY-001	0 - 0.75	MG/L	Chromium	0.0000	ND	0.0890	0.2000	U		0.1	No	No
GMY-001B	0.75 - 1.5	MG/L	Chromium	0.0000	ND	0.0890	0.2000	U		0.1	No	No
GMY-002	0 - 2	MG/L	Chromium	0.0000	ND	0.0890	0.2000	U		0.1	No	No
GMY-003	0 - 0	MG/L	Chromium	0.0000	ND	0.0890	0.2000	U		0.1	No	No
GMY-004	0 - 2	MG/L	Chromium	0.0000	ND	0.0890	0.2000	U		0.1	No	No
GMY-005	0 - 2	MG/L	Chromium	0.0000	ND	0.0890	0.2000	U		0.1	No	No
GMY-006	0 - 2	MG/L	Chromium	0.0000	ND	0.0890	0.2000	U		0.1	No	No
GMY-012	0 - 2	MG/L	Chromium	0.0000	ND	0.0890	0.2000	U		0.1	No	No
GMY-012FD	0 - 2	MG/L	Chromium	0.0000	ND	0.0890	0.2000	U		0.1	No	No
GMY-013	0 - 2	MG/L	Chromium	0.0000	ND	0.0890	0.2000	U		0.1	No	No
GMY-017	0 - 2	MG/L	Chromium	0.0000	ND	0.0890	0.2000	U		0.1	No	No
GMY-018	0.5 - 2	MG/L	Chromium	0.0000	ND	0.0890	0.2000	U		0.1	No	No
GMY-018FD	0 - 2	MG/L	Chromium	0.0000	ND	0.0890	0.2000	U		0.1	No	No
GMY-019	0 - 2	MG/L	Chromium	0.0000	ND	0.0890	0.2000	U		0.1	No	No
GMY-020	0 - 2	MG/L	Chromium	0.0000	ND	0.0890	0.2000	U		0.1	No	No
GMY-031	0 - 0.2	MG/L	Chromium	0.0000	ND	0.0890	0.2000	U		0.1	No	No
GMY-031FD	0 - 0.2	MG/L	Chromium	0.0000	ND	0.0890	0.2000	U		0.1	No	No
	-											
GMY-001B	0.75 - 1.5	MG/L	Lead	0.0719	=	0.0160	0.0500			0.015	Yes	Yes
GMY-001	0 - 0.75	MG/L	Lead	0.0000	ND	0.0160	0.0500	U		0.015	No	Yes
GMY-002	0 - 2	MG/L	Lead	0.0238	TR	0.0160	0.0500	F		0.015	Yes	Yes
GMY-003	0 - 0	MG/L	Lead	0.0186	TR	0.0160	0.0500	F		0.015	Yes	Yes
GMY-004	0 - 2	MG/L	Lead	0.0000	ND	0.0160	0.0500	U		0.015	No	Yes
GMY-005	0 - 2	MG/L	Lead	0.0000	ND	0.0160	0.0500	U		0.015	No	Yes
GMY-006	0 - 2	MG/L	Lead	0.0000	ND	0.0160	0.0500	U		0.015	No	Yes
GMY-012	0 - 2	MG/L	Lead	0.0230	TR	0.0160	0.0500	F		0.015	Yes	Yes
GMY-012FD	0 - 2	MG/L	Lead	0.0000	ND	0.0160	0.0500	U		0.015	No	Yes
GMY-013	0 - 2	MG/L	Lead	0.0000	ND	0.0160	0.0500	U		0.015	No	Yes



Naval Air Station Fort Worth JRB
Fort Worth, Texas

Grounds Maintenance Yard
Sample Locations

PROJ. MGR.	ACAD FILE NO.	FIGURE NO.
L. SCHUETTER	GMYWELLS.DWG	1
DRAWN BY	PROJ. NO.	DATE
J. HUNTER	05-G-47900	07/10/97

TABLE 1
Summary of Results from Soil Sampling at the Grounds Maintenance Yard

SAMPLE ID	SAMPLE INTERVAL	UNITS	ANALYTE	VALUE	PARVQ	MDL	PQL	LABQ	JEGQ	RRS2 or MCL Standard	Result Exceeds Standard?	MDL Exceeds Standard?
GMY-017	0 - 2	MG/L	Lead	0.0000	ND	0.0160	0.0500	U		0.015	No	Yes
GMY-018	0.5 - 2	MG/L	Lead	0.0000	ND	0.0160	0.0500	U		0.015	No	Yes
GMY-018FD	0 - 2	MG/L	Lead	0.0000	ND	0.0160	0.0500	U		0.015	No	Yes
GMY-019	0 - 2	MG/L	Lead	0.0000	ND	0.0160	0.0500	U		0.015	No	Yes
GMY-020	0 - 2	MG/L	Lead	0.0000	ND	0.0160	0.0500	U		0.015	No	Yes
GMY-031	0 - 0.2	MG/L	Lead	0.0000	ND	0.0160	0.0500	U		0.015	No	Yes
GMY-031FD	0 - 0.2	MG/L	Lead	0.0000	ND	0.0160	0.0500	U		0.015	No	Yes
	-											
GMY-001	0 - 0.75	MG/L	Antimony	0.0000	ND	0.0200	0.0500	U		0.006	No	Yes
GMY-001B	0.75 - 1.5	MG/L	Antimony	0.0000	ND	0.0200	0.0500	U		0.006	No	Yes
GMY-002	0 - 2	MG/L	Antimony	0.0000	ND	0.0200	0.0500	U		0.006	No	Yes
GMY-003	0 - 0	MG/L	Antimony	0.0000	ND	0.0200	0.0500	U		0.006	No	Yes
GMY-004	0 - 2	MG/L	Antimony	0.0000	ND	0.0200	0.0500	U		0.006	No	Yes
GMY-005	0 - 2	MG/L	Antimony	0.0000	ND	0.0200	0.0500	U		0.006	No	Yes
GMY-006	0 - 2	MG/L	Antimony	0.0000	ND	0.0200	0.0500	U		0.006	No	Yes
GMY-012	0 - 2	MG/L	Antimony	0.0000	ND	0.0200	0.0500	U		0.006	No	Yes
GMY-012FD	0 - 2	MG/L	Antimony	0.0000	ND	0.0200	0.0500	U		0.006	No	Yes
GMY-013	0 - 2	MG/L	Antimony	0.0000	ND	0.0200	0.0500	U		0.006	No	Yes
GMY-017	0 - 2	MG/L	Antimony	0.0000	ND	0.0200	0.0500	U		0.006	No	Yes
GMY-018	0.5 - 2	MG/L	Antimony	0.0000	ND	0.0200	0.0500	U		0.006	No	Yes
GMY-018FD	0 - 2	MG/L	Antimony	0.0000	ND	0.0200	0.0500	U		0.006	No	Yes
GMY-019	0 - 2	MG/L	Antimony	0.0000	ND	0.0200	0.0500	U		0.006	No	Yes
GMY-020	0 - 2	MG/L	Antimony	0.0000	ND	0.0200	0.0500	U		0.006	No	Yes
GMY-031	0 - 0.2	MG/L	Antimony	0.0000	ND	0.0200	0.0500	U		0.006	No	Yes
GMY-031FD	0 - 0.2	MG/L	Antimony	0.0000	ND	0.0200	0.0500	U		0.006	No	Yes
	-											
GMY-001	0 - 0.75	MG/L	Nickel	0.0000	ND	0.0200	0.1000	U		0.1	No	No
GMY-001B	0.75 - 1.5	MG/L	Nickel	0.0000	ND	0.0200	0.1000	U		0.1	No	No
GMY-002	0 - 2	MG/L	Nickel	0.0000	ND	0.0200	0.1000	U		0.1	No	No
GMY-003	0 - 0	MG/L	Nickel	0.0000	ND	0.0200	0.1000	U		0.1	No	No
GMY-004	0 - 2	MG/L	Nickel	0.0000	ND	0.0200	0.1000	U		0.1	No	No
GMY-005	0 - 2	MG/L	Nickel	0.0000	ND	0.0200	0.1000	U		0.1	No	No
GMY-006	0 - 2	MG/L	Nickel	0.0000	ND	0.0200	0.1000	U		0.1	No	No
GMY-012	0 - 2	MG/L	Nickel	0.0000	ND	0.0200	0.1000	U		0.1	No	No
GMY-012FD	0 - 2	MG/L	Nickel	0.0000	ND	0.0200	0.1000	U		0.1	No	No
GMY-013	0 - 2	MG/L	Nickel	0.0000	ND	0.0200	0.1000	U		0.1	No	No
GMY-017	0 - 2	MG/L	Nickel	0.0000	ND	0.0200	0.1000	U		0.1	No	No
GMY-018	0.5 - 2	MG/L	Nickel	0.0000	ND	0.0200	0.1000	U		0.1	No	No
GMY-018FD	0 - 2	MG/L	Nickel	0.0000	ND	0.0200	0.1000	U		0.1	No	No
GMY-019	0 - 2	MG/L	Nickel	0.0000	ND	0.0200	0.1000	U		0.1	No	No
GMY-020	0 - 2	MG/L	Nickel	0.0000	ND	0.0200	0.1000	U		0.1	No	No
GMY-031	0 - 0.2	MG/L	Nickel	0.0000	ND	0.0200	0.1000	U		0.1	No	No
GMY-031FD	0 - 0.2	MG/L	Nickel	0.0000	ND	0.0200	0.1000	U		0.1	No	No
	-											
GMY-007	0 - 2	UG/L	Aldrin	0.0000	ND	0.0160	0.2000	U		0.00501	No	Yes
GMY-008	0 - 2	UG/L	Aldrin	0.0000	ND	0.0160	0.2000	U		0.00501	No	Yes
GMY-009	0 - 2	UG/L	Aldrin	0.0000	ND	0.0160	0.2000	U		0.00501	No	Yes
GMY-010	0 - 2	UG/L	Aldrin	0.0000	ND	0.0160	0.2000	U		0.00501	No	Yes
GMY-011	0.33 - 2	UG/L	Aldrin	0.0000	ND	0.0160	0.2000	U		0.00501	No	Yes
GMY-012	0 - 2	UG/L	Aldrin	0.0000	ND	0.0160	0.2000	U		0.00501	No	Yes
GMY-012FD	0 - 2	UG/L	Aldrin	0.0000	ND	0.0160	0.2000	U		0.00501	No	Yes
GMY-013	0 - 2	UG/L	Aldrin	0.0000	ND	0.0160	0.2000	U		0.00501	No	Yes
GMY-014	0 - 2	UG/L	Aldrin	0.0000	ND	0.0160	0.2000	U		0.00501	No	Yes
GMY-014FD	0 - 2	UG/L	Aldrin	0.0000	ND	0.0160	0.2000	U		0.00501	No	Yes
GMY-015	0 - 2	UG/L	Aldrin	0.0000	ND	0.0160	0.2000	U		0.00501	No	Yes
GMY-015FD	0 - 2	UG/L	Aldrin	0.0000	ND	0.0130	0.2000	U		0.00501	No	Yes
GMY-016	0 - 2	UG/L	Aldrin	0.0000	ND	0.0160	0.2000	U		0.00501	No	Yes
GMY-017	0 - 2	UG/L	Aldrin	0.0000	ND	0.0160	0.2000	U		0.00501	No	Yes
	-											
GMY-007	0 - 2	UG/L	alpha-BHC	0.0000	ND	0.0380	0.1000	U		NS	No	No
GMY-008	0 - 2	UG/L	alpha-BHC	0.0000	ND	0.0380	0.1000	U		NS	No	No
GMY-009	0 - 2	UG/L	alpha-BHC	0.0000	ND	0.0380	0.1000	U		NS	No	No
GMY-010	0 - 2	UG/L	alpha-BHC	0.0000	ND	0.0380	0.1000	U		NS	No	No
GMY-011	0.33 - 2	UG/L	alpha-BHC	0.0000	ND	0.0380	0.1000	U		NS	No	No

TABLE 1
Summary of Results from Soil Sampling at the Grounds Maintenance Yard

SAMPLE ID	SAMPLE INTERVAL	UNITS	ANALYTE	VALUE	PARVQ	MDL	PQL	LABQ	JEGQ	RRS2 or MCL Standard	Result Exceeds Standard?	MDL Exceeds Standard?
GMY-012	0 - 2	UG/L	alpha-BHC	0.0000	ND	0.0380	0.1000	U		NS	No	No
GMY-012FD	0 - 2	UG/L	alpha-BHC	0.0000	ND	0.0380	0.1000	U		NS	No	No
GMY-013	0 - 2	UG/L	alpha-BHC	0.0000	ND	0.0380	0.1000	U		NS	No	No
GMY-014	0 - 2	UG/L	alpha-BHC	0.0000	ND	0.0380	0.1000	U		NS	No	No
GMY-014FD	0 - 2	UG/L	alpha-BHC	0.0000	ND	0.0380	0.1000	U		NS	No	No
GMY-015	0 - 2	UG/L	alpha-BHC	0.0000	ND	0.0380	0.1000	U		NS	No	No
GMY-015FD	0 - 2	UG/L	alpha-BHC	0.0000	ND	0.0380	0.1000	U		NS	No	No
GMY-016	0 - 2	UG/L	alpha-BHC	0.0000	ND	0.0380	0.1000	U		NS	No	No
GMY-017	0 - 2	UG/L	alpha-BHC	0.0000	ND	0.0380	0.1000	U		NS	No	No
	-											
GMY-007	0 - 2	UG/L	beta-BHC	0.0000	ND	0.0210	0.1000	U		NS	No	No
GMY-008	0 - 2	UG/L	beta-BHC	0.0000	ND	0.0210	0.1000	U		NS	No	No
GMY-009	0 - 2	UG/L	beta-BHC	0.0000	ND	0.0210	0.1000	U		NS	No	No
GMY-010	0 - 2	UG/L	beta-BHC	0.0000	ND	0.0210	0.1000	U		NS	No	No
GMY-011	0.33 - 2	UG/L	beta-BHC	0.0000	ND	0.0210	0.1000	U		NS	No	No
GMY-012	0 - 2	UG/L	beta-BHC	0.0000	ND	0.0210	0.1000	U		NS	No	No
GMY-012FD	0 - 2	UG/L	beta-BHC	0.0000	ND	0.0210	0.1000	U		NS	No	No
GMY-013	0 - 2	UG/L	beta-BHC	0.0000	ND	0.0210	0.1000	U		NS	No	No
GMY-014	0 - 2	UG/L	beta-BHC	0.0000	ND	0.0210	0.1000	U		NS	No	No
GMY-014FD	0 - 2	UG/L	beta-BHC	0.0000	ND	0.0210	0.1000	U		NS	No	No
GMY-015	0 - 2	UG/L	beta-BHC	0.0000	ND	0.0210	0.1000	U		NS	No	No
GMY-015FD	0 - 2	UG/L	beta-BHC	0.0000	ND	0.0210	0.1000	U		NS	No	No
GMY-016	0 - 2	UG/L	beta-BHC	0.0000	ND	0.0210	0.1000	U		NS	No	No
GMY-017	0 - 2	UG/L	beta-BHC	0.0000	ND	0.0210	0.1000	U		NS	No	No
	-											
GMY-007	0 - 2	UG/L	delta-BHC	0.0000	ND	0.0070	0.1000	U		NS	No	No
GMY-008	0 - 2	UG/L	delta-BHC	0.0000	ND	0.0070	0.1000	U		NS	No	No
GMY-009	0 - 2	UG/L	delta-BHC	0.0000	ND	0.0070	0.1000	U		NS	No	No
GMY-010	0 - 2	UG/L	delta-BHC	0.0000	ND	0.0070	0.1000	U		NS	No	No
GMY-011	0.33 - 2	UG/L	delta-BHC	0.0000	ND	0.0070	0.1000	U		NS	No	No
GMY-012	0 - 2	UG/L	delta-BHC	0.0000	ND	0.0070	0.1000	U		NS	No	No
GMY-012FD	0 - 2	UG/L	delta-BHC	0.0000	ND	0.0070	0.1000	U		NS	No	No
GMY-013	0 - 2	UG/L	delta-BHC	0.0000	ND	0.0070	0.1000	U		NS	No	No
GMY-014	0 - 2	UG/L	delta-BHC	0.0000	ND	0.0070	0.1000	U		NS	No	No
GMY-014FD	0 - 2	UG/L	delta-BHC	0.0000	ND	0.0070	0.1000	U		NS	No	No
GMY-015	0 - 2	UG/L	delta-BHC	0.0000	ND	0.0070	0.1000	U		NS	No	No
GMY-015FD	0 - 2	UG/L	delta-BHC	0.0000	ND	0.0070	0.1000	U		NS	No	No
GMY-016	0 - 2	UG/L	delta-BHC	0.0000	ND	0.0070	0.1000	U		NS	No	No
GMY-017	0 - 2	UG/L	delta-BHC	0.0000	ND	0.0070	0.1000	U		NS	No	No
	-											
GMY-007	0 - 2	UG/L	gamma-BHC (Lindane)	0.0000	ND	0.0330	0.1000	U		2	No	No
GMY-008	0 - 2	UG/L	gamma-BHC (Lindane)	0.0000	ND	0.0330	0.1000	U		2	No	No
GMY-009	0 - 2	UG/L	gamma-BHC (Lindane)	0.0000	ND	0.0330	0.1000	U		2	No	No
GMY-010	0 - 2	UG/L	gamma-BHC (Lindane)	0.0000	ND	0.0330	0.1000	U		2	No	No
GMY-011	0.33 - 2	UG/L	gamma-BHC (Lindane)	0.0000	ND	0.0330	0.1000	U		2	No	No
GMY-012	0 - 2	UG/L	gamma-BHC (Lindane)	0.0000	ND	0.0330	0.1000	U		2	No	No
GMY-012FD	0 - 2	UG/L	gamma-BHC (Lindane)	0.0000	ND	0.0330	0.1000	U		2	No	No
GMY-013	0 - 2	UG/L	gamma-BHC (Lindane)	0.0000	ND	0.0330	0.1000	U		2	No	No
GMY-014	0 - 2	UG/L	gamma-BHC (Lindane)	0.0000	ND	0.0330	0.1000	U		2	No	No
GMY-014FD	0 - 2	UG/L	gamma-BHC (Lindane)	0.0000	ND	0.0330	0.1000	U		2	No	No
GMY-015	0 - 2	UG/L	gamma-BHC (Lindane)	0.0000	ND	0.0330	0.1000	U		2	No	No
GMY-015FD	0 - 2	UG/L	gamma-BHC (Lindane)	0.0000	ND	0.0330	0.1000	U		2	No	No
GMY-016	0 - 2	UG/L	gamma-BHC (Lindane)	0.0000	ND	0.0330	0.1000	U		2	No	No
GMY-017	0 - 2	UG/L	gamma-BHC (Lindane)	0.0000	ND	0.0330	0.1000	U		2	No	No
	-											
GMY-007	0 - 2	UG/L	alpha-Chlordane	0.0000	ND	0.0080	0.1000	U		2	No	No
GMY-008	0 - 2	UG/L	alpha-Chlordane	0.0000	ND	0.0080	0.1000	U		2	No	No
GMY-009	0 - 2	UG/L	alpha-Chlordane	0.0000	ND	0.0080	0.1000	U		2	No	No
GMY-010	0 - 2	UG/L	alpha-Chlordane	0.0000	ND	0.0080	0.1000	U		2	No	No
GMY-011	0.33 - 2	UG/L	alpha-Chlordane	0.0000	ND	0.0080	0.1000	U		2	No	No
GMY-012	0 - 2	UG/L	alpha-Chlordane	0.0000	ND	0.0080	0.1000	U		2	No	No
GMY-012FD	0 - 2	UG/L	alpha-Chlordane	0.0000	ND	0.0080	0.1000	U		2	No	No
GMY-013	0 - 2	UG/L	alpha-Chlordane	0.0000	ND	0.0080	0.1000	U		2	No	No
GMY-014	0 - 2	UG/L	alpha-Chlordane	0.0000	ND	0.0080	0.1000	U		2	No	No

TABLE 1
Summary of Results from Soil Sampling at the Grounds Maintenance Yard

SAMPLE ID	SAMPLE INTERVAL	UNITS	ANALYTE	VALUE	PARVQ	MDL	PQL	LABQ	JEGQ	RRS2 or MCL Standard	Result Exceeds Standard?	MDL Exceeds Standard?
GMY-014FD	0 - 2	UG/L	alpha-Chlordane	0.0000	ND	0.0080	0.1000	U		2	No	No
GMY-015	0 - 2	UG/L	alpha-Chlordane	0.0000	ND	0.0080	0.1000	U		2	No	No
GMY-015FD	0 - 2	UG/L	alpha-Chlordane	0.0000	ND	0.0080	0.1000	U		2	No	No
GMY-016	0 - 2	UG/L	alpha-Chlordane	0.0000	ND	0.0080	0.1000	U		2	No	No
GMY-017	0 - 2	UG/L	alpha-Chlordane	0.0000	ND	0.0080	0.1000	U		2	No	No
	-											
GMY-007	0 - 2	UG/L	gamma-Chlordane	0.0000	ND	0.0050	0.1000	U		2	No	No
GMY-008	0 - 2	UG/L	gamma-Chlordane	0.0000	ND	0.0050	0.1000	U		2	No	No
GMY-009	0 - 2	UG/L	gamma-Chlordane	0.0000	ND	0.0040	0.1000	U		2	No	No
GMY-010	0 - 2	UG/L	gamma-Chlordane	0.0000	ND	0.0040	0.1000	U		2	No	No
GMY-011	0.33 - 2	UG/L	gamma-Chlordane	0.0000	ND	0.0050	0.1000	U		2	No	No
GMY-012	0 - 2	UG/L	gamma-Chlordane	0.0000	ND	0.0050	0.1000	U		2	No	No
GMY-012FD	0 - 2	UG/L	gamma-Chlordane	0.0000	ND	0.0050	0.1000	U		2	No	No
GMY-013	0 - 2	UG/L	gamma-Chlordane	0.0000	ND	0.0050	0.1000	U		2	No	No
GMY-014	0 - 2	UG/L	gamma-Chlordane	0.0000	ND	0.0050	0.1000	U		2	No	No
GMY-014FD	0 - 2	UG/L	gamma-Chlordane	0.0000	ND	0.0050	0.1000	U		2	No	No
GMY-015	0 - 2	UG/L	gamma-Chlordane	0.0000	ND	0.0050	0.1000	U		2	No	No
GMY-015FD	0 - 2	UG/L	gamma-Chlordane	0.0000	ND	0.0050	0.1000	U		2	No	No
GMY-016	0 - 2	UG/L	gamma-Chlordane	0.0000	ND	0.0050	0.1000	U		2	No	No
GMY-017	0 - 2	UG/L	gamma-Chlordane	0.0000	ND	0.0050	0.1000	U		2	No	No
	-											
GMY-007	0 - 2	UG/L	4,4'-DDD	0.0000	ND	0.0220	0.2000	U		0.355	No	No
GMY-008	0 - 2	UG/L	4,4'-DDD	0.0000	ND	0.0220	0.2000	U		0.355	No	No
GMY-009	0 - 2	UG/L	4,4'-DDD	0.0000	ND	0.0220	0.2000	U		0.355	No	No
GMY-010	0 - 2	UG/L	4,4'-DDD	0.0000	ND	0.0220	0.2000	U		0.355	No	No
GMY-011	0.33 - 2	UG/L	4,4'-DDD	0.0000	ND	0.0220	0.2000	U		0.355	No	No
GMY-012	0 - 2	UG/L	4,4'-DDD	0.0000	ND	0.0220	0.2000	U		0.355	No	No
GMY-012FD	0 - 2	UG/L	4,4'-DDD	0.0000	ND	0.0220	0.2000	U		0.355	No	No
GMY-013	0 - 2	UG/L	4,4'-DDD	0.0000	ND	0.0220	0.2000	U		0.355	No	No
GMY-014	0 - 2	UG/L	4,4'-DDD	0.0000	ND	0.0220	0.2000	U		0.355	No	No
GMY-014FD	0 - 2	UG/L	4,4'-DDD	0.0000	ND	0.0220	0.2000	U		0.355	No	No
GMY-015	0 - 2	UG/L	4,4'-DDD	0.0000	ND	0.0220	0.2000	U		0.355	No	No
GMY-015FD	0 - 2	UG/L	4,4'-DDD	0.0000	ND	0.0220	0.2000	U		0.355	No	No
GMY-016	0 - 2	UG/L	4,4'-DDD	0.0000	ND	0.0220	0.2000	U		0.355	No	No
GMY-017	0 - 2	UG/L	4,4'-DDD	0.0000	ND	0.0220	0.2000	U		0.355	No	No
	-											
GMY-007	0 - 2	UG/L	4,4'-DDE	0.0000	ND	0.0100	0.2000	U		0.25	No	No
GMY-008	0 - 2	UG/L	4,4'-DDE	0.0000	ND	0.0100	0.2000	U		0.25	No	No
GMY-009	0 - 2	UG/L	4,4'-DDE	0.0000	ND	0.0100	0.2000	U		0.25	No	No
GMY-010	0 - 2	UG/L	4,4'-DDE	0.0000	ND	0.0100	0.2000	U		0.25	No	No
GMY-011	0.33 - 2	UG/L	4,4'-DDE	0.0000	ND	0.0100	0.2000	U		0.25	No	No
GMY-012	0 - 2	UG/L	4,4'-DDE	0.0000	ND	0.0100	0.2000	U		0.25	No	No
GMY-012FD	0 - 2	UG/L	4,4'-DDE	0.0000	ND	0.0100	0.2000	U		0.25	No	No
GMY-013	0 - 2	UG/L	4,4'-DDE	0.0000	ND	0.0100	0.2000	U		0.25	No	No
GMY-014	0 - 2	UG/L	4,4'-DDE	0.0000	ND	0.0100	0.2000	U		0.25	No	No
GMY-014FD	0 - 2	UG/L	4,4'-DDE	0.0000	ND	0.0100	0.2000	U		0.25	No	No
GMY-015	0 - 2	UG/L	4,4'-DDE	0.0000	ND	0.0100	0.2000	U		0.25	No	No
GMY-015FD	0 - 2	UG/L	4,4'-DDE	0.0000	ND	0.0100	0.2000	U		0.25	No	No
GMY-016	0 - 2	UG/L	4,4'-DDE	0.0000	ND	0.0100	0.2000	U		0.25	No	No
GMY-017	0 - 2	UG/L	4,4'-DDE	0.0000	ND	0.0100	0.2000	U		0.25	No	No
	-											
GMY-007	0 - 2	UG/L	4,4'-DDT	0.0000	ND	0.0150	0.2000	U		0.25	No	No
GMY-008	0 - 2	UG/L	4,4'-DDT	0.0000	ND	0.0150	0.2000	U		0.25	No	No
GMY-009	0 - 2	UG/L	4,4'-DDT	0.0000	ND	0.0150	0.2000	U		0.25	No	No
GMY-010	0 - 2	UG/L	4,4'-DDT	0.0000	ND	0.0150	0.2000	U		0.25	No	No
GMY-011	0.33 - 2	UG/L	4,4'-DDT	0.0000	ND	0.0150	0.2000	U		0.25	No	No
GMY-012	0 - 2	UG/L	4,4'-DDT	0.0000	ND	0.0150	0.2000	U		0.25	No	No
GMY-012FD	0 - 2	UG/L	4,4'-DDT	0.0000	ND	0.0150	0.2000	U		0.25	No	No
GMY-013	0 - 2	UG/L	4,4'-DDT	0.0000	ND	0.0150	0.2000	U		0.25	No	No
GMY-014	0 - 2	UG/L	4,4'-DDT	0.0000	ND	0.0150	0.2000	U		0.25	No	No
GMY-014FD	0 - 2	UG/L	4,4'-DDT	0.0000	ND	0.0150	0.2000	U		0.25	No	No
GMY-015	0 - 2	UG/L	4,4'-DDT	0.0000	ND	0.0150	0.2000	U		0.25	No	No
GMY-015FD	0 - 2	UG/L	4,4'-DDT	0.0000	ND	0.0150	0.2000	U		0.25	No	No
GMY-016	0 - 2	UG/L	4,4'-DDT	0.0000	ND	0.0150	0.2000	U		0.25	No	No

TABLE 1
Summary of Results from Soil Sampling at the Grounds Maintenance Yard

SAMPLE ID	SAMPLE INTERVAL	UNITS	ANALYTE	VALUE	PARVQ	MDL	PQL	LABQ	JEGQ	RRS2 or MCL Standard	Result Exceeds Standard?	MDL Exceeds Standard?
GMY-017	0 - 2	UG/L	4,4'-DDT	0.0000	ND	0.0150	0.2000	U		0.25	No	No
	-											
GMY-007	0 - 2	UG/L	Dieldrin	0.0000	ND	0.0240	0.2000	U		0.00532	No	Yes
GMY-008	0 - 2	UG/L	Dieldrin	0.0000	ND	0.0240	0.2000	U		0.00532	No	Yes
GMY-009	0 - 2	UG/L	Dieldrin	0.0000	ND	0.0240	0.2000	U		0.00532	No	Yes
GMY-010	0 - 2	UG/L	Dieldrin	0.0000	ND	0.0240	0.2000	U		0.00532	No	Yes
GMY-011	0.33 - 2	UG/L	Dieldrin	0.0000	ND	0.0240	0.2000	U		0.00532	No	Yes
GMY-012	0 - 2	UG/L	Dieldrin	0.0000	ND	0.0240	0.2000	U		0.00532	No	Yes
GMY-012FD	0 - 2	UG/L	Dieldrin	0.0000	ND	0.0240	0.2000	U		0.00532	No	Yes
GMY-013	0 - 2	UG/L	Dieldrin	0.0000	ND	0.0240	0.2000	U		0.00532	No	Yes
GMY-014	0 - 2	UG/L	Dieldrin	0.0000	ND	0.0240	0.2000	U		0.00532	No	Yes
GMY-014FD	0 - 2	UG/L	Dieldrin	0.0000	ND	0.0240	0.2000	U		0.00532	No	Yes
GMY-015	0 - 2	UG/L	Dieldrin	0.0000	ND	0.0240	0.2000	U		0.00532	No	Yes
GMY-015FD	0 - 2	UG/L	Dieldrin	0.0000	ND	0.0240	0.2000	U		0.00532	No	Yes
GMY-016	0 - 2	UG/L	Dieldrin	0.0000	ND	0.0240	0.2000	U		0.00532	No	Yes
GMY-017	0 - 2	UG/L	Dieldrin	0.0000	ND	0.0240	0.2000	U		0.00532	No	Yes
	-											
GMY-007	0 - 2	UG/L	Endosulfan A	0.0000	ND	0.0140	0.1000	U		1.83	No	No
GMY-008	0 - 2	UG/L	Endosulfan A	0.0000	ND	0.0140	0.1000	U		1.83	No	No
GMY-009	0 - 2	UG/L	Endosulfan A	0.0000	ND	0.0140	0.1000	U		1.83	No	No
GMY-010	0 - 2	UG/L	Endosulfan A	0.0000	ND	0.0140	0.1000	U		1.83	No	No
GMY-011	0.33 - 2	UG/L	Endosulfan A	0.0000	ND	0.0140	0.1000	U		1.83	No	No
GMY-012	0 - 2	UG/L	Endosulfan A	0.0000	ND	0.0140	0.1000	U		1.83	No	No
GMY-012FD	0 - 2	UG/L	Endosulfan A	0.0000	ND	0.0140	0.1000	U		1.83	No	No
GMY-013	0 - 2	UG/L	Endosulfan A	0.0000	ND	0.0140	0.1000	U		1.83	No	No
GMY-014	0 - 2	UG/L	Endosulfan A	0.0000	ND	0.0140	0.1000	U		1.83	No	No
GMY-014FD	0 - 2	UG/L	Endosulfan A	0.0000	ND	0.0140	0.1000	U		1.83	No	No
GMY-015	0 - 2	UG/L	Endosulfan A	0.0000	ND	0.0140	0.1000	U		1.83	No	No
GMY-015FD	0 - 2	UG/L	Endosulfan A	0.0000	ND	0.0140	0.1000	U		1.83	No	No
GMY-016	0 - 2	UG/L	Endosulfan A	0.0000	ND	0.0140	0.1000	U		1.83	No	No
GMY-017	0 - 2	UG/L	Endosulfan A	0.0000	ND	0.0140	0.1000	U		1.83	No	No
	-											
GMY-007	0 - 2	UG/L	Endosulfan B	0.0000	ND	0.0080	0.2000	U		1.83	No	No
GMY-008	0 - 2	UG/L	Endosulfan B	0.0000	ND	0.0080	0.2000	U		1.83	No	No
GMY-009	0 - 2	UG/L	Endosulfan B	0.0000	ND	0.0080	0.2000	U		1.83	No	No
GMY-010	0 - 2	UG/L	Endosulfan B	0.0000	ND	0.0080	0.2000	U		1.83	No	No
GMY-011	0.33 - 2	UG/L	Endosulfan B	0.0000	ND	0.0080	0.2000	U		1.83	No	No
GMY-012	0 - 2	UG/L	Endosulfan B	0.0000	ND	0.0080	0.2000	U		1.83	No	No
GMY-012FD	0 - 2	UG/L	Endosulfan B	0.0000	ND	0.0080	0.2000	U		1.83	No	No
GMY-013	0 - 2	UG/L	Endosulfan B	0.0000	ND	0.0080	0.2000	U		1.83	No	No
GMY-014	0 - 2	UG/L	Endosulfan B	0.0000	ND	0.0080	0.2000	U		1.83	No	No
GMY-014FD	0 - 2	UG/L	Endosulfan B	0.0000	ND	0.0080	0.2000	U		1.83	No	No
GMY-015	0 - 2	UG/L	Endosulfan B	0.0000	ND	0.0080	0.2000	U		1.83	No	No
GMY-015FD	0 - 2	UG/L	Endosulfan B	0.0000	ND	0.0080	0.2000	U		1.83	No	No
GMY-016	0 - 2	UG/L	Endosulfan B	0.0000	ND	0.0080	0.2000	U		1.83	No	No
GMY-017	0 - 2	UG/L	Endosulfan B	0.0000	ND	0.0080	0.2000	U		1.83	No	No
	-											
GMY-007	0 - 2	UG/L	Endosulfan S	0.0000	ND	0.0730	0.2000	U		1.83	No	No
GMY-008	0 - 2	UG/L	Endosulfan S	0.0000	ND	0.0730	0.2000	U		1.83	No	No
GMY-009	0 - 2	UG/L	Endosulfan S	0.0000	ND	0.0730	0.2000	U		1.83	No	No
GMY-010	0 - 2	UG/L	Endosulfan S	0.0000	ND	0.0730	0.2000	U		1.83	No	No
GMY-011	0.33 - 2	UG/L	Endosulfan S	0.0000	ND	0.0730	0.2000	U		1.83	No	No
GMY-012	0 - 2	UG/L	Endosulfan S	0.0000	ND	0.0730	0.2000	U		1.83	No	No
GMY-012FD	0 - 2	UG/L	Endosulfan S	0.0000	ND	0.0730	0.2000	U		1.83	No	No
GMY-013	0 - 2	UG/L	Endosulfan S	0.0000	ND	0.0730	0.2000	U		1.83	No	No
GMY-014	0 - 2	UG/L	Endosulfan S	0.0000	ND	0.0730	0.2000	U		1.83	No	No
GMY-014FD	0 - 2	UG/L	Endosulfan S	0.0000	ND	0.0730	0.2000	U		1.83	No	No
GMY-015	0 - 2	UG/L	Endosulfan S	0.0000	ND	0.0730	0.2000	U		1.83	No	No
GMY-015FD	0 - 2	UG/L	Endosulfan S	0.0000	ND	0.0730	0.2000	U		1.83	No	No
GMY-016	0 - 2	UG/L	Endosulfan S	0.0000	ND	0.0730	0.2000	U		1.83	No	No
GMY-017	0 - 2	UG/L	Endosulfan S	0.0000	ND	0.0730	0.2000	U		1.83	No	No
	-											
GMY-007	0 - 2	UG/L	Endrin	0.0000	ND	0.0250	0.2000	U		2	No	No
GMY-008	0 - 2	UG/L	Endrin	0.0000	ND	0.0250	0.2000	U		2	No	No

TABLE 1
Summary of Results from Soil Sampling at the Grounds Maintenance Yard

SAMPLE ID	SAMPLE INTERVAL	UNITS	ANALYTE	VALUE	PARVQ	MDL	PQL	LABQ	JEGQ	RRS2 or MCL Standard	Result Exceeds Standard?	MDL Exceeds Standard?
GMY-009	0 - 2	UG/L	Endrin	0.0000	ND	0.0250	0.2000	U		2	No	No
GMY-010	0 - 2	UG/L	Endrin	0.0000	ND	0.0250	0.2000	U		2	No	No
GMY-011	0.33 - 2	UG/L	Endrin	0.0000	ND	0.0250	0.2000	U		2	No	No
GMY-012	0 - 2	UG/L	Endrin	0.0000	ND	0.0250	0.2000	U		2	No	No
GMY-012FD	0 - 2	UG/L	Endrin	0.0000	ND	0.0250	0.2000	U		2	No	No
GMY-013	0 - 2	UG/L	Endrin	0.0000	ND	0.0250	0.2000	U		2	No	No
GMY-014	0 - 2	UG/L	Endrin	0.0000	ND	0.0250	0.2000	U		2	No	No
GMY-014FD	0 - 2	UG/L	Endrin	0.0000	ND	0.0250	0.2000	U		2	No	No
GMY-015	0 - 2	UG/L	Endrin	0.0000	ND	0.0250	0.2000	U		2	No	No
GMY-015FD	0 - 2	UG/L	Endrin	0.0000	ND	0.0250	0.2000	U		2	No	No
GMY-016	0 - 2	UG/L	Endrin	0.0000	ND	0.0250	0.2000	U		2	No	No
GMY-017	0 - 2	UG/L	Endrin	0.0714	TR	0.0250	0.2000	F		2	No	No
	-											
GMY-007	0 - 2	UG/L	Endrin Aldehyde	0.0000	ND	0.0120	0.2000	U		NS	No	No
GMY-008	0 - 2	UG/L	Endrin Aldehyde	0.0000	ND	0.0120	0.2000	U		NS	No	No
GMY-009	0 - 2	UG/L	Endrin Aldehyde	0.0000	ND	0.0120	0.2000	U		NS	No	No
GMY-010	0 - 2	UG/L	Endrin Aldehyde	0.0000	ND	0.0120	0.2000	U		NS	No	No
GMY-011	0.33 - 2	UG/L	Endrin Aldehyde	0.0000	ND	0.0120	0.2000	U		NS	No	No
GMY-012	0 - 2	UG/L	Endrin Aldehyde	0.0000	ND	0.0120	0.2000	U		NS	No	No
GMY-012FD	0 - 2	UG/L	Endrin Aldehyde	0.0000	ND	0.0120	0.2000	U		NS	No	No
GMY-013	0 - 2	UG/L	Endrin Aldehyde	0.0000	ND	0.0120	0.2000	U		NS	No	No
GMY-014	0 - 2	UG/L	Endrin Aldehyde	0.0000	ND	0.0120	0.2000	U		NS	No	No
GMY-014FD	0 - 2	UG/L	Endrin Aldehyde	0.0000	ND	0.0120	0.2000	U		NS	No	No
GMY-015	0 - 2	UG/L	Endrin Aldehyde	0.0000	ND	0.0120	0.2000	U		NS	No	No
GMY-015FD	0 - 2	UG/L	Endrin Aldehyde	0.0000	ND	0.0120	0.2000	U		NS	No	No
GMY-016	0 - 2	UG/L	Endrin Aldehyde	0.0000	ND	0.0120	0.2000	U		NS	No	No
GMY-017	0 - 2	UG/L	Endrin Aldehyde	0.0000	ND	0.0120	0.2000	U		NS	No	No
	-											
GMY-007	0 - 2	UG/L	Heptachlor Epoxide	0.0000	ND	0.0060	0.1000	U		0.2	No	No
GMY-008	0 - 2	UG/L	Heptachlor Epoxide	0.0000	ND	0.0060	0.1000	U		0.2	No	No
GMY-009	0 - 2	UG/L	Heptachlor Epoxide	0.0000	ND	0.0060	0.1000	U		0.2	No	No
GMY-010	0 - 2	UG/L	Heptachlor Epoxide	0.0000	ND	0.0060	0.1000	U		0.2	No	No
GMY-011	0.33 - 2	UG/L	Heptachlor Epoxide	0.0000	ND	0.0060	0.1000	U		0.2	No	No
GMY-012	0 - 2	UG/L	Heptachlor Epoxide	0.0000	ND	0.0060	0.1000	U		0.2	No	No
GMY-012FD	0 - 2	UG/L	Heptachlor Epoxide	0.0000	ND	0.0060	0.1000	U		0.2	No	No
GMY-013	0 - 2	UG/L	Heptachlor Epoxide	0.0000	ND	0.0060	0.1000	U		0.2	No	No
GMY-014	0 - 2	UG/L	Heptachlor Epoxide	0.0000	ND	0.0060	0.1000	U		0.2	No	No
GMY-014FD	0 - 2	UG/L	Heptachlor Epoxide	0.0000	ND	0.0060	0.1000	U		0.2	No	No
GMY-015	0 - 2	UG/L	Heptachlor Epoxide	0.0000	ND	0.0060	0.1000	U		0.2	No	No
GMY-015FD	0 - 2	UG/L	Heptachlor Epoxide	0.0000	ND	0.0060	0.1000	U		0.2	No	No
GMY-016	0 - 2	UG/L	Heptachlor Epoxide	0.0000	ND	0.0060	0.1000	U		0.2	No	No
GMY-017	0 - 2	UG/L	Heptachlor Epoxide	0.0000	ND	0.0060	0.1000	U		0.2	No	No
	-											
GMY-007	0 - 2	UG/L	Heptachlor	0.0000	ND	0.0320	0.1000	U		0.4	No	No
GMY-008	0 - 2	UG/L	Heptachlor	0.0000	ND	0.0320	0.1000	U		0.4	No	No
GMY-009	0 - 2	UG/L	Heptachlor	0.0000	ND	0.0320	0.1000	U		0.4	No	No
GMY-010	0 - 2	UG/L	Heptachlor	0.0000	ND	0.0320	0.1000	U		0.4	No	No
GMY-011	0.33 - 2	UG/L	Heptachlor	0.0000	ND	0.0320	0.1000	U		0.4	No	No
GMY-012	0 - 2	UG/L	Heptachlor	0.0000	ND	0.0320	0.1000	U		0.4	No	No
GMY-012FD	0 - 2	UG/L	Heptachlor	0.0000	ND	0.0320	0.1000	U		0.4	No	No
GMY-013	0 - 2	UG/L	Heptachlor	0.0000	ND	0.0320	0.1000	U		0.4	No	No
GMY-014	0 - 2	UG/L	Heptachlor	0.0000	ND	0.0320	0.1000	U		0.4	No	No
GMY-014FD	0 - 2	UG/L	Heptachlor	0.0000	ND	0.0320	0.1000	U		0.4	No	No
GMY-015	0 - 2	UG/L	Heptachlor	0.0000	ND	0.0320	0.1000	U		0.4	No	No
GMY-015FD	0 - 2	UG/L	Heptachlor	0.0000	ND	0.0320	0.1000	U		0.4	No	No
GMY-016	0 - 2	UG/L	Heptachlor	0.0000	ND	0.0320	0.1000	U		0.4	No	No
GMY-017	0 - 2	UG/L	Heptachlor	0.0000	ND	0.0320	0.1000	U		0.4	No	No
	-											
GMY-007	0 - 2	UG/L	Methoxychlor	0.0000	ND	0.0960	0.8000	U		40	No	No
GMY-008	0 - 2	UG/L	Methoxychlor	0.0000	ND	0.0960	0.8000	U		40	No	No
GMY-009	0 - 2	UG/L	Methoxychlor	0.0000	ND	0.0960	0.8000	U		40	No	No
GMY-010	0 - 2	UG/L	Methoxychlor	0.0000	ND	0.0960	0.8000	U		40	No	No
GMY-011	0.33 - 2	UG/L	Methoxychlor	0.0000	ND	0.0960	0.8000	U		40	No	No
GMY-012	0 - 2	UG/L	Methoxychlor	0.0000	ND	0.0960	0.8000	U		40	No	No

TABLE 1
Summary of Results from Soil Sampling at the Grounds Maintenance Yard

SAMPLE ID	SAMPLE INTERVAL	UNITS	ANALYTE	VALUE	PARVQ	MDL	PQL	LABQ	JEGQ	RRS2 or MCL Standard	Result Exceeds Standard?	MDL Exceeds Standard?
GMY-012FD	0 - 2	UG/L	Methoxychlor	0.0000	ND	0.0960	0.8000	U		40	No	No
GMY-013	0 - 2	UG/L	Methoxychlor	0.0000	ND	0.0960	0.8000	U		40	No	No
GMY-014	0 - 2	UG/L	Methoxychlor	0.0000	ND	0.0960	0.8000	U		40	No	No
GMY-014FD	0 - 2	UG/L	Methoxychlor	0.0000	ND	0.0960	0.8000	U		40	No	No
GMY-015	0 - 2	UG/L	Methoxychlor	0.0000	ND	0.0960	0.8000	U		40	No	No
GMY-015FD	0 - 2	UG/L	Methoxychlor	0.0000	ND	0.0960	0.8000	U		40	No	No
GMY-016	0 - 2	UG/L	Methoxychlor	0.0000	ND	0.0960	0.8000	U		40	No	No
GMY-017	0 - 2	UG/L	Methoxychlor	0.0000	ND	0.0960	0.8000	U		40	No	No
	-											
GMY-021	0 - 2	UG/L	PCB-1016	0.0000	ND	0.2200	1.0000	U		5	No	No
GMY-022	0 - 2	UG/L	PCB-1016	0.0000	ND	0.2200	1.0000	U		5	No	No
GMY-023	0 - 2	UG/L	PCB-1016	0.0000	ND	0.2200	1.0000	U		5	No	No
GMY-024	0 - 2	UG/L	PCB-1016	0.0000	ND	0.2200	1.0000	U		5	No	No
GMY-025	0 - 0.2	UG/L	PCB-1016	0.0000	ND	0.2200	1.0000	U		5	No	No
GMY-026	0 - 0.2	UG/L	PCB-1016	0.0000	ND	0.2200	1.0000	U		5	No	No
GMY-026FD	0 - 0.2	UG/L	PCB-1016	0.0000	ND	0.2200	1.0000	U		5	No	No
GMY-027	0 - 0.2	UG/L	PCB-1016	0.0000	ND	0.2200	1.0000	U		5	No	No
GMY-028	0 - 0.2	UG/L	PCB-1016	0.0000	ND	0.2200	1.0000	U		5	No	No
GMY-029	0 - 0.2	UG/L	PCB-1016	0.0000	ND	0.2200	1.0000	U		5	No	No
GMY-030	0 - 0.2	UG/L	PCB-1016	0.0000	ND	0.2200	1.0000	U		5	No	No
GMY-031	0 - 0.2	UG/L	PCB-1016	0.0000	ND	0.2200	1.0000	U		5	No	No
	-											
GMY-021	0 - 2	UG/L	PCB-1221	0.0000	ND	0.2100	1.0000	U		5	No	No
GMY-022	0 - 2	UG/L	PCB-1221	0.0000	ND	0.2100	1.0000	U		5	No	No
GMY-023	0 - 2	UG/L	PCB-1221	0.0000	ND	0.2100	1.0000	U		5	No	No
GMY-024	0 - 2	UG/L	PCB-1221	0.0000	ND	0.2100	1.0000	U		5	No	No
GMY-025	0 - 0.2	UG/L	PCB-1221	0.0000	ND	0.2100	1.0000	U		5	No	No
GMY-026	0 - 0.2	UG/L	PCB-1221	0.0000	ND	0.2100	1.0000	U		5	No	No
GMY-026FD	0 - 0.2	UG/L	PCB-1221	0.0000	ND	0.2100	1.0000	U		5	No	No
GMY-027	0 - 0.2	UG/L	PCB-1221	0.0000	ND	0.2100	1.0000	U		5	No	No
GMY-028	0 - 0.2	UG/L	PCB-1221	0.0000	ND	0.2100	1.0000	U		5	No	No
GMY-029	0 - 0.2	UG/L	PCB-1221	0.0000	ND	0.2100	1.0000	U		5	No	No
GMY-030	0 - 0.2	UG/L	PCB-1221	0.0000	ND	0.2100	1.0000	U		5	No	No
GMY-031	0 - 0.2	UG/L	PCB-1221	0.0000	ND	0.2100	1.0000	U		5	No	No
	-											
GMY-021	0 - 2	UG/L	PCB-1232	0.0000	ND	0.2400	1.0000	U		5	No	No
GMY-022	0 - 2	UG/L	PCB-1232	0.0000	ND	0.2400	1.0000	U		5	No	No
GMY-023	0 - 2	UG/L	PCB-1232	0.0000	ND	0.2400	1.0000	U		5	No	No
GMY-024	0 - 2	UG/L	PCB-1232	0.0000	ND	0.2400	1.0000	U		5	No	No
GMY-025	0 - 0.2	UG/L	PCB-1232	0.0000	ND	0.2400	1.0000	U		5	No	No
GMY-026	0 - 0.2	UG/L	PCB-1232	0.0000	ND	0.2400	1.0000	U		5	No	No
GMY-026FD	0 - 0.2	UG/L	PCB-1232	0.0000	ND	0.2400	1.0000	U		5	No	No
GMY-027	0 - 0.2	UG/L	PCB-1232	0.0000	ND	0.2400	1.0000	U		5	No	No
GMY-028	0 - 0.2	UG/L	PCB-1232	0.0000	ND	0.2400	1.0000	U		5	No	No
GMY-029	0 - 0.2	UG/L	PCB-1232	0.0000	ND	0.2400	1.0000	U		5	No	No
GMY-030	0 - 0.2	UG/L	PCB-1232	0.0000	ND	0.2400	1.0000	U		5	No	No
GMY-031	0 - 0.2	UG/L	PCB-1232	0.0000	ND	0.2400	1.0000	U		5	No	No
	-											
GMY-021	0 - 2	UG/L	PCB-1242	0.0000	ND	0.1800	1.0000	U		5	No	No
GMY-022	0 - 2	UG/L	PCB-1242	0.0000	ND	0.1800	1.0000	U		5	No	No
GMY-023	0 - 2	UG/L	PCB-1242	0.0000	ND	0.1800	1.0000	U		5	No	No
GMY-024	0 - 2	UG/L	PCB-1242	0.0000	ND	0.1800	1.0000	U		5	No	No
GMY-025	0 - 0.2	UG/L	PCB-1242	0.0000	ND	0.1800	1.0000	U		5	No	No
GMY-026	0 - 0.2	UG/L	PCB-1242	0.0000	ND	0.1800	1.0000	U		5	No	No
GMY-026FD	0 - 0.2	UG/L	PCB-1242	0.0000	ND	0.1800	1.0000	U		5	No	No
GMY-027	0 - 0.2	UG/L	PCB-1242	0.0000	ND	0.1800	1.0000	U		5	No	No
GMY-028	0 - 0.2	UG/L	PCB-1242	0.0000	ND	0.1800	1.0000	U		5	No	No
GMY-029	0 - 0.2	UG/L	PCB-1242	0.0000	ND	0.1800	1.0000	U		5	No	No
GMY-030	0 - 0.2	UG/L	PCB-1242	0.0000	ND	0.1800	1.0000	U		5	No	No
GMY-031	0 - 0.2	UG/L	PCB-1242	0.0000	ND	0.1800	1.0000	U		5	No	No
	-											
GMY-021	0 - 2	UG/L	PCB-1248	0.0000	ND	0.3300	1.0000	U		5	No	No
GMY-022	0 - 2	UG/L	PCB-1248	0.0000	ND	0.3300	1.0000	U		5	No	No
GMY-023	0 - 2	UG/L	PCB-1248	0.0000	ND	0.3300	1.0000	U		5	No	No

TABLE 1
Summary of Results from Soil Sampling at the Grounds Maintenance Yard

SAMPLE ID	SAMPLE INTERVAL	UNITS	ANALYTE	VALUE	PARVQ	MDL	PQL	LABQ	JEGQ	RRS2 or MCL Standard	Result Exceeds Standard?	MDL Exceeds Standard?
GMY-024	0 - 2	UG/L	PCB-1248	0.0000	ND	0.3300	1.0000	U		5	No	No
GMY-025	0 - 0.2	UG/L	PCB-1248	0.0000	ND	0.3300	1.0000	U		5	No	No
GMY-026	0 - 0.2	UG/L	PCB-1248	0.0000	ND	0.3300	1.0000	U		5	No	No
GMY-026FD	0 - 0.2	UG/L	PCB-1248	0.0000	ND	0.3300	1.0000	U		5	No	No
GMY-027	0 - 0.2	UG/L	PCB-1248	0.0000	ND	0.3300	1.0000	U		5	No	No
GMY-028	0 - 0.2	UG/L	PCB-1248	0.0000	ND	0.3300	1.0000	U		5	No	No
GMY-029	0 - 0.2	UG/L	PCB-1248	0.0000	ND	0.3300	1.0000	U		5	No	No
GMY-030	0 - 0.2	UG/L	PCB-1248	0.0000	ND	0.3300	1.0000	U		5	No	No
GMY-031	0 - 0.2	UG/L	PCB-1248	0.0000	ND	0.3300	1.0000	U		5	No	No
	-											
GMY-021	0 - 2	UG/L	PCB-1254	0.0000	ND	0.1800	1.0000	U		5	No	No
GMY-022	0 - 2	UG/L	PCB-1254	0.0000	ND	0.1800	1.0000	U		5	No	No
GMY-023	0 - 2	UG/L	PCB-1254	0.0000	ND	0.1800	1.0000	U		5	No	No
GMY-024	0 - 2	UG/L	PCB-1254	0.0000	ND	0.1800	1.0000	U		5	No	No
GMY-025	0 - 0.2	UG/L	PCB-1254	0.0000	ND	0.1800	1.0000	U		5	No	No
GMY-026	0 - 0.2	UG/L	PCB-1254	0.0000	ND	0.1800	1.0000	U		5	No	No
GMY-026FD	0 - 0.2	UG/L	PCB-1254	0.0000	ND	0.1800	1.0000	U		5	No	No
GMY-027	0 - 0.2	UG/L	PCB-1254	0.0000	ND	0.1800	1.0000	U		5	No	No
GMY-028	0 - 0.2	UG/L	PCB-1254	0.0000	ND	0.1800	1.0000	U		5	No	No
GMY-029	0 - 0.2	UG/L	PCB-1254	0.0000	ND	0.1800	1.0000	U		5	No	No
GMY-030	0 - 0.2	UG/L	PCB-1254	0.0000	ND	0.1800	1.0000	U		5	No	No
GMY-031	0 - 0.2	UG/L	PCB-1254	0.0000	ND	0.1800	1.0000	U		5	No	No
	-											
GMY-021	0 - 2	UG/L	PCB-1260	0.0000	ND	0.1200	1.0000	U		5	No	No
GMY-022	0 - 2	UG/L	PCB-1260	0.0000	ND	0.1200	1.0000	U		5	No	No
GMY-023	0 - 2	UG/L	PCB-1260	0.0000	ND	0.1200	1.0000	U		5	No	No
GMY-024	0 - 2	UG/L	PCB-1260	0.0000	ND	0.1200	1.0000	U		5	No	No
GMY-025	0 - 0.2	UG/L	PCB-1260	0.0000	ND	0.1200	1.0000	U		5	No	No
GMY-026	0 - 0.2	UG/L	PCB-1260	0.0000	ND	0.1200	1.0000	U		5	No	No
GMY-026FD	0 - 0.2	UG/L	PCB-1260	0.0000	ND	0.1200	1.0000	U		5	No	No
GMY-027	0 - 0.2	UG/L	PCB-1260	0.0000	ND	0.1200	1.0000	U		5	No	No
GMY-028	0 - 0.2	UG/L	PCB-1260	0.0000	ND	0.1200	1.0000	U		5	No	No
GMY-029	0 - 0.2	UG/L	PCB-1260	0.0000	ND	0.1200	1.0000	U		5	No	No
GMY-030	0 - 0.2	UG/L	PCB-1260	0.0000	ND	0.1200	1.0000	U		5	No	No
GMY-031	0 - 0.2	UG/L	PCB-1260	0.0000	ND	0.1200	1.0000	U		5	No	No
	-											
GMY-007	0 - 2	UG/L	Toxaphene	0.0000	ND	0.3490	1.0000	U		3	No	No
GMY-008	0 - 2	UG/L	Toxaphene	0.0000	ND	0.3490	1.0000	U		3	No	No
GMY-009	0 - 2	UG/L	Toxaphene	0.0000	ND	0.3490	1.0000	U		3	No	No
GMY-010	0 - 2	UG/L	Toxaphene	0.0000	ND	0.3490	1.0000	U		3	No	No
GMY-011	0.33 - 2	UG/L	Toxaphene	0.0000	ND	0.3490	1.0000	U		3	No	No
GMY-012	0 - 2	UG/L	Toxaphene	0.0000	ND	0.3490	1.0000	U		3	No	No
GMY-012FD	0 - 2	UG/L	Toxaphene	0.0000	ND	0.3490	1.0000	U		3	No	No
GMY-013	0 - 2	UG/L	Toxaphene	0.0000	ND	0.3490	1.0000	U		3	No	No
GMY-014	0 - 2	UG/L	Toxaphene	0.0000	ND	0.3490	1.0000	U		3	No	No
GMY-014FD	0 - 2	UG/L	Toxaphene	0.0000	ND	0.3490	1.0000	U		3	No	No
GMY-015	0 - 2	UG/L	Toxaphene	0.0000	ND	0.3490	1.0000	U		3	No	No
GMY-015FD	0 - 2	UG/L	Toxaphene	0.0000	ND	0.3490	1.0000	U		3	No	No
GMY-016	0 - 2	UG/L	Toxaphene	0.0000	ND	0.3490	1.0000	U		3	No	No
GMY-017	0 - 2	UG/L	Toxaphene	0.0000	ND	0.3490	1.0000	U		3	No	No

NOTES:

B = Detected at concentration less than 5 times the lab blank concentration
F = Detected above the method detected limit (MDL) but below the Practical Quantitation Limit (PQL).
JEGQ = Qualifier assigned by Jacobs Engineering data review program
LABQ = Laboratory qualifier
MG/L = Milligrams per liter
ND = Not detected
NS = no RRS2 or EPA MCL standard exists
RRS2 = Medium Specific Concentration (MSC) for Groundwater based on Risk Reduction Standards Number 2.
TR = Detected above the method detected limit (MDL) but below the Practical Quantitation Limit (PQL).
U = Not detected
UG/L = Micrograms per liter

EMAX
LABORATORIES, INC.
630 Maple Ave.
Torrance, CA 90503
Telephone: (310) 618-8889
Fax: (310) 618-0818

RECEIVED
JUN 2 9 1997
JE Denver

Date: 06-21-1997
EMAX Batch No.: 97E103

Attn: Lynn Schuetter

Jacobs Engineering Group
600 17th. Street, Ste. 1100N
Denver CO 80202

Subject: Laboratory Report
Project: Carswell AFB / 05G47900

Enclosed is the Laboratory report for samples received on 05/22/97. The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
CR-A162101	E103-01	05/18/97	Soil	SPLP Pesticides
				SPLP Metals
				SPLP Antimony
				SPLP Nickel
CR-A162102	E103-02	05/18/97	Soil	SPLP Pesticides
CR-A162103	E103-03	05/19/97	Soil	SPLP Pesticides
CR-A162104	E103-04	05/19/97	Soil	SPLP Pesticides
CR-A162105	E103-05	05/19/97	Soil	SPLP Pesticides
				SPLP Metals
				SPLP Nickel
				SPLP Antimony
CR-A162106	E103-06	05/19/97	Soil	SPLP Metals
				SPLP Nickel
				SPLP Antimony
CR-A162107	E103-07	05/18/97	Soil	SPLP Pesticides
CR-A162108	E103-08	05/18/97	Water	Metals
				Nickel
				Antimony
CR-A162109	E103-09	05/18/97	Water	EPA 608 (Pesticides)

Sample ID	Control #	Col Date	Matrix	Analysis
CR-A162201	E103-10	05/16/97	Soil	SPLP Metals SPLP Nickel SPLP Antimony
CR-A162202	E103-11	05/16/97	Soil	SPLP Metals SPLP Nickel SPLP Antimony
CR-A162203	E103-12	05/16/97	Soil	SPLP Metals SPLP Nickel SPLP Antimony
CR-A162204	E103-13	05/16/97	Soil	SPLP Metals SPLP Nickel SPLP Antimony
CR-A162205	E103-14	05/16/97	Soil	SPLP Metals SPLP Nickel SPLP Antimony
CR-A162206	E103-15	05/16/97	Soil	SPLP Metals SPLP Nickel SPLP Antimony
CR-A162207	E103-16	05/16/97	Water	Metals Nickel Antimony
CR-A162301	E103-17	05/14/97	Soil	SPLP Metals SPLP Antimony SPLP Nickel
CR-A162302	E103-18	05/14/97	Soil	SPLP Metals SPLP Antimony SPLP Nickel
CR-A162303	E103-19	05/14/97	Soil	SPLP Metals SPLP Nickel SPLP Antimony
CR-A162304	E103-20	05/16/97	Soil	SPLP Metals SPLP Nickel SPLP Antimony
CR-A162305	E103-21	05/16/97	Soil	SPLP Metals SPLP Nickel SPLP Antimony
CR-A162306	E103-22	05/17/97	Soil	SPLP Metals SPLP Nickel SPLP Antimony
CR-A162401	E103-23	05/15/97	Soil	SPLP Metals SPLP Nickel

Sample ID	Control #	Col Date	Matrix	Analysis
CR-A162402	E103-24	05/17/97	Soil	SPLP Antimony SPLP Metals SPLP Nickel
CR-A162403	E103-25	05/16/97	Soil	SPLP Antimony SPLP Metals SPLP Nickel
CR-A162404	E103-26	05/16/97	Soil	SPLP Antimony SPLP Metals SPLP Antimony SPLP Nickel
CR-A162405	E103-27	05/15/97	Soil	SPLP Antimony SPLP Nickel SPLP Metals
CR-A162406	E103-28	05/16/97	Soil	SPLP Metals SPLP Antimony SPLP Nickel
CR-A162407	E103-29	05/17/97	Soil	SPLP Metals SPLP Nickel SPLP Antimony
CR-A162501	E103-30	05/16/97	Soil	SPLP Metals SPLP Nickel SPLP Antimony
CR-A162502	E103-31	05/16/97	Soil	SPLP Metals SPLP Antimony SPLP Nickel
CR-A162503	E103-32	05/15/97	Soil	SPLP Metals SPLP Antimony SPLP Nickel
CR-A162504	E103-33	05/17/97	Soil	SPLP Metals SPLP Nickel SPLP Antimony
CR-A162505	E103-34	05/15/97	Soil	SPLP Metals SPLP Nickel SPLP Antimony
CR-A162506	E103-35	05/17/97	Soil	SPLP Metals SPLP Nickel SPLP Antimony
CR-A162507	E103-36	05/15/97	Water	Metals Nickel Antimony
CR-A162601	E103-37	05/17/97	Soil	SPLP Metals

Sample ID	Control #	Col Date	Matrix	Analysis
				SPLP Nickel
				SPLP Antimony
CR-A162602	E103-38	05/17/97	Soil	SPLP Metals
				SPLP Antimony
				SPLP Nickel
CR-A162603	E103-39	05/17/97	Soil	SPLP Metals
				SPLP Antimony
				SPLP Nickel
CR-A162604	E103-40	05/17/97	Soil	SPLP Metals
				SPLP Nickel
				SPLP Antimony
CR-A162605	E103-41	05/17/97	Water	Nickel
				Antimony
				Metals
CR-A162701	E103-42	05/18/97	Soil	SPLP Metals
				SPLP Nickel
				SPLP Antimony
CR-A162702	E103-43	05/18/97	Soil	SPLP Metals
				SPLP Nickel
				SPLP Antimony
CR-A162703	E103-44	05/18/97	Soil	SPLP Metals
				SPLP Nickel
				SPLP Antimony
CR-A162704	E103-45	05/18/97	Soil	SPLP Metals
				SPLP Nickel
				SPLP Antimony
CR-A162705	E103-46	05/18/97	Soil	SPLP Metals
				SPLP Nickel
				SPLP Antimony
CR-A162706	E103-47	05/18/97	Soil	SPLP Metals
				SPLP Antimony
				SPLP Nickel
CR-A162707	E103-48	05/18/97	Soil	SPLP Metals
				SPLP Nickel
				SPLP Antimony
CR-A162708	E103-49	05/20/97	Water	Metals
				Nickel
				Antimony
CR-A162709	E103-50	05/20/97	Water	EPA 608 (PCBs)
CR-A162801	E103-51	05/18/97	Soil	SPLP Pesticides
CR-A162802	E103-52	05/18/97	Soil	SPLP Pesticides

Sample ID	Control #	Col Date	Matrix	Analysis
CR-A162803	E103-53	05/18/97	Soil	SPLP Pesticides
CR-A162804	E103-54	05/18/97	Soil	SPLP Pesticides
CR-A162805	E103-55	05/18/97	Soil	SPLP Pesticides
CR-A162806	E103-56	05/18/97	Soil	SPLP Pesticides
				SPLP Metals
				SPLP Nickel
				SPLP Antimony
CR-A162807	E103-57	05/18/97	Soil	SPLP Pesticides
				SPLP Metals
				SPLP Nickel
				SPLP Antimony
CR-A162808	E103-58	05/19/97	Soil	SPLP Pesticides
CR-A162809	E103-59	05/19/97	Soil	SPLP Metals
				SPLP Nickel
				SPLP Antimony
CR-A162901	E103-60	05/19/97	Soil	SPLP Metals
				SPLP Nickel
				SPLP Antimony
CR-A162902	E103-61	05/19/97	Soil	SPLP Metals
				SPLP Antimony
				SPLP Nickel
CR-A162903	E103-62	05/19/97	Soil	SPLP PCBs
CR-A162904	E103-63	05/19/97	Soil	SPLP PCBs
CR-A162905	E103-64	05/19/97	Soil	SPLP PCBs
CR-A162906	E103-65	05/20/97	Soil	SPLP PCBs
CR-A162907	E103-66	05/19/97	Water	Metals
				Nickel
				Antimony
CR-A162908	E103-67	05/19/97	water	EPA 8080
CR-A163001	E103-68	05/20/97	Soil	SPLP PCBs
CR-A163002	E103-69	05/20/97	Soil	SPLP PCBs
CR-A163003	E103-70	05/20/97	Soil	SPLP PCBs
CR-A163004	E103-71	05/20/97	Soil	SPLP PCBs
CR-A163005	E103-72	05/20/97	Soil	SPLP PCBs
CR-A163006	E103-73	05/20/97	Soil	SPLP PCBs
CR-A163007	E103-74	05/20/97	Soil	SPLP PCBs
				SPLP Metals
				SPLP Nickel
				SPLP Antimony
CR-A163008	E103-75	05/20/97	Soil	SPLP PCBs
CR-A163009	E103-76	05/20/97	Soil	SPLP Metals

Sample ID	Control #	Col Date	Matrix	Analysis
				SPLP Nickel
				SPLP Antimony
CR-A162101MS	E103-01M	05/18/97	Soil	SPLP Metals
				SPLP Nickel
				SPLP Antimony
CR-A162101DUP	E103-01D	05/18/97	Soil	SPLP Metals
				SPLP Antimony
				SPLP Nickel
CR-A162104MS	E103-04M	05/19/97	Soil	SPLP Pesticides
CR-A162104MSD	E103-04S	05/19/97	Soil	SPLP Pesticides
CR-A162707MS	E103-48M	05/18/97	Soil	SPLP Metals
				SPLP Antimony
				SPLP Nickel
CR-A162707DUP	E103-48D	05/18/97	Soil	SPLP Metals
				SPLP Nickel
				SPLP Antimony
CR-A162108MS	E103-08M	05/18/97	Soil	SPLP Metals
				SPLP Antimony
				SPLP Nickel
CR-A163009DUP	E103-08D	05/18/97	Soil	SPLP Metals
				SPLP Nickel
				SPLP Antimony

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

Kam Y. Pang, Ph.D.
Laboratory Director

97E103 L1/L3

JACOBS ENGINEERING GROUP INC.
600 SEVENTEENTH STREET, SUITE 1100N DENVER, COLORADO 80202
TELEPHONE (303) 595 - 8855 FAX (303) 595 - 8857

CR-A1621 CHAIN OF CUSTODY RECORD

USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY. INSTRUCTIONS ARE ON THE BACK

PROJECT NAME: CARSWELL AFB (DO 21)
PROJECT NUMBER: 05G47900
WBS CODE: 505-01
SUBCONTRACT / D.O. No.
LABORATORY NAME & ADDRESS: KNAX LABORATORIES, INC.
630 Maple Avenue
Torrance CA 90503-

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF CONTAINERS	CONTAINER SIZE AND TYPE	PRESERVATIVE	MATRIX CODE	ANALYSES REQUESTED	QC	CONDITION ON RECEIPT	
CR-A162101	5/18/97	15:56	MJ	1	8 oz. Jar	4 deg C	S	SW1312 - Pesticides SW1312 AsBeCrNiPbSb		T=2'C	1
CR-A162102	5/18/97	16:27	MJ	1	8 oz. Jar	4 deg C	S	SW1312 - Pesticides			2
CR-A162103	~~5/18/97~~ 5/19	09:44	MJ	1	8 oz. Jar	4 deg C	S	SW1312 - Pesticides			3
CR-A162104	5/19/97	10:47	MJ	~~1~~ 2	8 oz. Jar	4 deg C	S	SW1312 - Pesticides			4
CR-A162105	5/19/97	12:46	MJ	1	8 oz. Jar	4 deg C	S	SW1312 - Pesticides SW1312 AsBeCrNiPbSb			5
CR-A162106	5/19/97	13:15	MJ	1	8 oz. Jar	4 deg C	S	SW1312 AsBeCrNiPbSb			6
CR-A162107	5/18/97	1645	MJ	1	8 oz Jar	4°	S	SW1312 - Pesticides			7
CR-A162108	5/18/97	1700	MJ	1	~~8 oz~~ 500ml Plast.	4° HNO3	W S	~~SW1312 - Pesticides~~ ~~SW1312~~ - As Be Cr Ni Pb Sb			8
CR-A162109	5/18/97	1702	MJ	1	1L Amber	4°	W	Pesticides			9

COMMENTS:

COLLECTED & RELEASED BY	DATE	TIME	TURNAROUND TIME		
	5/21/97	17:00			
RECEIVED BY	DATE	TIME	RELINQUISHED BY	DATE	TIME
	5/22/97	10:00		/ /	:
RECORD RETURNED BY	DATE	TIME			
	/ /	:	SHIPPING NUMBER: 2652822325		

DISTRIBUTION: WHITE - PROJECT FILE / CANARY - LAB RECEIPT / PINK - DATA MANAGEMENT / GOLDENROD - FIELD

97E103

JACOBS ENGINEERING GROUP INC.
600 SEVENTEENTH STREET, SUITE 1100N DENVER, COLORADO 80202
TELEPHONE (303) 595 - 8855 FAX (303) 595 - 8857

CR-A1622 CHAIN OF CUSTODY RECORD

USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY. INSTRUCTIONS ARE ON THE BACK

PROJECT NAME: CARSWELL AFB (DO 21)
LABORATORY NAME & ADDRESS: HRAY LABORATORIES, INC.
PROJECT NUMBER: 05G47900
630 Maple Avenue
WBS CODE: 505-01
SUBCONTRACT / D.O. No.
Torrance CA 90503-

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF CONTAINERS	CONTAINER SIZE AND TYPE	PRESERVATIVE	MATRIX CODE	ANALYSES REQUESTED	QC	CONDITION ON RECEIPT	
CR-A162201	5/16/97	15:06	MJ	1	8 oz. Jar	4 deg C	S	SW1312 AsBeCrNiPbSb		T=2 cr	10
CR-A162202	5/16/97	15:36	MJ	1	8 oz. Jar	4 deg C	S	SW1312 AsBeCrNiPbSb			11
CR-A162203	5/16/97	16:35	MJ	1	8 oz. Jar	4 deg C	S	SW1312 AsBeCrNiPbSb			12
CR-A162204	5/16/97	14:36	MJ	1	8 oz. Jar	4 deg C	S	SW1312 AsBeCrNiPbSb			
CR-A162205	5/16/97	09:02	MJ	1	8 oz. Jar	4 deg C	S	SW1312 AsBeCrNiPbSb			14
CR-A162206	5/16/97	08:32	MJ	1	8 oz. Jar	4 deg C	S	SW1312 AsBeCrNiPbSb			15
CR-A 162207	5/16/97	17:45	MJ	1	500 ml plastic	H.N.O3	W	As Be Cr Ni Pb Sb			16

COMMENTS:

COLLECTED & RELEASED BY	DATE	TIME	TURNAROUND TIME		
	5/21/97	17:00			
RECEIVED BY	DATE	TIME	RELINQUISHED BY	DATE	TIME
	5/22/97	10:00		/ /	:
RECORD RETURNED BY	DATE	TIME			
	/ /	:	SHIPPING NUMBER: 2652822325		

DISTRIBUTION: WHITE - PROJECT FILE / CANARY - LAB RECEIPT / PINK - DATA MANAGEMENT / GOLDENROD - FIELD

97E103

JACOBS ENGINEERING GROUP INC.
600 SEVENTEENTH STREET, SUITE 1100N DENVER, COLORADO 80202
TELEPHONE (303) 595 - 8855 FAX (303) 595 - 8857

CR-A1623 CHAIN OF CUSTODY RECORD

USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY. INSTRUCTIONS ARE ON THE BACK

PROJECT NAME: CARSWELL AFB (DO 21)
PROJECT NUMBER: 05G47900
WBS CODE: 505-01
SUBCONTRACT / D.O. No.
LABORATORY NAME & ADDRESS: ENVIRO LABORATORIES, INC.
630 Maple Avenue
Torrance CA 90503-

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF CONTAINERS	CONTAINER SIZE AND TYPE	PRESERVATIVE	MATRIX CODE	ANALYSES REQUESTED	QC	CONDITION ON RECEIPT	
CR-A162301	5 14 97	17:00	MJ	1	8 oz. Jar	4 deg C	S	SW1312 AsBeCrNiPbSb		T=2 cr	17
CR-A162302	5 14 97	17:43	MJ	1	8 oz. Jar	4 deg C	S	SW1312 AsBeCrNiPbSb			18
CR-A162303	5 14 97	16:49	MJ	1	8 oz. Jar	4 deg C	S	SW1312 AsBeCrNiPbSb			19
CR-A162304	5 16 97	08:58	MJ	1	8 oz. Jar	4 deg C	S	SW1312 AsBeCrNiPbSb			20
CR-A162305	5 16 97	09:32	MJ	1	8 oz. Jar	4 deg C	S	SW1312 AsBeCrNiPbSb			21
CR-A162306	5 17 97	09:42	MJ	1	8 oz. Jar	4 deg C	S	SW1312 AsBeCrNiPbSb			22

COMMENTS:

COLLECTED & RELEASED BY	DATE	TIME	TURNAROUND TIME		
	5 21 97	17:06			
RECEIVED BY	DATE	TIME	RELINQUISHED BY	DATE	TIME
	5 22 97	10:20		/ /	:
RECORD RETURNED BY	DATE	TIME			
	/ /	:			
			SHIPPING NUMBER: 2605782325		

DISTRIBUTION: WHITE - PROJECT FILE / CANARY - LAB RECEIPT / PINK - DATA MANAGEMENT / GOLDENROD - FIELD

97 E103

JACOBS ENGINEERING GROUP INC.
600 SEVENTEENTH STREET, SUITE 1100N DENVER, COLORADO 80202
TELEPHONE (303) 595 - 8855 FAX (303) 595 - 8857

CR-A1624

CHAIN OF CUSTODY RECORD

USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY. INSTRUCTIONS ARE ON THE BACK

PROJECT NAME: CARSWELL AFB (DO 21)
PROJECT NUMBER: 05G47900
WBS CODE: 505-01
SUBCONTRACT / D.O. No.
LABORATORY NAME & ADDRESS: MAX LABORATORIES, INC.
630 Maple Avenue
Torrance CA 90503-

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF CONTAINERS	CONTAINER SIZE AND TYPE	PRESERVATIVE	MATRIX CODE	ANALYSES REQUESTED	QC	CONDITION ON RECEIPT	
CR-A162401	5/15/97	15:08	MJ	1	8 oz. Jar	4 deg C	S	SW1312 AsBeCrNiPbSb		T=2° C	23
CR-A162402	5/15/97	11:57	MJ	1	8 oz. Jar	4 deg C	S	SW1312 AsBeCrNiPbSb			24
CR-A162403	5/16/97	16:06	MJ	1	8 oz. Jar	4 deg C	S	SW1312 AsBeCrNiPbSb			25
CR-A162404	5/16/97	14:11	MJ	1	8 oz. Jar	4 deg C	S	SW1312 AsBeCrNiPbSb			
CR-A162405	5/15/97	08:45	MJ	1	8 oz. Jar	4 deg C	S	SW1312 AsBeCrNiPbSb			27
CR-A162406	5/16/97	10:59	MJ	1	8 oz. Jar	4 deg C	S	SW1312 AsBeCrNiPbSb			28
CR-A162407	5/17/97	1214	MJ	1	8 oz JAR	4C°	S	SW1312 As, Be, Ni Cr, Pb, Sb			29

COMMENTS:

COLLECTED & RELEASED BY	DATE	TIME	TURNAROUND TIME		
	5/21/97	17:00			
RECEIVED BY	DATE	TIME	RELINQUISHED BY	DATE	TIME
	5/22/97	10:00		/ /	:
RECORD RETURNED BY	DATE	TIME			
	/ /	:			
			SHIPPING NUMBER: 2657822325		

DISTRIBUTION: WHITE - PROJECT FILE / CANARY - LAB RECEIPT / PINK - DATA MANAGEMENT / GOLDENROD - FIELD

97 E103

JACOBS ENGINEERING GROUP INC.
600 SEVENTEENTH STREET, SUITE 1100N DENVER, COLORADO 80202
TELEPHONE (303) 595 - 6855 FAX (303) 595 - 8857

CR-A1625 CHAIN OF CUSTODY RECORD

USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY. INSTRUCTIONS ARE ON THE BACK

PROJECT NAME: CARSWELL AFB (DO 21)
LABORATORY NAME & ADDRESS: KHAT LABORATORIES, INC.
PROJECT NUMBER: 05G47900
630 Maple Avenue
WBS CODE: 505-01
SUBCONTRACT / D.O. No.
Torrance CA 90503-

	SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF CONTAINERS	CONTAINER SIZE AND TYPE	PRESERVATIVE	MATRIX CODE	ANALYSES REQUESTED	QC	CONDITION ON RECEIPT	
✓	CR-A162501	5/16/97	10:04	MJ	1	8 oz. Jar	4 deg C	S	SW1312 AsBeCrNiPbSb		T=2°C	30
✓	CR-A162502	5/16/97	08:30	MJ	1	8 oz. Jar	4 deg C	S	SW1312 AsBeCrNiPbSb			31
✓	CR-A162503	5/15/97	16:51	MJ	1	8 oz. Jar	4 deg C	S	SW1312 AsBeCrNiPbSb			32
✓	CR-A162504	5/17/97 ~~5/15/97~~	10:15 ~~15:58~~	MJ	1	8 oz. Jar	4 deg C	S	SW1312 AsBeCrNiPbSb			33
✓	CR-A162505	5/15/97	15:58	MJ	1	8 oz. Jar	4 deg C	S	SW1312 AsBeCrNiPbSb			34
✓	CR-A162506	5/17/97	11:30	MJ	1	8 oz. Jar	4 deg C	S	SW1312 AsBeCrNiPbSb			35
✓	CR-A 162507	5/15/97	1815	MJ	1	1L Plastic	4 deg C HNO3	W	As, Be, Cr, Ni, Pb, Sb			36

COMMENTS:

COLLECTED & RELEASED BY	DATE	TIME	TURNAROUND TIME		
	5/21/97	17:00			
RECEIVED BY	DATE	TIME	RELINQUISHED BY	DATE	TIME
	5/22/97	10:00		/ /	:
RECORD RETURNED BY	DATE	TIME			
	/ /	:			
			SHIPPING NUMBER: 2652822325		

DISTRIBUTION: WHITE - PROJECT FILE / CANARY - LAB RECEIPT / PINK - DATA MANAGEMENT / GOLDENROD - FIELD

97 E703

JACOBS ENGINEERING GROUP INC.
600 SEVENTEENTH STREET, SUITE 1100N DENVER, COLORADO 80202
TELEPHONE (303) 595 - 8855 FAX (303) 595 - 8857

CR-A1626

CHAIN OF CUSTODY RECORD

USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY. INSTRUCTIONS ARE ON THE BACK

PROJECT NAME: CARSWELL AFB (DO 21)

PROJECT NUMBER: 05647900

WBS CODE: 505-01

SUBCONTRACT / D.O. No.

LABORATORY NAME & ADDRESS: EMAX LABORATORIES, INC.
630 Maple Avenue
Torrance CA 90503-

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF CONTAINERS	CONTAINER SIZE AND TYPE	PRESERVATIVE	MATRIX CODE	ANALYSES REQUESTED	QC	CONDITION ON RECEIPT	
CR-A162601	5/17/97	10:56	MJ	1	8 oz. Jar	4 deg C	S	SW1312 AsBeCrNiPbSb		T=2°C	37
CR-A162602	11/17/97	12:33	MJ	1	8 oz. Jar	4 deg C	S	SW1312 AsBeCrNiPbSb			38
CR-A 162603	11/17/97	1246	MJ	1	8 oz Jar	4°	S	SW 1312 As Be Cr Ni Pb Sb.			39
CR-A 162604	11/17/97	1303	MJ	1	8 oz Jar	4°	S	SW 1312 As Be Cr. Ni Pb Sb			40
CR-A 162605	11/17/97	1755	MJ	1	500 ml Plastic	4° HNO_3	W	As Be Cr Ni Pb Sb			41

COMMENTS:

COLLECTED & RELEASED BY	DATE	TIME	TURNAROUND TIME		
	5/21/97	1700			
RECEIVED BY	DATE	TIME	RELINQUISHED BY	DATE	TIME
	5/22/97	10:00		/ /	:
RECORD RETURNED BY	DATE	TIME			
	/ /	:	SHIPPING NUMBER: 7652822325		

DISTRIBUTION: WHITE - PROJECT FILE / CANARY - LAB RECEIPT / PINK - DATA MANAGEMENT / GOLDENROD - FIELD

97E103

JACOBS ENGINEERING GROUP INC.
600 SEVENTEENTH STREET, SUITE 1100N DENVER, COLORADO 80202
TELEPHONE (303) 595 - 8855 FAX (303) 595 - 8857

CR-A1627

CHAIN OF CUSTODY RECORD

USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY. INSTRUCTIONS ARE ON THE BACK

PROJECT NAME: CARSWELL AFB (DO 21)
PROJECT NUMBER: 05G47900
WBS CODE: 505-01
SUBCONTRACT / D.O. No.
LABORATORY NAME & ADDRESS: EMAX LABORATORIES, INC.
630 Maple Avenue
Torrance CA 90503-

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF CONTAINERS	CONTAINER SIZE AND TYPE	PRESERVATIVE	MATRIX CODE	ANALYSES REQUESTED	QC	CONDITION ON RECEIPT	
CR-A162701	5/18/97	08:32	MJ	1	8 oz. Jar	4 deg C	S	SW1312 AsBeCrNiPbSb		T=2°C	42
CR-A162702	5/18/97	10:05	MJ	1	8 oz. Jar	4 deg C	S	SW1312 AsBeCrNiPbSb			43
CR-A162703	5/18/97	09:29	MJ	1	8 oz. Jar	4 deg C	S	SW1312 AsBeCrNiPbSb			44
CR-A162704	5/18/97	10:30	MJ	1	8 oz. Jar	4 deg C	S	SW1312 AsBeCrNiPbSb			45
CR-A162705	5/18/97	10:58	MJ	1	8 oz. Jar	4 deg C	S	SW1312 AsBeCrNiPbSb			46
CR-A162706	5/18/97	11:37	MJ	1	8 oz. Jar	4 deg C	S	SW1312 AsBeCrNiPbSb			47
CR-A 162707	5/18/97	0840	MJ	2	8 oz Jar	4°	S	SW1312 As Be Cr N. Pb Sb	MS/MSD		48
CR-A 162708	5/20/97	1016	MJ	1	500 ml Plastic	4° HNO3	W	As Be Cr Ni Pb Sb			49
CR-A 162709	5/20/97	1016	MJ	1	1L Amber	4°	W	PCB - SW8080			50

COMMENTS:

COLLECTED & RELEASED BY	DATE	TIME	TURNAROUND TIME		
	5/21/97	17:00			
RECEIVED BY	DATE	TIME	RELINQUISHED BY	DATE	TIME
	5/22/97	10:40		/ /	:
RECORD RETURNED BY	DATE	TIME			
	/ /	:			
			SHIPPING NUMBER: 2052822325		

DISTRIBUTION: WHITE - PROJECT FILE / CANARY - LAB RECEIPT / PINK - DATA MANAGEMENT / GOLDENROD - FIELD

97 E703

JACOBS ENGINEERING GROUP INC.
600 SEVENTEENTH STREET, SUITE 1100N DENVER, COLORADO 80202
TELEPHONE (303) 595 - 8855 FAX (303) 595 - 8857

CR-A1628 CHAIN OF CUSTODY RECORD

USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY. INSTRUCTIONS ARE ON THE BACK

PROJECT NAME: CARSWELL AFB (DO 21)
LABORATORY NAME & ADDRESS: ENAX LABORATORIES, INC.
PROJECT NUMBER: 05G47900
630 Maple Avenue
WBS CODE: 505-01
SUBCONTRACT / D.O. No.
Torrance CA 90503-

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF CONTAINERS	CONTAINER SIZE AND TYPE	PRESERVATIVE	MATRIX CODE	ANALYSES REQUESTED	QC	CONDITION ON RECEIPT	
✓ CR-A162801	5/18/97	12:16	MJ	1	8 oz. Jar	4 deg C	S	SW1312 - Pesticides		T=2C	51
✓ CR-A162802	5/18/97	12:48	MJ	1	8 oz. Jar	4 deg C	S	SW1312 - Pesticides			52
✓ CR-A162803	5/18/97	13:14	MJ	1	8 oz. Jar	4 deg C	S	SW1312 - Pesticides			53
✓ CR-A162804	5/18/97	13:50	MJ	1	8 oz. Jar	4 deg C	S	SW1312 - Pesticides			54
✓ CR-A162805	5/18/97	14:19	MJ	1	8 oz. Jar	4 deg C	S	SW1312 - Pesticides			55
✓ CR-A162806	5/18/97	13:25	MJ	1	8 oz. Jar	4 deg C	S	SW1312 - Pesticides SW1312 AsBeCrNiPbSb			56
✓ CR-A 162807	5/18/97	1305	MJ	1	8 oz Jar	4°	S	SW1312 - Pesticides SW1312 As Be Cr N. Pb Sb			57
✓ CR-A 162808	MJA 5/18/97	1000	MJ	1	8 oz Jar	4°	S	SW1312 - Pesticides			58
✓ CR-A 162809	5/19/97	1315 ~~1330~~	MJ	1	8 oz Jar	4°	S	SW1312 As Be Ni Pb Sb Cr			59

COMMENTS:

COLLECTED & RELEASED BY	DATE	TIME	TURNAROUND TIME		
[signature]	5/19/97	1700			
RECEIVED BY	DATE	TIME	RELINQUISHED BY	DATE	TIME
J S Patel	5/22/97	10:00 Am		/ /	:
RECORD RETURNED BY	DATE	TIME			
	/ /	:			
			SHIPPING NUMBER: 2652822325		

DISTRIBUTION: WHITE - PROJECT FILE / CANARY - LAB RECEIPT / PINK - DATA MANAGEMENT / GOLDENROD - FIELD

97E103

JACOBS ENGINEERING GROUP INC.
600 SEVENTEENTH STREET, SUITE 1100N DENVER, COLORADO 80202
TELEPHONE (303) 595 - 8855 FAX (303) 595 - 8857

CR-A1629 CHAIN OF CUSTODY RECORD

USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY. INSTRUCTIONS ARE ON THE BACK

PROJECT NAME: CARSWELL AFB (DO 21)
LABORATORY NAME & ADDRESS: ENVIRO LABORATORIES, INC.
630 Maple Avenue
Torrance CA 90503-

PROJECT NUMBER: 05G47900
WBS CODE: 505-01
SUBCONTRACT / D.O. No.

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF CONTAINERS	CONTAINER SIZE AND TYPE	PRESERVATIVE	MATRIX CODE	ANALYSES REQUESTED	QC	CONDITION ON RECEIPT	
CR-A162901	5/19/97	13:58	MJ	1	8 oz. Jar	4 deg C	S	SW1312 AsBeCrNiPbSb		T=2°C	60
CR-A162902	5/19/97	16:14 ~~15:27~~ MJ	MJ	1	8 oz. Jar	4 deg C	S	SW1312 AsBeCrNiPbSb			61
CR-A162903	5/19/97	15:27	MJ	1	8 oz. Jar	4 deg C	S	SW1312 - PCBs			62
CR-A162904	5/19/97	16:40	MJ	1	8 oz. Jar	4 deg C	S	SW1312 - PCBs			63
CR-A162905	5/19/97	17:04	MJ	1	8 oz. Jar	4 deg C	S	SW1312 - PCBs			64
CR-A162906	5/20/97	08:35	MJ	1	8 oz. Jar	4 deg C	S	SW1312 - PCBs			65
CR-A 162907	5/19/97	1730	MJ	1	500ml plastic	4° HNO3	W	As Be Cr Ni Pb Sb			66
CR-A 162908	5/19/97	1730	MJ	1	1L Amber	4°	W	SW-8080 Pesticides & PCB			67
~~CR-A 162909~~	~~5/19/97~~	~~1730~~	~~MJ~~	~~1~~	~~1L Amber~~	~~4°~~	~~W~~	~~PCB~~			

COMMENTS:

COLLECTED & RELEASED BY	DATE	TIME	TURNAROUND TIME		
[signature]	5/19/97	7:00			
RECEIVED BY [signature]	DATE 5/22/97	TIME 10:00	RELINQUISHED BY	DATE / /	TIME :
RECORD RETURNED BY	DATE / /	TIME :			
			SHIPPING NUMBER: 2652822325		

DISTRIBUTION: WHITE - PROJECT FILE / CANARY - LAB RECEIPT / PINK - DATA MANAGEMENT / GOLDENROD - FIELD

97E703

JACOBS ENGINEERING GROUP INC.
800 SEVENTEENTH STREET, SUITE 1100N DENVER, COLORADO 80202
TELEPHONE (303) 595 - 8855 FAX (303) 595 - 8857

CR-A1630 CHAIN OF CUSTODY RECORD

USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY. INSTRUCTIONS ARE ON THE BACK

PROJECT NAME: CARSWELL AFB (DO 21)
PROJECT NUMBER: 05C47900
WBS CODE: 505-01
SUBCONTRACT / D.O. No.
LABORATORY NAME & ADDRESS: ENVY LABORATORIES, INC.
630 Maple Avenue
Torrance CA 90503-

SAMPLE NUMBER	COLLECTION DATE	COLLECTION TIME	SAMPLER'S INITIALS	NUMBER OF CONTAINERS	CONTAINER SIZE AND TYPE	PRESERVATIVE	MATRIX CODE	ANALYSES REQUESTED	QC	CONDITION ON RECEIPT	
CR-A163001	5-6-97	08:42	MJ	1	8 oz. Jar	4 deg C	S	SW1312 - PCBs		T=2C	68
CR-A163002	5-6-97	08:55	MJ	1	8 oz. Jar	4 deg C	S	SW1312 - PCBs			69
CR-A163003	5-6-97	09:10	MJ	~~1~~ 2	~~8~~ 4 oz. Jar	4 deg C	S	SW1312 - PCBs			70
CR-A163004	5-6-97	09:12	MJ	~~1~~ 2	~~8~~ 4 oz. Jar	4 deg C	S	SW1312 - PCBs			
CR-A163005	5-6-97	09:15	MJ	~~1~~ 2	~~8~~ 4 oz. Jar	4 deg C	S	SW1312 - PCBs ~~SW1312 AsBeCrNiPbSb~~			72
CR-A163006	5-6-97	09:20	MJ	~~1~~ 2	~~8~~ 4 oz. Jar	4 deg C	S	SW1312 - PCBs			73
CR-A163007	5-6-97	09:25	MJ	~~1~~ 2	~~8~~ 4 oz. Jar	4 deg C	S	SW1312 - PCBs, SW1312 As Be Cr Ni Pb Sb			74
CR-A 163008	5/6/97	0900	MJ	1	8 oz Jar	4°	S	SW1312 - PCBs			75
CR-A 163009	5/6/97	0932	MJ	2	4 oz Jar	4°	S	SW 1312 As Be Cr Ni Pb Sb			76

COMMENTS:

COLLECTED & RELEASED BY	DATE	TIME	TURNAROUND TIME		
	5/6/97	1700			
RECEIVED BY	DATE	TIME	RELINQUISHED BY	DATE	TIME
	5/7/97	10:00		/ /	:
RECORD RETURNED BY	DATE	TIME			
	/ /	:			
			SHIPPING NUMBER: 2652822325		

DISTRIBUTION: WHITE - PROJECT FILE / CANARY - LAB RECEIPT / PINK - DATA MANAGEMENT / GOLDENROD - FIELD

FedEx *USA Airbill* 3 COOLERS Tracking Number 2652822325 97E103 5-22-97

MPS 924 3697 522 **pient's Copy**

1 From MPS 924 3697 513

Date 5/21/97

Sender's Name Mike Johnson Phone 323-595-8855

Dept./Floor/Suite/Room

Company Nicole Engineering 1100N

Address 600 17th St

City Denver State CO Zip 80202

2 Your Internal Billing Reference Information 0264-1400 505-01

3 To

Recipient's Name Cecilia Chavez Phone 310 618-8889

Dept./Floor/Suite/Room

Company EMAX Laboratories

Address 1630 Maple Ave.
(To "HOLD" at FedEx location, print FedEx address here)

City Torrance State Ca Zip 90503

For HOLD at FedEx Location check here
- [ ] Hold Weekday (Not available with FedEx First Overnight)
- [ ] Hold Saturday (Not available at all locations) (Not available with FedEx First Overnight or FedEx Standard Overnight)

For Saturday Delivery check here
- [ ] (Extra Charge. Not available to all locations) (Not available with FedEx First Overnight or FedEx Standard Overnight)

2652822325

4a Express Package Service *Packages under 150 lbs.* Delivery commitment may be later in some areas
- [x] FedEx Priority Overnight (Next business morning)
- [ ] FedEx Standard Overnight (Next business afternoon)
- [ ] FedEx 2Day* (Second business day)
- [ ] NEW FedEx First Overnight (Earliest next business morning delivery to select locations) (Higher rates apply)

* FedEx Letter Rate not available. Minimum charge: One pound FedEx 2Day rate

4b Express Freight Service *Packages over 150 lbs.* Delivery commitment may be later in some areas.
- [ ] FedEx Overnight Freight (Next business day service for any distance)
- [ ] FedEx 2Day Freight (Second business day service for any distance)
- [ ] FedEx Express Saver Freight (Up to 3 business day service based upon distance)

(Call for delivery schedule. See back for detailed descriptions of freight products.)

5 Packaging
- [ ] FedEx Letter
- [ ] FedEx Pak (Declared value limit $500)
- [ ] FedEx Box
- [ ] FedEx Tube
- [x] Other Pkg.

6 Special Handling

Does this shipment contain dangerous goods?
- [ ] Yes (As per attached Shipper's Declaration)
- [ ] Yes (Shipper's Declaration not required)
- [ ] Dry Ice — Dry Ice, 9, UN 1845 III ____ x ____ kg. 904 (Dangerous Goods Shipper's Declaration not required)
- CA [ ] Cargo Aircraft Only

7 Payment
- [ ] Obtain Recipient FedEx Account No.

Bill to:
- [x] Sender (Account no. in section 1 will be billed)
- [ ] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check

(Enter FedEx account no. or Credit Card no. below)

Total Packages	Total Weight	Total Declared Value*	Total Charges
3	184	$ .00	$

* When declaring a value higher than $100 per shipment, you pay an additional charge. See SERVICE CONDITIONS, DECLARED VALUE AND LIMIT OF LIABILITY section for further information.

Credit Card Auth.

8 Release Signature

Your signature authorizes Federal Express to deliver this shipment without obtaining a signature and agrees to indemnify and hold harmless Federal Express from any resulting claims.

272

Questions?
Call 1·800·Go·FedEx
(1-800-463-3339)

Rev. Date 6/96
PART #147957
©1994-96 FedEx
PRINTED IN U.S.A.
SEE BACK

SAMPLE RECEIPT FORM

CONTROL NO.	97E 103
CLIENT	JACOBS ENG
PROJECT	CARSWELL AFB

D021

DATE	05-22-97
TIME	10:00 AM
RECIPIENT	I. PATEL

SAMPLE TRANSPORTATION TO EMAX LABORATORY:		BY	ON(DATE)	AT(TIME)	FROM(SITE/CO.)	COMMENTS
PICKED-UP BY EMAX COURIER						
DELIVERED BY CLIENT ✓						
SHIPPED/AIRBILL NO.	FEDEX APTNS: 2652822325 MPS	924 3697	513	/-522	SEE AIRBILL	

SAMPLE BATCH PACKAGING/SEALING UPON RECEIPT:			✓ INTACT	___ DAMAGED	___ SEALED	✓ NOT SEALED	___ NO CONTAINER
CONTAINER:	INSIDE TEMPERATURE (4°C ± 2°C)	2° °C		CUSTODY SEAL		LOCATION	NUMBER
3 COOLERS	PACKAGING	TYPE	SUFFICIENCY	___ INTACT	___ DAMAGED		
___ BOX	INSULATION:		OK	NAME:			
___ OTHER:	ICE/COOLANT:	REGULAR		DATE:			
___	PACKING MATERIAL:	STYRO		TIME:			

SAMPLE DOCUMENTATION/CHAIN-OF-CUSTODY(COC)	___ SEALED	✓ ENCLOSED	___ HANDCARRIED	___ FAXED	___ MAILED

SAMPLE LOG-IN:	CRITERIA	COMMENTS	DISCREPANCY
SAMPLE CUSTODY SEAL	EVERY SAMPLE	NONE	
CONTAINER TYPE/MATERIAL	APPROPRIATE	OK	
SAMPLE AMOUNT	ENOUGH		
HOLDING TIME	SUFFICENT		
SAMPLE PRESERVATION (For appropriate preservative see GP-8001 Appendix I)	NaOH preserved samples pH ≥ 12 HNO_3 / H_2SO_4 preserved samples pH ≤ 2		
HEADSPACE/BUBBLES	ZERO/NONE		
SAMPLE LABEL INFORMATION	SUFFICIENT		
CHAIN-OF-CUSTODY INFORMATION	SUFFICIENT	SEE BELOW	

SAMPLE INFO.:	SAMPLE ID	DATE	TIME	SIGNATURE	ANALYSES	PRESERVATIVE	CONTAINER
	✓	✓	✓				

INDIVIDUAL SAMPLE CONTAINER: ___ NONE ✓ SEALED PLASTIC BAG ___ CAN ___ OTHER(SPECIFY): BUBBLEPAK

SAMPLE NUMBER	CLIENT ID	DISCREPANCY	ACTION
4	CR-A162104	REC'D (2) CONTAINERS, LABEL SAYS MS/MSD BUT COC DOES NOT SAY.	5/29/97 - w/ per prior MS/MSD.
14, 15		S. DATE IS 5-17-97 ON CONTAINER	Client has not resp.

CLIENT SERVICES COPY RECEIVED BY: Cullen 5/23/97 DATE TIME

LABORATORY REPORT FOR

JACOBS ENGINEERING GROUP

CARSWELL AFB / 05G47900

METALS

SDG#: 97E103

JUNE 21, 1997

CASE NARRATIVE

CLIENT: JACOBS ENGINEERING GROUP

PROJECT: CARSWELL AFB

SDG: 97E103

METALS

Fifty-two (51) water samples were received on 05/22/97 to be analyzed for beryllium, chromium, nickel, antimony, lead, and arsenic analysis in accordance with USEPA SW846. Fourty-six samples were requested for SPLP leaching prior to analysis.

1. **Holding Time**

   Digestion and analysis met holding time criteria.

2. **Blank**

   All blanks were free of contaminations at below PQL levels.

3. **Matrix Spike**

   All MS recoveries were within QC limits.

4. **Duplicate**

   All RPDs of duplicate results were within QC limits.

5 **Lab Control Sample/Lab Control Duplicate**

   All lab control results were within the control limits.

6. **Calibration**

   All initial and continuing calibration results were within QC criteria.

7. **Sample Analysis**

   Analysis was performed within the QC requirements.

   Arsenic and Lead were analyzed by Trace-ICP, beryllium and chromium by regular ICP, and nickel and antimony by GFAA methods.

05/27/1997 11:58

LAB CHRONICLE
SPLP Metals

LIENT: Jacobs Engineering Group
ROJECT: Carswell AFB / 05G47900

DG/BATCH NO.: 97E103
ATRIX: Soil

SAMPLE ID	CONTROL NO	%H2O	PREPARATION BATCH/DATE/TIME	ANALYTICAL BATCH/DATE/TIME	CALIB REF	FILE ID
R-A162101	E103-01	13.7	1PE025W / 5.29.97 / 13:00	I07E027 / 5.30.97		+
CR-A162105	E103-05	19.6				
CR-A162106	E103-06	21.7				
R-A162201	E103-10	20.2				
CR-A162202	E103-11	17.2				
R-A162203	E103-12	17.3				
CR-A162204	E103-13	15.2				
CR-A162205	E103-14	14.9				
R-A162206	E103-15	16.6				
CR-A162301	E103-17	16.1				
R-A162302	E103-18	16.8				
CR-A162303	E103-19	14.2				
CR-A162304	E103-20	16.2				
R-A162305	E103-21	13.2				
CR-A162306	E103-22	14.3				
R-A162401	E103-23	16.0				
CR-A162402	E103-24	11.5				
CR-A162403	E103-25	17.4				
R-A162404	E103-26	18.9				
CR-A162405	E103-27	19.0				
R-A162406	E103-28	17.5	1PE026W / 5.29.97 / 13:00	I07E027 / 5.30.97		+ +
CR-A162407	E103-29	11.9				

CR-A162501	E103-30	20.6	1PE026W	5.29.97	13:00	I07E027	5.30.97	* *
CR-A162502	E103-31	17.7	↓			↓		↓
CR-A162503	E103-32	20.9	↓			↓		↓
MBLKIW	1PE025WB		1PE025W	5.29.97	13:00	I07E027	5.30.97	*
LG	↓	WL	↓			↓		↓
LURB	↓	WR	↓			↓		↓

* As + Pb were analyzed by Trace-ICP on 5.30.97
File I31E029.

** As + Pb were analyzed by Trace-ICP on 6.2.97
File I31F001

SAMPLE ID	CONTROL NO	%H2O	PREPARATION BATCH/DATE/TIME	ANALYTICAL BATCH/DATE/TIME	CALIB REF	FILE ID
CR-A162504	E103-33	19.0	1PE026W/5.29.97/13:00	I07E027/5.30.97		* *
R-A162505	E103-34	20.2				
CR-A162506	E103-35	17.3				
R-A162601	E103-37	20.0				
CR-A162602	E103-38	13.8				
CR-A162603	E103-39	13.8				
R-A162604	E103-40	22.7				
CR-A162701	E103-42	7.0				
R-A162702	E103-43	19.1				
CR-A162703	E103-44	17.4				
CR-A162704	E103-45	22.5				
R-A162705	E103-46	20.8				
CR-A162706	E103-47	19.8				
R-A162707	E103-48	15.5				
CR-A162806	E103-56	NA				
R-A162807	E103-57	NA	1PE027W/5.29.97/13:00	I07F001/6.2.97		*
R-A162809	E103-59	NA				
CR-A162901	E103-60	NA				
R-A162902	E103-61	NA				
CR-A163007	E103-74	NA				
R A163009	E103-76	NA				
R-A162101MS	E103-01M	13.7	1PE025W/5.29.97/13:00	I07E027/5.30.97		
CR-A162101DUP	E103-01D	13.7				

CR-A162707MS	E103-48M 15.5	IPE026W	I07E027/5.30.97
CR-A162707DUP	E103-48D 15.5	↓	↓
CR-A162108MS	E103-08M NA	IPE027W	I07F001/6.2.97
CR-A163009DUP	E103-08D NA	↓	↓

** As + Pb were analyzed by Trace ICP on 6.2.97 File I31F001

MBLKW	IPE027WB	IPE027W/5.29.97/13:00	I07F001/6.2.97	*
ICS	WC	↓	↓	↓
LCSD	WC	↓	↓	↓

* As + Pb were analyzed by Trace-ICP on 6.3.97 File I31F002

05/27/1997 11:58

LAB CHRONICLE
Metals

LIENT: Jacobs Engineering Group
PROJECT: Carswell AFB / 05G47900

DG/BATCH NO.: 97E103
ATRIX: Water

SAMPLE ID	CONTROL NO	%H2O	PREPARATION BATCH/DATE/TIME	ANALYTICAL BATCH/DATE/TIME	CALIB REF	FILE ID
R-A162108	E103-08	NA	IPE027W/5.29.97/13:00	I07F001/6.2.97		*
R-A162207	E103-16	NA				
CR-A162507	E103-36	NA				
R-A162605	E103-41	NA				
CR-A162708	E103-49	NA				
R-A162907	E103-66	NA				
	~~E103-67~~					
MBLKIW	IPE027WB					
↳	↓	WL				
↳ D	↓	WL				

* As + Pb were analyzed by Trace-ICP File I31F002 on 6.3.97.

EPA 3005A/6010A
ARSENIC BY TRACE-ICP

Client : JACOBS ENGINEERING GROUP
Project : CARSWELL AFB / 05G47900
Batch No. : 97E103
Matrix : WATER

Date Collected : 05/18/97
DaTime Received: 05/22/97
Instrument ID : T-1007

SAMPLE ID	CONTROL NO	RESULTS (mg/L)	DLF	MOIST	PQL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH
MBLK5W	IPE027WB	ND	1	NA	.01	.0049	06/03/9716:13	05/29/9713:00	I31F002	I31F002	IPE027W
CR-A162108	E103-08	ND	1	NA	.01	.0049	06/03/9717:19	05/29/9713:00	I31F002	I31F002	IPE027W
CR-A162207*	E103-16	ND	1	NA	.01	.0049	06/03/9718:00	05/29/9713:00	I31F002	I31F002	IPE027W
CR-A162507**	E103-36	ND	1	NA	.01	.0049	06/03/9718:16	05/29/9713:00	I31F002	I31F002	IPE027W
CR-A162605***	E103-41	ND	1	NA	.01	.0049	06/03/9718:20	05/29/9713:00	I31F002	I31F002	IPE027W
CR-A162708****	E103-49	ND	1	NA	.01	.0049	06/03/9718:24	05/29/9713:00	I31F002	I31F002	IPE027W
CR-A162907*****	E103-66	ND	1	NA	.01	.0049	06/03/9718:28	05/29/9713:00	I31F002	I31F002	IPE027W

* DATE COLLECTED : 05/16/97
** DATE COLLECTED : 05/15/97
*** DATE COLLECTED : 05/17/97
**** DATE COLLECTED : 05/20/97
***** DATE COLLECTED : 05/19/97
PQL: Practical Quantitation Limit
AFCEE Ver. 1.1

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 3005A/6010A

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	CR-A162108	CR-A162108MS	CR-A162108MSD		
CONTROL NO.:	E103-08	E103-08M	E103-08S		
LAB FILE ID:	I31F002	I31F002	I31F002		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	05/18/97
DATIME ANALYZD:	06/03/9717:19	06/03/9717:36	06/03/9717:40	DATE RECEIVED:	05/22/97
PREP. BATCH:	IPE027W	IPE027W	IPE027W		
CALIB. REF:	I31F002	I31F002	I31F002		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	SPIKE AMT (mg/L)	MSD RSLT (mg/L)	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
Arsenic	ND	1.0	0.905	91	1.0	0.944	94	3	80-120	15

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 3005A/6010A

==========

MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	MBLK5W	LCS5W		
CONTROL NO.:	IPE027WB	IPE027WL		
LAB FILE ID:	131F002	131F002		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	NA
DATIME ANALYZD:	06/02/9716:13	06/02/9716:17	DATE RECEIVED:	05/29/97
PREP. BATCH:	IPE027W	IPE027W		
CALIB. REF:	131F002	131F002		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	QC LIMIT (%)
Arsenic	ND	1.0	0.956	96	80-120

EPA 1312/6010A
SPLP ARSENIC BY TRACE-ICP

Client : JACOBS ENGINEERING GROUP
Project : CARSWELL AFB / 05G47900
Batch No. : 97E103
Matrix : WATER

Date Collected : 05/18/97
DaTime Received: 05/22/97
Instrument ID : T-1007

SAMPLE ID	CONTROL NO	RESULTS (mg/L)	DLF	MOIST	PRL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH
MBLK1W	IPE025WB	ND	1	NA	.1	.049	05/30/9716:51	05/29/9713:00	IPE025	IPE025	IPE025W
MBLK2W	TXE005SB	ND	1	NA	.1	.049	05/30/9717:03	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162101	E103-01	ND	1	NA	.1	.049	05/30/9717:15	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162105*	E103-05	ND	1	NA	.1	.049	05/30/9717:38	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162106*	E103-06	ND	1	NA	.1	.049	05/30/9717:42	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162201**	E103-10	ND	1	NA	.1	.049	05/30/9718:04	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162202**	E103-11	ND	1	NA	.1	.049	05/30/9718:08	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162203**	E103-12	ND	1	NA	.1	.049	05/30/9718:12	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162204**	E103-13	ND	1	NA	.1	.049	05/30/9718:16	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162205**	E103-14	ND	1	NA	.1	.049	05/30/9718:20	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162206**	E103-15	ND	1	NA	.1	.049	05/30/9718:24	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162301***	E103-17	ND	1	NA	.1	.049	05/30/9718:29	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162302***	E103-18	ND	1	NA	.1	.049	05/30/9718:33	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162303***	E103-19	ND	1	NA	.1	.049	05/30/9718:37	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162304**	E103-20	ND	1	NA	.1	.049	05/30/9718:41	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162305**	E103-21	ND	1	NA	.1	.049	05/30/9719:01	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162306****	E103-22	ND	1	NA	.1	.049	05/30/9719:09	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162401*****	E103-23	ND	1	NA	.1	.049	05/30/9719:14	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162402****	E103-24	ND	1	NA	.1	.049	05/30/9719:18	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162403**	E103-25	ND	1	NA	.1	.049	05/30/9719:22	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162404**	E103-26	ND	1	NA	.1	.049	05/30/9719:26	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162405*****	E103-27	ND	1	NA	.1	.049	05/30/9719:30	05/29/9713:00	IPE025	IPE025	IPE025W
MBLK3W	IPE026WB	ND	1	NA	.1	.049	06/02/9717:22	05/29/9713:00	IPE026	IPE026	IPE026W
MBLK4W	TXE026SB	ND	1	NA	.1	.049	06/02/9717:34	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A162406**	E103-28	ND	1	NA	.1	.049	06/02/9719:41	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162407****	E103-29	ND	1	NA	.1	.049	06/02/9719:45	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162501**	E103-30	ND	1	NA	.1	.049	06/02/9719:49	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162502**	E103-31	ND	1	NA	.1	.049	06/02/9719:53	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162503*****	E103-32	ND	1	NA	.1	.049	06/02/9718:21	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162504****	E103-33	ND	1	NA	.1	.049	06/02/9718:25	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162505*****	E103-34	ND	1	NA	.1	.049	06/02/9718:41	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162506****	E103-35	ND	1	NA	.1	.049	06/02/9718:45	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162601****	E103-37	ND	1	NA	.1	.049	06/02/9718:49	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162602****	E103-38	ND	1	NA	.1	.049	06/02/9718:53	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162603****	E103-39	ND	1	NA	.1	.049	06/02/9718:57	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162604****	E103-40	ND	1	NA	.1	.049	06/02/9719:01	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162701	E103-42	ND	1	NA	.1	.049	06/02/9719:05	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162702	E103-43	ND	1	NA	.1	.049	06/02/9719:09	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162703	E103-44	ND	1	NA	.1	.049	06/02/9719:13	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162704	E103-45	ND	1	NA	.1	.049	06/02/9719:17	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162705	E103-46	ND	1	NA	.1	.049	06/02/9719:33	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162706	E103-47	ND	1	NA	.1	.049	06/02/9719:37	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162707	E103-48	ND	1	NA	.1	.049	06/02/9717:58	05/29/9713:00	IPE026	IPE026	IPE026W

CR-A162806	E103-56	ND	1	NA	.1	.049	06/02/9719:57	05/29/9713:00	IPE026	IPE026	IPE026W
MBLK5W	IPE027WB	ND	1	NA	.1	.049	06/03/9716:13	05/29/9713:00	IPE027	IPE027	IPE027W
MBLK6W	TXE007WB	ND	1	NA	.1	.049	06/03/9716:25	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A162807	E103-57	ND	1	NA	.1	.049	06/03/9716:37	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A162809*	E103-59	ND	1	NA	.1	.049	06/03/9716:59	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A162901*	E103-60	ND	1	NA	.1	.049	06/03/9717:03	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A162902*	E103-61	ND	1	NA	.1	.049	06/03/9717:48	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A163007******	E103-74	ND	1	NA	.1	.049	06/03/9717:52	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A163009******	E103-76	ND	1	NA	.1	.049	06/03/9717:56	05/29/9713:00	IPE027	IPE027	IPE027W

* DATE COLLECTED : 05/19/97
** DATE COLLECTED : 05/16/97
*** DATE COLLECTED : 05/14/97
**** DATE COLLECTED : 05/17/97
***** DATE COLLECTED : 05/15/97
****** DATE COLLECTED : 05/20/97
PQL: Practical Quantitation Limit
Leaching Date: 05/27/97 16:00
AFCEE Ver. 1.1

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 1312/6010A

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	CR-A162101				
CONTROL NO.:	E103-01	E103-01M	E103-01S		
LAB FILE ID:	IPE025	IPE025	IPE025		
DATIME EXTRCTD:	05/29/9713:00	05/30/9713:00	05/30/9713:00	DATE COLLECTED:	05/18/97
DATIME ANALYZD:	05/30/9717:15	05/30/9717:26	05/30/9717:30	DATE RECEIVED:	05/22/97
PREP. BATCH:	IPE025W	IPE025W	IPE025W		
CALIB. REF:	IPE025	IPE025	IPE025		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	SPIKE AMT (mg/L)	MSD RSLT (mg/L)	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
Arsenic	ND	10.000	9.900	99	10.000	8.890	89	11	80-120	15

AFCEE Ver. 1.1

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 1312/6010A

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	CR-A162707				
CONTROL NO.:	E103-48	E103-48M	E103-48S		
LAB FILE ID:	IPE026	IPE026	IPE026		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	05/18/97
DATIME ANALYZD:	06/02/9717:58	06/02/9718:09	06/02/9718:13	DATE RECEIVED:	05/22/97
PREP. BATCH:	IPE026W	IPE026W	IPE026W		
CALIB. REF:	IPE026	IPE026	IPE026		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	SPIKE AMT (mg/L)	MSD RSLT (mg/L)	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
Arsenic	ND	10.000	9.700	97	10.000	9.830	98	1	80-120	15

AFCEE Ver. 1.1

0013

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 1312/6010A

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	CR-A162807				
CONTROL NO.:	E103-57	E103-57M	E103-57S		
LAB FILE ID:	IPE027	IPE027	IPE027		
DATIME EXTRCTD:	05/29/9713:00	05/30/9713:00	05/30/9713:00	DATE COLLECTED:	05/18/97
DATIME ANALYZD:	06/03/9716:37	06/03/9716:47	06/03/9716:51	DATE RECEIVED:	05/22/97
PREP. BATCH:	IPE027W	IPE027W	IPE027W		
CALIB. REF:	IPE027	IPE027	IPE027		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	SPIKE AMT (mg/L)	MSD RSLT (mg/L)	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
Arsenic	ND	10.000	10.100	101	10.000	9.090	91	10	80-120	15

AFCEE Ver. 1.1

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 1312/6010A

MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	MBLK1W	LCS1W		
CONTROL NO.:	IPE025WB	IPE025WL		
LAB FILE ID:	IPE025	IPE025		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	NA
DATIME ANALYZD:	05/30/9716:51	05/30/9716:55	DATE RECEIVED:	NA
PREP. BATCH:	IPE025W	IPE025W		
CALIB. REF:	IPE025	IPE025		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	QC LIMIT (%)
Arsenic	ND	10.000	9.610	96	80-120

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 1312/6010A

MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	MBLK3W	LCS3W		
CONTROL NO.:	IPE026WB	IPE026WL		
LAB FILE ID:	IPE026	IPE026		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	NA
DATIME ANALYZD:	06/02/9717:22	06/02/9717:26	DATE RECEIVED:	NA
PREP. BATCH:	IPE026W	IPE026W		
CALIB. REF:	IPE026	IPE026		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	QC LIMIT (%)
Arsenic	ND	10.000	9.520	95	80-120

EPA 3005A/6010A
BERYLLIUM BY ICP

Client : JACOBS ENGINEERING GROUP
Project : CARSWELL AFB / 05G47900
Batch No. : 97E103
Matrix : WATER

Date Collected : 05/18/97
DaTime Received: 05/22/97
Instrument ID : T-1007

SAMPLE ID	CONTROL NO	RESULTS (mg/L)	DLF	MOIST	PQL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH
MBLK5W	IPE027WB	.00054F	1	NA	.003	.0003	06/02/9715:44	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A162108	E103-08	.00055F	1	NA	.003	.0003	06/02/9716:57	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A162207*	E103-16	.0018F	1	NA	.003	.0003	06/02/9717:15	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A162507**	E103-36	.00056F	1	NA	.003	.0003	06/02/9717:36	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A162605***	E103-41	.00052F	1	NA	.003	.0003	06/02/9717:40	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A162708****	E103-49	.00058F	1	NA	.003	.0003	06/02/9717:44	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A162907*****	E103-66	.00045F	1	NA	.003	.0003	06/02/9717:47	05/29/9713:00	IPE027	IPE027	IPE027W

* DATE COLLECTED : 05/16/97
** DATE COLLECTED : 05/15/97
*** DATE COLLECTED : 05/17/97
**** DATE COLLECTED : 05/20/97
***** DATE COLLECTED : 05/19/97
PQL: Practical Quantitation Limit
AFCEE Ver. 1.1

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 3005A/6010A

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	CR-A162108				
CONTROL NO.:	E103-08	E103-08M	E103-08S		
LAB FILE ID:	IPE027	IPE027	IPE027		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	05/18/97
DATIME ANALYZD:	06/02/9716:57	06/02/9717:06	06/02/9717:10	DATE RECEIVED:	05/22/97
PREP. BATCH:	IPE027W	IPE027W	IPE027W		
CALIB. REF:	IPE027	IPE027	IPE027		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	SPIKE AMT (mg/L)	MSD RSLT (mg/L)	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
Beryllium	.00055F	1.0	0.97	97	1.0	.916	92	6	80-120	15

AFCEE Ver. 1.1

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 3005A/6010A

MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	MBLK5W	LCS5W		
CONTROL NO.:	IPE027WB	IPE027WL		
LAB FILE ID:	IPE027	IPE027		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	NA
DATIME ANALYZD:	06/02/9715:44	06/02/9715:47	DATE RECEIVED:	NA
PREP. BATCH:	IPE027W	IPE027W		
CALIB. REF:	IPE027	IPE027		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	QC LIMIT (%)
Beryllium	.00054F	1.0	1.01	101	80-120

EPA 1312/6010A
SPLP BERYLLIUM BY ICP

Client : JACOBS ENGINEERING GROUP
Project : CARSWELL AFB / 05G47900
Batch No. : 97E103
Matrix : WATER

Date Collected : 05/18/97
DaTime Received: 05/22/97
Instrument ID : T-1007

SAMPLE ID	CONTROL NO	RESULTS (mg/L)	DLF	MOIST	PRL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH
MBLK1W	IPE025WB	.0129F	1	NA	.03	.003	05/30/9719:06	05/29/9713:00	IPE025	IPE025	IPE025W
MBLK2W	TXE005SB	.0162F	1	NA	.03	.003	05/30/9719;18	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162101	E103-01	.0158F	1	NA	.03	.003	05/30/9719:29	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162105*	E103-05	.0166F	1	NA	.03	.003	05/30/9719:49	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162106*	E103-06	.0126F	1	NA	.03	.003	05/30/9719:53	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162201**	E103-10	.0135F	1	NA	.03	.003	05/30/9720:08	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162202**	E103-11	.0124F	1	NA	.03	.003	05/30/9720:12	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162203**	E103-12	.0119F	1	NA	.03	.003	05/30/9720:15	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162204**	E103-13	.0115F	1	NA	.03	.003	05/30/9720:19	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162205**	E103-14	.0115F	1	NA	.03	.003	05/30/9720:23	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162206**	E103-15	.0114F	1	NA	.03	.003	05/30/9720:27	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162301***	E103-17	.0111F	1	NA	.03	.003	05/30/9720:30	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162302***	E103-18	.0109F	1	NA	.03	.003	05/30/9720:34	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162303***	E103-19	.011F	1	NA	.03	.003	05/30/9720:38	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162304**	E103-20	.0108F	1	NA	.03	.003	05/30/9720:41	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162305**	E103-21	.0137F	1	NA	.03	.003	05/30/9720:56	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162306****	E103-22	.0117F	1	NA	.03	.003	05/30/9721:00	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162401*****	E103-23	.0108F	1	NA	.03	.003	05/30/9721:04	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162402****	E103-24	.0113F	1	NA	.03	.003	05/30/9721:08	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162403**	E103-25	.0104F	1	NA	.03	.003	05/30/9721:11	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162404**	E103-26	.0112F	1	NA	.03	.003	05/30/9721:15	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162405*****	E103-27	.0106F	1	NA	.03	.003	05/30/9721:19	05/29/9713:00	IPE025	IPE025	IPE025W
MBLK3W	IPE026WB	.0133F	1	NA	.03	.003	05/30/9722:02	05/29/9713:00	IPE026	IPE026	IPE026W
MBLK4W	TXE006SB	.015F	1	NA	.03	.003	05/30/9722:13	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162406**	E103-28	.0144F	1	NA	.03	.003	05/30/9722:24	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162407****	E103-29	.0121F	1	NA	.03	.003	05/30/9722:28	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162501**	E103-30	.0113F	1	NA	.03	.003	05/30/9722:32	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162502**	E103-31	.0117F	1	NA	.03	.003	05/30/9722:35	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162503*****	E103-32	.0112F	1	NA	.03	.003	05/30/9722:39	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162504****	E103-33	.011F	1	NA	.03	.003	05/30/9722:43	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162505*****	E103-34	.0128F	1	NA	.03	.003	05/30/9722:58	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162506****	E103-35	.0118F	1	NA	.03	.003	05/30/9723:02	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162601****	E103-37	.0111F	1	NA	.03	.003	05/30/9723:05	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162602****	E103-38	.011F	1	NA	.03	.003	05/30/9723:09	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162603****	E103-39	.0115F	1	NA	.03	.003	05/30/9723:13	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162604****	E103-40	.0109F	1	NA	.03	.003	05/30/9723:17	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162701	E103-42	.0107F	1	NA	.03	.003	05/30/9723:20	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162702	E103-43	.0113F	1	NA	.03	.003	05/30/9723:24	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162703	E103-44	.0113F	1	NA	.03	.003	05/30/9723:28	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162704	E103-45	.0115F	1	NA	.03	.003	05/30/9723:31	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162705	E103-46	.0139F	1	NA	.03	.003	05/30/9723:46	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162706	E103-47	.0108F	1	NA	.03	.003	05/30/9723:50	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162707	E103-48	.0108F	1	NA	.03	.003	05/30/9723:54	05/29/9713:00	IPE026	IPE026	IPE026W

CR-A162806	E103-56	.0149F	1	NA	.03	.003	05/31/9700:14	05/29/9713:00	IPE026	IPE026	IPE026W
MBLK5W	IPE027WB	.0054F	1	NA	.03	.003	06/02/9715:44	05/29/9713:00	IPE027	IPE027	IPE027W
MBLK6W	TXE007SB	.00942F	1	NA	.03	.003	06/02/9715:55	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A162807	E103-57	.00896F	1	NA	.03	.003	06/02/9716:06	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A162809*	E103-59	.0106F	1	NA	.03	.003	06/02/9716:27	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A162901*	E103-60	.00533F	1	NA	.03	.003	06/02/9716:30	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A162902*	E103-61	.0068F	1	NA	.03	.003	06/02/9716:45	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A163007******	E103-74	.00545F	1	NA	.03	.003	06/02/9716:49	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A163009******	E103-76	.00487F	1	NA	.03	.003	06/02/9716:53	05/29/9713:00	IPE027	IPE027	IPE027W

* DATE COLLECTED : 05/19/97
** DATE COLLECTED : 05/16/97
*** DATE COLLECTED : 05/14/97
**** DATE COLLECTED : 05/17/97
***** DATE COLLECTED : 05/15/97
****** DATE COLLECTED : 05/20/97
PQL: Practical Quantitation Limit
Leaching Date: xx/xx/xx
AFCEE Ver. 1.1

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 1312/6010A

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	CR-A162101				
CONTROL NO.:	E103-01	E103-01M	E103-01S		
LAB FILE ID:	IPE025	IPE025	IPE025		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	05/18/97
DATIME ANALYZD:	05/30/9719:29	05/30/9719:38	05/30/9719:42	DATE RECEIVED:	05/22/97
PREP. BATCH:	IPE025W	IPE025W	IPE025W		
CALIB. REF:	IPE025	IPE025	IPE025		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	SPIKE AMT (mg/L)	MSD RSLT (mg/L)	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
Beryllium	.016F	10.000	10.300	103	10.000	9.500	95	8	80-120	15

AFCEE Ver. 1.1

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 1312/6010A

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	CR-A162707				
CONTROL NO.:	E103-48	E103-48M	E103-48S		
LAB FILE ID:	IPE026	IPE026	IPE026		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	05/18/97
DATIME ANALYZD:	05/30/9723:54	05/31/9700:03	05/31/9700:07	DATE RECEIVED:	05/22/97
PREP. BATCH:	IPE026W	IPE026W	IPE026W		
CALIB. REF:	IPE026	IPE026	IPE026		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	SPIKE AMT (mg/L)	MSD RSLT (mg/L)	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
Beryllium	.011F	10.000	9.100	91	10.000	9.260	92	2	80-120	15

AFCEE Ver. 1.1

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 1312/6010A

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	CR-A162807				
CONTROL NO.:	E103-57	E103-57M	E103-57S		
LAB FILE ID:	IPE027	IPE027	IPE027		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	05/18/97
DATIME ANALYZD:	06/02/9716:06	06/02/9716:15	06/02/9716:19	DATE RECEIVED:	05/22/97
PREP. BATCH:	IPE027W	IPE027W	IPE027W		
CALIB. REF:	IPE027	IPE027	IPE027		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	SPIKE AMT (mg/L)	MSD RSLT (mg/L)	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
Beryllium	.009F	10.000	10.500	105	10.000	10.300	103	2	80-120	15

AFCEE Ver. 1.1

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 1312/6010A

==========

MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	MBLK1W	LCS1W		
CONTROL NO.:	IPE025WB	IPE025WL		
LAB FILE ID:	IPE025	IPE025		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	NA
DATIME ANALYZD:	05/30/9719:06	05/30/9719:10	DATE RECEIVED:	NA
PREP. BATCH:	IPE025W	IPE025W		
CALIB. REF:	IPE025	IPE025		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	QC LIMIT (%)
Beryllium	.0129F	10.000	9.990	100	80-120

0025

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 1312/6010A

==========

MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	MBLK3W	LCS3W		
CONTROL NO.:	IPE026WB	IPE026WL		
LAB FILE ID:	IPE026	IPE026		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	NA
DATIME ANALYZD:	05/30/9722:02	05/30/9722:06	DATE RECEIVED:	NA
PREP. BATCH:	IPE026W	IPE026W		
CALIB. REF:	IPE026	IPE026		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	QC LIMIT (%)
Beryllium	.0133F	10.000	9.540	95	80-120

0026

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 1312/6010A

MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	MBLK5W	LCS5W		
CONTROL NO.:	IPE027WB	IPE027WL		
LAB FILE ID:	IPE027	IPE027		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	NA
DATIME ANALYZD:	06/02/9715:44	06/02/9715:47	DATE RECEIVED:	NA
PREP. BATCH:	IPE027W	IPE027W		
CALIB. REF:	IPE027	IPE027		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	QC LIMIT (%)
Beryllium	.00543F	10.000	10.100	101	80-120

0027

EPA 3005A/6010A
CHROMIUM BY ICP

Client : JACOBS ENGINEERING GROUP
Project : CARSWELL AFB / 05G47900
Batch No. : 97E103
Matrix : WATER

Date Collected : 05/18/97
DaTime Received: 05/22/97
Instrument ID : T-1007

SAMPLE ID	CONTROL NO	RESULTS (mg/L)	DLF	MOIST	PQL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH
MBLK5W	IPE027WB	ND	1	NA	.02	.0089	06/02/9715:44	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A162108	E103-08	ND	1	NA	.02	.0089	06/02/9716:57	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A162207*	E103-16	ND	1	NA	.02	.0089	06/02/9717:15	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A162507**	E103-36	ND	1	NA	.02	.0089	06/02/9717:36	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A162605***	E103-41	ND	1	NA	.02	.0089	06/02/9717:40	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A162708****	E103-49	ND	1	NA	.02	.0089	06/02/9717:44	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A162907*****	E103-66	ND	1	NA	.02	.0089	06/02/9717:47	05/29/9713:00	IPE027	IPE027	IPE027W

* DATE COLLECTED : 05/16/97
** DATE COLLECTED : 05/15/97
*** DATE COLLECTED : 05/17/97
**** DATE COLLECTED : 05/20/97
***** DATE COLLECTED : 05/19/97
PQL: Practical Quantitation Limit
AFCEE Ver. 1.1

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 3005A/6010A

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	CR-A162108				
CONTROL NO.:	E103-08	E103-08M	E103-08S		
LAB FILE ID:	IPE027	IPE027	IPE027		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	05/18/97
DATIME ANALYZD:	06/02/9716:57	06/02/9717:06	06/02/9717:10	DATE RECEIVED:	05/22/97
PREP. BATCH:	IPE027W	IPE027W	IPE027W		
CALIB. REF:	IPE027	IPE027	IPE027		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	SPIKE AMT (mg/L)	MSD RSLT (mg/L)	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
Chromium	ND	1.00	0.94	94	1.00	.952	95	1	80-120	15

AFCEE Ver. 1.1

0029

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 3005A/6010A

MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	MBLK1W	LCS5W		
CONTROL NO.:	IPE027WB	IPE027WL		
LAB FILE ID:	IPE027	IPE027		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	NA
DATIME ANALYZD:	06/02/9715:44	06/02/9715:47	DATE RECEIVED:	NA
PREP. BATCH:	IPE027W	IPE027W		
CALIB. REF:	IPE027	IPE027		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	QC LIMIT (%)
Chromium	ND	1.0	1.03	103	80-120

EPA 1312/6010A
SPLP CHROMIUM BY ICP

Client : JACOBS ENGINEERING GROUP
Project : CARSWELL AFB / 05G47900
Batch No. : 97E103
Matrix : WATER

Date Collected : 05/18/97
DaTime Received: 05/22/97
Instrument ID : T-1007

SAMPLE ID	CONTROL NO	RESULTS (mg/L)	DLF	MOIST	PRL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH
MBLK1W	IPE025WB	ND	1	NA	.2	.089	05/30/9719:06	05/29/9713:00	IPE025	IPE025	IPE025W
MBLK2W	TXE005SB	ND	1	NA	.2	.089	05/30/9719;18	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162101	E103-01	ND	1	NA	.2	.089	05/30/9719:29	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162105*	E103-05	ND	1	NA	.2	.089	05/30/9719:49	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162106*	E103-06	ND	1	NA	.2	.089	05/30/9719:53	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162201**	E103-10	ND	1	NA	.2	.089	05/30/9720:08	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162202**	E103-11	ND	1	NA	.2	.089	05/30/9720:12	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162203**	E103-12	ND	1	NA	.2	.089	05/30/9720:15	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162204**	E103-13	ND	1	NA	.2	.089	05/30/9720:19	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162205**	E103-14	ND	1	NA	.2	.089	05/30/9720:23	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162206**	E103-15	ND	1	NA	.2	.089	05/30/9720:27	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162301***	E103-17	ND	1	NA	.2	.089	05/30/9720:30	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162302***	E103-18	ND	1	NA	.2	.089	05/30/9720:34	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162303***	E103-19	ND	1	NA	.2	.089	05/30/9720:38	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162304**	E103-20	ND	1	NA	.2	.089	05/30/9720:41	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162305**	E103-21	ND	1	NA	.2	.089	05/30/9720:56	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162306****	E103-22	ND	1	NA	.2	.089	05/30/9721:00	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162401*****	E103-23	ND	1	NA	.2	.089	05/30/9721:04	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162402****	E103-24	ND	1	NA	.2	.089	05/30/9721:08	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162403**	E103-25	ND	1	NA	.2	.089	05/30/9721:11	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162404**	E103-26	ND	1	NA	.2	.089	05/30/9721:15	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162405*****	E103-27	ND	1	NA	.2	.089	05/30/9721:19	05/29/9713:00	IPE025	IPE025	IPE025W
MBLK3W	IPE026WB	ND	1	NA	.2	.089	05/30/9722:02	05/29/9713:00	IPE026	IPE026	IPE026W
MBLK4W	TXE006SB	ND	1	NA	.2	.089	05/30/9722:13	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162406**	E103-28	ND	1	NA	.2	.089	05/30/9722:24	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162407****	E103-29	ND	1	NA	.2	.089	05/30/9722:28	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162501**	E103-30	ND	1	NA	.2	.089	05/30/9722:32	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162502**	E103-31	ND	1	NA	.2	.089	05/30/9722:35	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162503*****	E103-32	ND	1	NA	.2	.089	05/30/9722:39	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162504****	E103-33	ND	1	NA	.2	.089	05/30/9722:43	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162505*****	E103-34	ND	1	NA	.2	.089	05/30/9722:58	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162506****	E103-35	ND	1	NA	.2	.089	05/30/9723:02	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162601****	E103-37	ND	1	NA	.2	.089	05/30/9723:05	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162602****	E103-38	ND	1	NA	.2	.089	05/30/9723:09	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162603****	E103-39	ND	1	NA	.2	.089	05/30/9723:13	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162604****	E103-40	ND	1	NA	.2	.089	05/30/9723:17	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162701	E103-42	ND	1	NA	.2	.089	05/30/9723:20	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162702	E103-43	ND	1	NA	.2	.089	05/30/9723:24	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162703	E103-44	ND	1	NA	.2	.089	05/30/9723:28	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162704	E103-45	ND	1	NA	.2	.089	05/30/9723:31	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162705	E103-46	ND	1	NA	.2	.089	05/30/9723:46	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162706	E103-47	ND	1	NA	.2	.089	05/30/9723:50	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162707	E103-48	ND	1	NA	.2	.089	05/30/9723:54	05/29/9713:00	IPE026	IPE026	IPE026W

CR-A162806	E103-56	ND	1	NA	.2	.089	05/31/97 4	05/29/9713:00	IPE026	IPE026	IPE026W
MBLK5W	IPE027WB	ND	1	NA	.2	.089	06/02/97 4	05/29/9713:00	IPE027	IPE027	IPE027W
LCS5W	IPE027WL	ND	1	NA	.2	.089	06/02/9715:47	05/29/9713:00	IPE027	IPE027	IPE027W
MBLK6W	TXE007SB	ND	1	NA	.2	.089	06/02/9715:55	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A162807	E103-57	ND	1	NA	.2	.089	06/02/9716:06	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A162809*	E103-59	ND	1	NA	.2	.089	06/02/9716:27	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A162901*	E103-60	ND	1	NA	.2	.089	06/02/9716:30	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A162902*	E103-61	ND	1	NA	.2	.089	06/02/9716:45	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A163007******	E103-74	ND	1	NA	.2	.089	06/02/9716:49	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A163009******	E103-76	ND	1	NA	.2	.089	06/02/9716:53	05/29/9713:00	IPE027	IPE027	IPE027W

* DATE COLLECTED : 05/19/97
** DATE COLLECTED : 05/16/97
*** DATE COLLECTED : 05/14/97
**** DATE COLLECTED : 05/17/97
***** DATE COLLECTED : 05/15/97
****** DATE COLLECTED : 05/20/97
PQL: Practical Quantitation Limit
Leaching Date: xx/xx/xx
AFCEE Ver. 1.1

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 1312/6010A

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	CR-A162101				
CONTROL NO.:	E103-01	E103-01M	E103-01S		
LAB FILE ID:	IPE025	IPE025	IPE025		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	05/18/97
DATIME ANALYZD:	05/30/9719:29	05/30/9719:38	05/30/9719:42	DATE RECEIVED:	05/22/97
PREP. BATCH:	IPE025W	IPE025W	IPE025W		
CALIB. REF:	IPE025	IPE025	IPE025		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	SPIKE AMT (mg/L)	MSD RSLT (mg/L)	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
Chromium	ND	10.000	10.400	104	10.000	9.590	96	8	80-120	15

AFCEE Ver. 1.1

0033

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 1312/6010A

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	CR-A162707				
CONTROL NO.:	E103-48	E103-48M	E103-48S		
LAB FILE ID:	IPE026	IPE026	IPE026		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	05/18/97
DATIME ANALYZD:	05/30/9723:54	05/31/9700:03	05/31/9700:07	DATE RECEIVED:	05/22/97
PREP. BATCH:	IPE026W	IPE026W	IPE026W		
CALIB. REF:	IPE026	IPE026	IPE026		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	SPIKE AMT (mg/L)	MSD RSLT (mg/L)	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
Chromium	ND	10.000	8.830	88	10.000	9.03	90	2	80-120	15

AFCEE Ver. 1.1

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 1312/6010A

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	CR-A162807				
CONTROL NO.:	E103-57	E103-57M	E103-57S		
LAB FILE ID:	IPE027	IPE027	IPE027		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	05/18/97
DATIME ANALYZD:	06/02/9716:06	06/02/9716:15	06/02/9716:19	DATE RECEIVED:	05/22/97
PREP. BATCH:	IPE027W	IPE027W	IPE027W		
CALIB. REF:	IPE027	IPE027	IPE027		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	SPIKE AMT (mg/L)	MSD RSLT (mg/L)	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
Chromium	ND	10.000	10.700	107	10.000	10.500	105	2	80-120	15

AFCEE Ver. 1.1

0035

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 1312/6010A

MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	MBLK1W	LCS1W		
CONTROL NO.:	IPE025WB	IPE025WL		
LAB FILE ID:	IPE025	IPE025		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	NA
DATIME ANALYZD:	05/30/9719:06	05/30/9719:10	DATE RECEIVED:	NA
PREP. BATCH:	IPE025W	IPE025W		
CALIB. REF:	IPE025	IPE025		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	QC LIMIT (%)
Chromium	ND	10.000	10.000	100	80-120

0036

0036

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 1312/6010A

MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	MBLK3W	LCS3W		
CONTROL NO.:	IPE026WB	IPE026WL		
LAB FILE ID:	IPE026	IPE026		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	NA
DATIME ANALYZD:	05/30/9722:02	05/30/9722:06	DATE RECEIVED:	NA
PREP. BATCH:	IPE026W	IPE026W		
CALIB. REF:	IPE026	IPE026		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	QC LIMIT (%)
Chromium	ND	10.000	9.430	94	80-120

0037

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 1312/6010A

==========

MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	MBLK5W	LCS5W		
CONTROL NO.:	IPE027WB	IPE027WL		
LAB FILE ID:	IPE027	IPE027		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	NA
DATIME ANALYZD:	06/02/9715:44	06/02/9715:47	DATE RECEIVED:	NA
PREP. BATCH:	IPE027W	IPE027W		
CALIB. REF:	IPE027	IPE027		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	QC LIMIT (%)
Chromium	ND	10.000	10.300	103	80-120

EPA 3005A/6010A
LEAD BY TRACE-ICP

Client : JACOBS ENGINEERING GROUP
Project : CARSWELL AFB / 05G47900
Batch No. : 97E103
Matrix : WATER

Date Collected : 05/18/97
DaTime Received: 05/22/97
Instrument ID : T-I007

SAMPLE ID	CONTROL NO	RESULTS (mg/L)	DLF	MOIST	PQL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH
MBLK5W	IPE027WB	ND	1	NA	.005	.0016	06/03/9716:13	05/29/9713:00	I31F002	I31F002	IPE027W
CR-A162108	E103-08	ND	1	NA	.005	.0016	06/03/9717:19	05/29/9713:00	I31F002	I31F002	IPE027W
CR-A162207*	E103-16	ND	1	NA	.005	.0016	06/03/9718:00	05/29/9713:00	I31F002	I31F002	IPE027W
CR-A162507**	E103-36	ND	1	NA	.005	.0016	06/03/9718:16	05/29/9713:00	I31F002	I31F002	IPE027W
CR-A162605***	E103-41	ND	1	NA	.005	.0016	06/03/9718:20	05/29/9713:00	I31F002	I31F002	IPE027W
CR-A162708****	E103-49	ND	1	NA	.005	.0016	06/03/9718:24	05/29/9713:00	I31F002	I31F002	IPE027W
CR-A162907*****	E103-66	ND	1	NA	.005	.0016	06/03/9718:28	05/29/9713:00	I31F002	I31F002	IPE027W

* DATE COLLECTED : 05/16/97
** DATE COLLECTED : 05/15/97
*** DATE COLLECTED : 05/17/97
**** DATE COLLECTED : 05/20/97
***** DATE COLLECTED : 05/19/97
PQL: Practical Quantitation Limit
AFCEE Ver. 1.1

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 3005A/6010A

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	CR-A162108				
CONTROL NO.:	E103-08	E103-08M	E103-08S		
LAB FILE ID:	I31F002	I31F002	I31F002		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	05/18/97
DATIME ANALYZD:	06/03/9717:19	06/03/9717:36	06/03/9717:40	DATE RECEIVED:	05/22/97
PREP. BATCH:	IPE027W	IPE027W	IPE027W		
CALIB. REF:	I31F002	I31F002	I31F002		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	SPIKE AMT (mg/L)	MSD RSLT (mg/L)	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
Lead	ND	1.0	0.906	91	1.0	0.920	92	2	80-120	15

AFCEE Ver. 1.1

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 3005A/6010A

==========

MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	MBLK5W	LCS5W		
CONTROL NO.:	IPE027WB	IPE027WL		
LAB FILE ID:	131F002	131F002		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	NA
DATIME ANALYZD:	06/03/9716:13	06/03/9716:17	DATE RECEIVED:	05/29/97
PREP. BATCH:	IPE027W	IPE027W		
CALIB. REF:	131F002	131F002		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	QC LIMIT (%)
Lead	ND	1.0	.995	100	80-120

EPA 1312/6010A
SPLP LEAD BY TRACE-ICP

Client : JACOBS ENGINEERING GROUP
Project : CARSWELL AFB / 05G47900
Batch No. : 97E103
Matrix : WATER

Date Collected : 05/18/97
DaTime Received: 05/22/97
Instrument ID : T-I007

SAMPLE ID	CONTROL NO	RESULTS (mg/L)	DLF	MOIST	PRL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH
MBLK1W	IPE025WB	ND	1	NA	.05	.016	05/30/9716:51	05/29/9713:00	IPE025	IPE025	IPE025W
MBLK2W	TXE005SB	ND	1	NA	.05	.016	05/30/9717:03	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162101	E103-01	ND	1	NA	.05	.016	05/30/9717:15	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162105*	E103-05	ND	1	NA	.05	.016	05/30/9717:38	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162106*	E103-06	ND	1	NA	.05	.016	05/30/9717:42	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162201**	E103-10	ND	1	NA	.05	.016	05/30/9718:04	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162202**	E103-11	ND	1	NA	.05	.016	05/30/9718:08	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162203**	E103-12	ND	1	NA	.05	.016	05/30/9718:12	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162204**	E103-13	ND	1	NA	.05	.016	05/30/9718:16	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162205**	E103-14	.039F	1	NA	.05	.016	05/30/9718:20	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162206**	E103-15	ND	1	NA	.05	.016	05/30/9718:24	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162301***	E103-17	ND	1	NA	.05	.016	05/30/9718:29	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162302***	E103-18	ND	1	NA	.05	.016	05/30/9718:33	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162303***	E103-19	ND	1	NA	.05	.016	05/30/9718:37	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162304**	E103-20	ND	1	NA	.05	.016	05/30/9718:41	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162305**	E103-21	ND	1	NA	.05	.016	05/30/9719:01	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162306****	E103-22	ND	1	NA	.05	.016	05/30/9719:09	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162401*****	E103-23	ND	1	NA	.05	.016	05/30/9719:14	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162402****	E103-24	.0315F	1	NA	.05	.016	05/30/9719:18	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162403**	E103-25	ND	1	NA	.05	.016	05/30/9719:22	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162404**	E103-26	ND	1	NA	.05	.016	05/30/9719:26	05/29/9713:00	IPE025	IPE025	IPE025W
CR-A162405*****	E103-27	ND	1	NA	.05	.016	05/30/9719:30	05/29/9713:00	IPE025	IPE025	IPE025W
MBLK3W	IPE026WB	ND	1	NA	.05	.016	06/02/9717:22	05/29/9713:00	IPE026	IPE026	IPE026W
MBLK4W	TXE026SB	ND	1	NA	.05	.016	06/02/9717:34	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A162406**	E103-28	ND	1	NA	.05	.016	06/02/9719:41	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162407****	E103-29	.0629	1	NA	.05	.016	06/02/9719:45	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162501**	E103-30	ND	1	NA	.05	.016	06/02/9719:49	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162502**	E103-31	ND	1	NA	.05	.016	06/02/9719:53	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162503*****	E103-32	ND	1	NA	.05	.016	06/02/9718:21	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162504****	E103-33	.0206F	1	NA	.05	.016	06/02/9718:25	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162505*****	E103-34	ND	1	NA	.05	.016	06/02/9718:41	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162506****	E103-35	ND	1	NA	.05	.016	06/02/9718:45	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162601****	E103-37	ND	1	NA	.05	.016	06/02/9718:49	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162602****	E103-38	ND	1	NA	.05	.016	06/02/9718:53	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162603****	E103-39	ND	1	NA	.05	.016	06/02/9718:57	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162604****	E103-40	ND	1	NA	.05	.016	06/02/9719:01	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162701	E103-42	ND	1	NA	.05	.016	06/02/9719:05	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162702	E103-43	.0238F	1	NA	.05	.016	06/02/9719:09	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162703	E103-44	.0186F	1	NA	.05	.016	06/02/9719:13	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162704	E103-45	ND	1	NA	.05	.016	06/02/9719:17	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162705	E103-46	ND	1	NA	.05	.016	06/02/9719:33	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162706	E103-47	ND	1	NA	.05	.016	06/02/9719:37	05/29/9713:00	IPE026	IPE026	IPE026W
CR-A162707	E103-48	.0719	1	NA	.05	.016	06/02/9717:58	05/29/9713:00	IPE026	IPE026	IPE026W

CR-A162806	E103-56	.0230F	1	NA	.05	.016	06/02/9719:57	05/29/9713:00	IPE026	IPE026	IPE026W
MBLK5W	IPE027WB	ND	1	NA	.05	.016	06/03/9716:13	05/29/9713:00	IPE027	IPE027	IPE027W
MBLK6W	TXE007WB	ND	1	NA	.05	.016	06/03/9716:25	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A162807	E103-57	ND	1	NA	.05	.016	06/03/9716:37	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A162809*	E103-59	ND	1	NA	.05	.016	06/03/9716:59	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A162901*	E103-60	ND	1	NA	.05	.016	06/03/9717:03	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A162902*	E103-61	ND	1	NA	.05	.016	06/03/9717:48	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A163007******	E103-74	ND	1	NA	.05	.016	06/03/9717:52	05/29/9713:00	IPE027	IPE027	IPE027W
CR-A163009******	E103-76	ND	1	NA	.05	.016	06/03/9717:56	05/29/9713:00	IPE027	IPE027	IPE027W

* DATE COLLECTED : 05/19/97
** DATE COLLECTED : 05/16/97
*** DATE COLLECTED : 05/14/97
**** DATE COLLECTED : 05/17/97
***** DATE COLLECTED : 05/15/97
****** DATE COLLECTED : 05/20/97
PQL: Practical Quantitation Limit
Leaching Date: xx/xx/xx
AFCEE Ver. 1.1

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 1312/6010A

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	CR-A162101				
CONTROL NO.:	E103-01	E103-01M	E103-01S		
LAB FILE ID:	IPE025	IPE025	IPE025		
DATIME EXTRCTD:	05/29/9713:00	05/30/9713:00	05/30/9713:00	DATE COLLECTED:	05/18/97
DATIME ANALYZD:	05/30/9717:15	05/30/9717:26	05/30/9717:30	DATE RECEIVED:	05/22/97
PREP. BATCH:	IPE025W	IPE025W	IPE025W		
CALIB. REF:	IPE025	IPE025	IPE025		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	SPIKE AMT (mg/L)	MSD RSLT (mg/L)	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
Lead	ND	10.000	9.990	100	10.000	8.940	89	11	80-120	15

AFCEE Ver. 1.1

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 1312/6010A

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	CR-A162707				
CONTROL NO.:	E103-48	E103-48M	E103-48S		
LAB FILE ID:	IPE026	IPE026	IPE026		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	05/18/97
DATIME ANALYZD:	06/02/9717:58	06/02/9718:09	06/02/9718:13	DATE RECEIVED:	05/22/97
PREP. BATCH:	IPE026W	IPE026W	IPE026W		
CALIB. REF:	IPE026	IPE026	IPE026		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	SPIKE AMT (mg/L)	MSD RSLT (mg/L)	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
Lead	.0719	10.000	9.770	97	10.000	9.790	97	0	80-120	15

AFCEE Ver. 1.1

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 1312/6010A

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	CR-A162807				
CONTROL NO.:	E103-57	E103-57M	E103-57S		
LAB FILE ID:	IPE027	IPE027	IPE027		
DATIME EXTRCTD:	05/29/9713:00	05/30/9713:00	05/30/9713:00	DATE COLLECTED:	05/18/97
DATIME ANALYZD:	06/03/9716:37	06/03/9716:47	06/03/9716:51	DATE RECEIVED:	05/22/97
PREP. BATCH:	IPE027W	IPE027W	IPE027W		
CALIB. REF:	IPE027	IPE027	IPE027		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	SPIKE AMT (mg/L)	MSD RSLT (mg/L)	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
Lead	ND	10.000	10.400	104	10.000	9.650	96	7	80-120	15

AFCEE Ver. 1.1

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 1312/6010A

MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	MBLK1W	LCS1W		
CONTROL NO.:	IPE025WB	IPE025WL		
LAB FILE ID:	IPE025	IPE025		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	NA
DATIME ANALYZD:	05/30/9716:51	05/30/9716:55	DATE RECEIVED:	NA
PREP. BATCH:	IPE025W	IPE025W		
CALIB. REF:	IPE025	IPE025		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	QC LIMIT (%)
Lead	ND	10.000	9.800	98	80-120

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 1312/6010A

MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	MBLK3W	LCS3W		
CONTROL NO.:	IPE026WB	IPE026WL		
LAB FILE ID:	IPE026	IPE026		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	NA
DATIME ANALYZD:	06/02/9717:22	06/02/9717:26	DATE RECEIVED:	NA
PREP. BATCH:	IPE026W	IPE026W		
CALIB. REF:	IPE026	IPE026		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	QC LIMIT (%)
Lead	ND	10.000	9.770	98	80-120

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 1312/6010A

==========

MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	MBLK5W	LCS5W		
CONTROL NO.:	IPE027WB	IPE027WL		
LAB FILE ID:	IPE027	IPE027		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	NA
DATIME ANALYZD:	06/03/9716:13	06/03/9716:17	DATE RECEIVED:	NA
PREP. BATCH:	IPE027W	IPE027W		
CALIB. REF:	IPE027	IPE027		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	QC LIMIT (%)
Lead	ND	10.000	9.950	99	80-120

05/27/1997 11:58

LAB CHRONICLE
SPLP Nickel

LIENT: Jacobs Engineering Group
ROJECT: Carswell AFB / 05G47900

DG/BATCH NO.: 97E103
ATRIX: Soil

SAMPLE ID	CONTROL NO	%H2O	PREPARATION BATCH/DATE/TIME	ANALYTICAL BATCH/DATE/TIME	CALIB REF	FILE ID	
R-A162101	E103-01	13.7	GFE003/TXE005/5-27@	G06F004 ~~TXE005~~/6-4-97/@ 1727	CCV1	G06F004	1
R-A162105	E103-05	19.6	1500hrs	1747	↓		2
CR-A162106	E103-06	21.7		1800	CCV2		24
R-A162201	E103-10	20.2		1804			25
CR-A162202	E103-11	17.2		1808			26
R-A162203	E103-12	17.3		1812			27
CR-A162204	E103-13	15.2		1817			28
CR-A162205	E103-14	14.9		1821			29
R-A162206	E103-15	16.6		1825			30
CR-A162301	E103-17	16.1		1829			31
R-A162302	E103-18	16.8		1834			32
CR-A162303	E103-19	14.2		1838	↓		33
CR-A162304	E103-20	16.2		1855	CCV3		34
R-A162305	E103-21	13.2		1859			37
CR-A162306	E103-22	14.3		1904			38
R-A162401	E103-23	16.0		1908			39
CR-A162402	E103-24	11.5		1912			40
CR-A162403	E103-25	17.4		1917			41
R-A162404	E103-26	18.9		1921			42
CR-A162405	E103-27	19.0	↓	1925	↓	↓	43
R-A162406	E103-28	17.5	GFE004/TXE005/05-27@1600	G03F004/6-4-97/@2325	G03F004/ CCV1	G03F004	-2
CR-A162407	E103-29	11.9	↓	0050 2338	G03F004/ CCV2	↓	-22

			GFE003/TXE003/5-27-97C		GC3F004/6-4-97/C		G03F004/CCV1	G03F004
CR-A162501	E103-30	20.6	1600		2342			
CR-A162502	E103-31	17.7			2346			
CR-A162503	E103-32	20.9			2350			
GFMBLKW1	GFE003WB		GFE003/5-29-97C 1300		GCGF004/6-4-97/C	1710	GCGF004/CCV1	GCGF004
LCSW1	↓	WL	↓			1714		
TXMBLKS1	TXE005SB		TXE005S/5-27-97C 1600			1718		
LCSS1		SL				1723		
MSS1	E103-	01M				1739		
MSDS1		01S				1743		
MSAS1		01A	GFE003/5-29-97C 1300			1735		
Ser.Dil		01T	↓			1731		
GFMBLKW2	GFE004WB		GFE004W/5-29-97C 1300		GC3F004/6-4-97/C	2248	GC3F004/CCV1	GC3F
LCSW2	↓	WL	↓			2252		
TXMBLKS2	TXE006SB		TXE006/5-27-97C 1600			2256		
LCSS2	↓	SL				2300		
MSAS2	E103-	48A				2313		
Ser.Dil	↓	48T				2309		

SAMPLE ID	CONTROL NO	%H2O	PREPARATION BATCH/DATE/TIME	ANALYTICAL BATCH/DATE/TIME	CALIB REF	FILE ID
CR-A162504	E103-33	19.0	GFE004/TXE001/@5-27-97	G03F004/6-4-97/@2354	G03F004/CCV2	G03F004
R-A162505	E103-34	20.2	@ 1600 hrs	2318		
CR-A162506	E103-35	17.3		6-5-97/@0003		
R-A162601	E103-37	20.0		0007		
CR-A162602	E103-38	13.8		0011		
CR-A162603	E103-39	13.8		0016		
R-A162604	E103-40	22.7		0028	G03F004/CCV3	
CR-A162701	E103-42	7.0		0033		
R-A162702	E103-43	19.1		0037		
CR-A162703	E103-44	17.4		0041		
CR-A162704	E103-45	22.5		0046		
R-A162705	E103-46	20.8		0050		
CR-A162706	E103-47	19.8		0054		
R-A162707	E103-48	15.5		6-4-97@ 2305 0064	G06F004/CCV1	
CR-A162806	E103-56	NA		6-5-97@ 0058	G06F004/CCV3	
R-A162807	E103-57	NA	TXE007/5-27-97@1600 GFE005/5-27-97@1300	G03F003/6-4-97/@1438	G03F003/CCV1	G03F003
R-A162809	E103-59	NA		1458		
CR-A162901	E103-60	NA		1511	G03F003/CCV2	
R-A162902	E103-61	NA		1515		
CR-A163007	E103-74	NA		1519		
R-A163009	E103-76	NA		1523		
R-A162101MS	E103-01M	13.7	TXE001/5-27-97/@1500	G06F004/6-4-97/@1739	G06F004 CCV1	G06F004
CR-A162101DUP	E103-01D	13.7		1743		

CR-A162707MS	E103-48M	15.5	TX E00 GS/5-27-97 1600	G03F004/6-4-97/2	2317	G03F004/	G03F004-19		
MS	S								
CR-A162707PUP	E103-48D	15.5	↓	↓	↓	2321	CCV1	↓	20
CR-A162108MS	E103-08M	NA	GFEC05/5-24-97 1300						
MS	S		TXEC07S/5-27-97/c 1600	G03F003/6-4-97/	1540	G03F003/CCV1	G03F003-		3
CR-A163009PUP	E103-08D	NA	↓	↓	↓	1544	CCV2	↓	3
GFMBLKW3	GFEC05WB		GFEC05W/5-29-97 1300	G03F003/6-4-97/	1421	G03F003/CCV1	G03F003		
LCSW3	↓	WL	↓		1425				1
TXMBLKS3	TXEC07SB		TXEC07/5-29-97 1600		1429				16
LCSS3	↓	SL			1434	↓			15
MSAS3	E103-57A				1446	G03F003/CCV1			14
Serial Dilution	57T				1442	↓			17
MSAW1	-08A		GFEC05/5-29-97 1300		1536	G03F003/CCV2			30
Serial Dilution	08T		↓		1532	↓			20

05/27/1997 11:58

LAB CHRONICLE
Nickel

CLIENT: Jacobs Engineering Group
PROJECT: Carswell AFB / 05G47900

LOG/BATCH NO.: 97E103
MATRIX: Water

SAMPLE ID	CONTROL NO	%H2O	PREPARATION BATCH/DATE/TIME	ANALYTICAL BATCH/DATE/TIME	CALIB REF	FILE ID	
CR-A162108	E103-08	NA	6FE003W/5-29-97/0 1300	603F003/6-4-97/0 1527	603F003/CCV2	603F003-28	
CR-A162207	E103-16	NA		1549			35
CR-A162507	E103-36	NA		1602	603F003/CCV3		36
CR-A162605	E103-41	NA		1606			37
CR-A162708	E103-49	NA		1610			38
CR-A162907	E103-66	NA		1614			39

EPA 3020A/7520
NICKEL BY GFAA

Client : JACOBS ENGINEERING GROUP
Project : CARSWELL AFB / 05G47900
Batch No. : 97E103
Matrix : WATER

Date Collected : 05/18/97
DaTime Received: 05/22/97
Instrument ID : EMAXTI03

SAMPLE ID	CONTROL NO	RESULTS (mg/L)	DLF	MOIST	PQL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH
MBLK5W	GFE005WB	ND	1	NA	.01	.002	06/04/9714:21	05/29/9713:00	G03F003012	G03F003010	GFE005W
CR-A162108	E103-08	ND	1	NA	.01	.002	06/04/9715:27	05/29/9713:00	G03F003028	G03F003022	GFE005W
CR-A162207*	E103-16	ND	1	NA	.01	.002	06/04/9715:49	05/29/9713:00	G03F003033	G03F003022	GFE005W
CR-A162507**	E103-36	ND	1	NA	.01	.002	06/04/9716:02	05/29/9713:00	G03F003036	G03F003034	GFE005W
CR-A162605***	E103-41	ND	1	NA	.01	.002	06/04/9716:06	05/29/9713:00	G03F003037	G03F003034	GFE005W
CR-A162708****	E103-49	ND	1	NA	.01	.002	06/04/9716:10	05/29/9713:00	G03F003038	G03F003034	GFE005W
CR-A162907*****	E103-66	ND	1	NA	.01	.002	06/04/9716:14	05/29/9713:00	G03F003039	G03F003034	GFE005W

* DATE COLLECTED : 05/16/97
** DATE COLLECTED : 05/15/97
*** DATE COLLECTED : 05/17/97
**** DATE COLLECTED : 05/20/97
***** DATE COLLECTED : 05/19/97
PQL: Practical Quantitation Limit
AFCEE Ver. 1.1

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 3020A/7520

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	CR-A162108				
CONTROL NO.:	E103-08	E103-08M	E103-08S		
LAB FILE ID:	G03F003028	G03F003031	G03F003032		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	05/18/97
DATIME ANALYZD:	06/04/9715:27	06/04/9715:40	06/04/9715:44	DATE RECEIVED:	05/22/97
PREP. BATCH:	GFE005W	GFE005W	GFE005W		
CALIB. REF:	G03F003022	G03F003022	G03F003022		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	SPIKE AMT (mg/L)	MSD RSLT (mg/L)	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
Nickel	ND	.010	.0104	104	.010	.00973	97	7	75-125	15

AFCEE Ver. 1.1

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 3020A/7520

MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	MBLK5W	LCS5W		
CONTROL NO.:	GFE005WB	GFE005WL		
LAB FILE ID:	G03F003012	G03F003013		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	NA
DATIME ANALYZD:	06/04/9714:21	06/04/9714:25	DATE RECEIVED:	NA
PREP. BATCH:	GFE005W	GFE005W		
CALIB. REF:	G03F003010	G03F003010		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	QC LIMIT (%)
Nickel	ND	.010	.00956	96	75-125

EPA 1312/3020/7520
SPLP/NICKEL BY GFAA

Client : JACOBS ENGINEERING GROUP
Project : CARSWELL AFB / 05G47900
Batch No. : 97E103
Matrix : WATER

Date Collected : 05/18/97
DaTime Received: 05/22/97
Instrument ID : EMAXTI06

SAMPLE ID	CONTROL NO	RESULTS (mg/L)	DLF	MOIST	PRL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH
CR-A162101	E103-01	ND	1	NA	.1	.02	06/04/9717:27	05/29/9713:00	G06F004015	G06F004009	GFE003W
CR-A162105*	E103-05	ND	1	NA	.1	.02	06/04/9717:47	05/29/9713:00	G06F004020	G06F004009	GFE003W
CR-A162106*	E103-06	ND	1	NA	.1	.02	06/04/9718:00	05/29/9713:00	G06F004023	G06F004021	GFE003W
CR-A162201**	E103-10	ND	1	NA	.1	.02	06/04/9718:04	05/29/9713:00	G06F004024	G06F004021	GFE003W
CR-A162202**	E103-11	ND	1	NA	.1	.02	06/04/9718:08	05/29/9713:00	G06F004025	G06F004021	GFE003W
CR-A162203**	E103-12	ND	1	NA	.1	.02	06/04/9718:12	05/29/9713:00	G06F004026	G06F004021	GFE003W
CR-A162204**	E103-13	ND	1	NA	.1	.02	06/04/9718:17	05/29/9713:00	G06F004027	G06F004021	GFE003W
CR-A162205**	E103-14	ND	1	NA	.1	.02	06/04/9718:21	05/29/9713:00	G06F004028	G06F004021	GFE003W
CR-A162206**	E103-15	ND	1	NA	.1	.02	06/04/9718:25	05/29/9713:00	G06F004029	G06F004021	GFE003W
CR-A162301***	E103-17	ND	1	NA	.1	.02	06/04/9718:25	05/29/9713:00	G06F004030	G06F004021	GFE003W
CR-A162302***	E103-18	ND	1	NA	.1	.02	06/04/9718:34	05/29/9713:00	G06F004031	G06F004021	GFE003W
CR-A162303***	E103-19	ND	1	NA	.1	.02	06/04/9718:38	05/29/9713:00	G06F004032	G06F004021	GFE003W
CR-A162304**	E103-20	ND	1	NA	.1	.02	06/04/9718:55	05/29/9713:00	G06F004036	G06F004034	GFE003W
CR-A162305**	E103-21	ND	1	NA	.1	.02	06/04/9718:59	05/29/9713:00	G06F004037	G06F004034	GFE003W
CR-A162306****	E103-22	ND	1	NA	.1	.02	06/04/9719:04	05/29/9713:00	G06F004038	G06F004034	GFE003W
CR-A162401*****	E103-23	ND	1	NA	.1	.02	06/04/9719:08	05/29/9713:00	G06F004039	G06F004034	GFE003W
CR-A162402****	E103-24	ND	1	NA	.1	.02	06/04/9719:12	05/29/9713:00	G06F004040	G06F004034	GFE003W
CR-A162403**	E103-25	ND	1	NA	.1	.02	06/04/9719:17	05/29/9713:00	G06F004041	G06F004034	GFE003W
CR-A162404**	E103-26	ND	1	NA	.1	.02	06/04/9719:21	05/29/9713:00	G06F004042	G06F004034	GFE003W
CR-A162405*****	E103-27	ND	1	NA	.1	.02	06/04/9719:25	05/29/9713:00	G06F004043	G06F004034	GFE003W
CR-A162406**!	E103-28	ND	1	NA	.1	.02	06/04/9723:25	05/29/9713:00	G03F004020	G03F004009	GFE004W
CR-A162407****!	E103-29	ND	1	NA	.1	.02	06/04/9723:38	05/29/9713:00	G03F004023	G03F004021	GFE004W
CR-A162501**!	E103-30	ND	1	NA	.1	.02	06/04/9723:42	05/29/9713:00	G03F004024	G03F004021	GFE004W
CR-A162502**!	E103-31	ND	1	NA	.1	.02	06/04/9723:46	05/29/9713:00	G03F004025	G03F004021	GFE004W
CR-A162503*****!	E103-32	ND	1	NA	.1	.02	06/04/9723:50	05/29/9713:00	G03F004026	G03F004021	GFE004W
CR-A162504****!	E103-33	ND	1	NA	.1	.02	06/04/9723:54	05/29/9713:00	G03F004027	G03F004021	GFE004W
CR-A162505*****!	E103-34	ND	1	NA	.1	.02	06/04/9723:58	05/29/9713:00	G03F004028	G03F004021	GFE004W
CR-A162506****!	E103-35	ND	1	NA	.1	.02	06/05/9700:03	05/29/9713:00	G03F004029	G03F004021	GFE004W
CR-A162601****!	E103-37	ND	1	NA	.1	.02	06/05/9700:07	05/29/9713:00	G03F004030	G03F004021	GFE004W
CR-A162602****!	E103-38	ND	1	NA	.1	.02	06/05/9700:11	05/29/9713:00	G03F004031	G03F004021	GFE004W
CR-A162603****!	E103-39	ND	1	NA	.1	.02	06/05/9700:16	05/29/9713:00	G03F004032	G03F004021	GFE004W
CR-A162604****!	E103-40	ND	1	NA	.1	.02	06/05/9700:28	05/29/9713:00	G03F004035	G03F004033	GFE004W
CR-A162701!	E103-42	ND	1	NA	.1	.02	06/05/9700:33	05/29/9713:00	G03F004036	G03F004033	GFE004W
CR-A162702!	E103-43	ND	1	NA	.1	.02	06/05/9700:37	05/29/9713:00	G03F004037	G03F004033	GFE004W
CR-A162703!	E103-44	ND	1	NA	.1	.02	06/05/9700:41	05/29/9713:00	G03F004038	G03F004033	GFE004W
CR-A162704!	E103-45	ND	1	NA	.1	.02	06/05/9700:46	05/29/9713:00	G03F004039	G03F004033	GFE004W
CR-A162705!	E103-46	ND	1	NA	.1	.02	06/05/9700:50	05/29/9713:00	G03F004040	G03F004033	GFE004W
CR-A162706!	E103-47	ND	1	NA	.1	.02	06/05/9700:54	05/29/9713:00	G03F004041	G03F004033	GFE004W
CR-A162707!	E103-48	ND	1	NA	.1	.02	06/04/9723:05	05/29/9713:00	G03F004015	G03F004009	GFE004W
CR-A162806!	E103-56	ND	1	NA	.1	.02	06/05/9700:58	05/29/9713:00	G03F004042	G03F004033	GFE004W
CR-A162807!	E103-57	ND	1	NA	.1	.02	06/04/9714:38	05/29/9713:00	G03F003016	G03F003010	GFE005W
CR-A162809*!	E103-59	ND	1	NA	.1	.02	06/04/9714:58	05/29/9713:00	G03F003021	G03F003010	GFE005W
CR-A162901*!	E103-60	ND	1	NA	.1	.02	06/04/9715:11	05/29/9713:00	G03F003024	G03F003022	GFE005W

CR-A162902*!	E103-61	ND	1	NA	.1	.02	06/04/9715:15	05/29/9713:00	G03F003025	G03F003022	GFE005W
CR-A163007******!	E103-74	ND	1	NA	.1	.02	06/04/9715:19	05/29/9713:00	G03F003026	G03F003022	GFE005W
CR-A163009******!	E103-76	ND	1	NA	.1	.02	06/04/9715:23	05/29/9713:00	G03F003027	G03F003022	GFE005W
MBLK1W	GFE003WB	ND	1	NA	.1	.02	06/04/9717:10	05/29/9713:00	G06F004011	G06F004009	GFE003W
MBLK2W	TXE005SB	ND	1	NA	.1	.02	06/04/9717:18	05/29/9713:00	G06F004013	G06F004009	GFE003W
MBLK3W!	GFE004WB	ND	1	NA	.1	.02	06/04/9722:48	05/29/9713:00	G03F004011	G03F004009	GFE004W
MBLK4W!	TXE006SB	ND	1	NA	.1	.02	06/04/9722:56	05/29/9713:00	G03F004013	G03F004009	GFE004W
MBLK5W!	GFE005WB	ND	1	NA	.1	.02	06/04/9714:21	05/29/9713:00	G03F003012	G03F003010	GFE005W
MBLK6W!	TXE007SB	ND	1	NA	.1	.02	06/04/9714:29	05/29/9713:00	G03F003014	G03F003010	GFE005W

* DATE COLLECTED : 05/19/97
** DATE COLLECTED : 05/16/97
*** DATE COLLECTED : 05/14/97
**** DATE COLLECTED : 05/17/97
***** DATE COLLECTED : 05/15/97
****** DATE COLLECTED : 05/20/97
! Instrument ID : EMAXTI03
PQL: Practical Quantitation Limit
Leaching Date: xx/xx/xx
AFCEE Ver. 1.1

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 1312/7520

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	CR-A162807				
CONTROL NO.:	E103-57	E103-57M	E103-57S		
LAB FILE ID:	G03F003016	G03F003019	G03F003020		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	05/18/97
DATIME ANALYZD:	06/04/9714:38	06/04/9714:50	06/04/9714:54	DATE RECEIVED:	05/22/97
PREP. BATCH:	GFE005W	GFE005W	GFE005W		
CALIB. REF:	G03F003010	G03F003010	G03F003010		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	SPIKE AMT (mg/L)	MSD RSLT (mg/L)	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
Nickel	ND	.10	.105	105	.10	.106	106	1	75-125	15

AFCEE Ver. 1.1

0300

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 1312/7520

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	CR-A162101				
CONTROL NO.:	E103-01	E103-01M	E103-01S		
LAB FILE ID:	G06F004015	G06F004018	G06F004019		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	05/18/97
DATIME ANALYZD:	06/04/9717:27	06/04/9717:39	06/04/9717:43	DATE RECEIVED:	05/22/97
PREP. BATCH:	GFE003W	GFE003W	GFE003W		
CALIB. REF:	G06F004009	G06F004009	G06F004009		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	SPIKE AMT (mg/L)	MSD RSLT (mg/L)	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
Nickel	ND	.10	.098	98	.10	.091	91	7	75-125	15

AFCEE Ver. 1.1

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 1312/7520

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	CR-A162707				
CONTROL NO.:	E103-48	E103-48M	E103-48S		
LAB FILE ID:	G03F004015	G06F004018	G03F004019		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	05/18/97
DATIME ANALYZD:	06/04/9723:05	06/04/9723:17	06/04/9723:21	DATE RECEIVED:	05/22/97
PREP. BATCH:	GFE004W	GFE003W	GFE004W		
CALIB. REF:	G03F004009	G06F004009	G03F004009		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	SPIKE AMT (mg/L)	MSD RSLT (mg/L)	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
Nickel	ND	.10	.101	101	.10	.094	94	7	75-125	15

AFCEE Ver. 1.1

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 1312/7520

MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	MBLK1W	LCS1W		
CONTROL NO.:	GFE003WB	GFE003WL		
LAB FILE ID:	G06F004011	G06F004012		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	NA
DATIME ANALYZD:	06/04/9717:10	06/04/9717:14	DATE RECEIVED:	NA
PREP. BATCH:	GFE003W	GFE003W		
CALIB. REF:	G06F004009	G06F004009		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	QC LIMIT (%)
Nickel	ND	.10	.093	93	75-125

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 1312/7520

MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	MBLK3W	LCS3W		
CONTROL NO.:	GFE004WB	GFE004WL		
LAB FILE ID:	G03F004011	G03F004012		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	NA
DATIME ANALYZD:	06/04/9722:48	06/04/9722:52	DATE RECEIVED:	NA
PREP. BATCH:	GFE004W	GFE004W		
CALIB. REF:	G03F004009	G03F004009		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	QC LIMIT (%)
Nickel	ND	.10	.108	108	75-125

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 1312/7520

==========

MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	MBLK5W	LCS5W		
CONTROL NO.:	GFE005WB	GFE005WL		
LAB FILE ID:	G03F003012	G03F003013		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	NA
DATIME ANALYZD:	06/04/9714:21	06/04/9714:25	DATE RECEIVED:	NA
PREP. BATCH:	GFE005W	GFE005W		
CALIB. REF:	G03F003010	G03F003010		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	QC LIMIT (%)
Nickel	ND	.10	.096	96	75-125

0065

05/27/1997 11:58

LAB CHRONICLE
SPLP Antimony

CLIENT: Jacobs Engineering Group
PROJECT: Carswell AFB / 05G47900

LOG/BATCH NO.: 97E103
MATRIX: Soil

SAMPLE ID	CONTROL NO	%H2O	PREPARATION BATCH/DATE/TIME	ANALYTICAL BATCH/DATE/TIME	CALIB REF	FILE ID	
GR-A162101	E103-01	13.7	IPE025 ~~CFE026~~/TXE005 5/5-20-97	G06F001/ 6-3/97 ~~TXE005~~/5-27 @ 1636	CCV1 G06F001-	G06F001-1	
CR-A162105	E103-05	19.6	@ 1300 hrs. ~~@ 1300 hrs.~~	1836			21
CR-A162106	E103-06	21.7		1830			24
CR-A162201	E103-10	20.2		1834			25
CR-A162202	E103-11	17.2		1837			26
CR-A162203	E103-12	17.3		1841			27
CR-A162204	E103-13	15.2		1844			28
CR-A162205	E103-14	14.9		1848			29
CR-A162206	E103-15	16.6		1852			30
CR-A162301	E103-17	16.1		1856			31
CR-A162302	E103-18	16.8		1859			32
CR-A162303	E103-19	14.2		1911	CCV2		33
CR-A162304	E103-20	16.2		1915			34
CR-A162305	E103-21	13.2		1918			37
CR-A162306	E103-22	14.3		1922			38
CR-A162401	E103-23	16.0		1926			39
CR-A162402	E103-24	11.5		1930			40
CR-A162403	E103-25	17.4		1933			41
CR-A162404	E103-26	18.9		1937			42
CR-A162405	E103-27	19.0		1941			43
CR-A162406	E103-28	17.5	IPE026 ~~CFE026~~/TXE005/5-20/~~600~~	G03F001/6-3-97/6 1813	G03F001/CCV1	G03F00	
CR-A162407	E103-29	11.9	@ 1300	1824	G03F001/CCV2	-2 2	

CR-A162501	E103-30	20.6	IPED26/ ~~GFE004~~	TXE002/5-29@1300		G03F001/6-3-97	1828	G03F001/ CCV2	G03F001-2	
CR-A162502	E103-31	17.7		↓		↓	↓ 1835	↓	↓	
CR-A162503	E103-32	20.9		↓		↓	↓ 1835	↓	↓	-2
GFMBLKW1	~~GFE003~~ IPED25	WB	IPED25/ ~~GFE003~~	TXE003S/		G06F001/6-3-97/@	1622	G06F001/CCV1	G06F00	
LCSW1	↓	WL		5/29@1300			1625			
TXMBLKS1	TXE005	SB					1629			
LCSS 1	↓	SL					1633			
MSS1	E103-	01M					1644			
MSDS1	↓	01S					1651			
MSAS1	E103-	01A					1644			
Serial Dil.	↓	01T					1640			
GFMBLKW2	IPED26 ~~GFE004~~	WB	IPED26 ~~GFE004~~	/5-29@1300		G03F001/6-3-97@	1740	G03F001/ CCV1	G03F001-	
LCSW2	↓	WL		↓			1744			
TXMBLKS2	TXE006	SB		TXE006S/5-29@ ~~1300~~ 1300			1748			
LCSS2	↓	SL					1752			
MSAS2	E103-	48A					1802			
Serial Dil		48T					1759			
GFMBLKW3	IPED27 ~~GFE005~~	WB	IPED27 ~~GFE005~~	W/5-29@1300		G03F002/6-3-97/@	2049	G03F002/CCV1	G03F00	
LCSW3	↓	WL		↓			2053			
TXMBLKS3	TXE007	SB		TXE007S/5-29@1300			2057			
LCSS 3	↓	SL					2101			
MSAS 3	E103-	57A					2111			
Serial Dilution		57T					2108			
MSAW1	E103-	08A		TXE007 ~~GFE007~~ W/5-29@1300			2155	G03F002/ CCV2		
Serial Dilution		08T		↓			2152	↓		2

SAMPLE ID	CONTROL NO	%H2O	PREPARATION BATCH/DATE/TIME	ANALYTICAL BATCH/DATE/TIME	CALIB REF	FILE ID
CR-A162504	E103-33	19.0	TXE006S/5-29-97C/900	G03F001/6-3-97/1839	G03F001/CCV2	G03F001-
R-A162505	E103-34	20.2		1842		2
CR-A162506	E103-35	17.3		1846		3
R-A162601	E103-37	20.0		1850		3
CR-A162602	E103-38	13.8		1854		3
CR-A162603	E103-39	13.8		1858		3
R-A162604	E103-40	22.7		1909	G03F001/CCV3	G03F001 36
CR-A162701	E103-42	7.0		1913		37
R-A162702	E103-43	19.1		1917		38
CR-A162703	E103-44	17.4		1920		39
CR-A162704	E103-45	22.5		1924		4
R-A162705	E103-46	20.8		1928		41
CR-A162706	E103-47	19.8		1931		42
R-A162707	E103-48	15.5		1755 ~~1935~~	G03F001/CCV1	16
CR-A162806	E103-56	NA		1935	G03F001/CCV3	43
R-A162807	E103-57	NA	TXE007S/5-29-97C/900	G03F002/6-3-97C 2104	G03F002/CCV1	G03F002-
R-A162809	E103-59	NA		2122	G03F002/CCV1	2
CR-A162901	E103-60	NA		2133	G03F002/CCV2	2
R-A162902	E103-61	NA		2137		2
CR-A163007	E103-74	NA		2141		2
R-A163009	E103-76	NA		2144		2
CR-A162101MS	E103-01M	13.7	~~IPE005~~ ~~G03F001~~/TXE001/5-27-97C	G06F001/6-3-97C 1647	G06F001/	G06F001
CR-A162101DUP	E103-01D	13.7	1600	1651	CCV1	-19 20

CR-A162707MS	E103-48M	15.5	TXE005	S/5-29-97/@ 1600	GD3F001	6-3-97/@ 1806	G03F001/CV1	G03F001
MS	S							
CR-A162707DUP	E103-48D	15.5		1300			1809	
K								
CR-A162108MS	E103-08M	NA	~~IPE087~~ ~~GF001~~	5-29-97/@ 1300	G03F002	6-3-97 @ 2159	G03F002/CV2	G03F002
MS	S							
CR-A163009DUP	E103-08D	NA					2203	
K								

05/27/1997 11:58

LAB CHRONICLE
Antimony

CLIENT: Jacobs Engineering Group
PROJECT: Carswell AFB / 05G47900

LOG/BATCH NO.: 97E103
MATRIX: Water

SAMPLE ID	CONTROL NO	%H2O	PREPARATION BATCH/DATE/TIME	ANALYTICAL BATCH/DATE/TIME	CALIB REF	FILE ID
CR-A162108	E103-08	NA	~~TPE027~~ ~~TPE027~~ ~~G3P002~~ W/5-29-97@1300	G03P002/6-3-97@2148	G03P002/CCV2	G03P002
CR-A162207	E103-16	NA			2207	
CR-A162507	E103-36	NA			2218 G03P002/CCV3	
CR-A162605	E103-41	NA			2222	
CR-A162708	E103-49	NA			2226	
CR-A162907	E103-66	NA			2229	

EPA 3005A/7041
ANTIMONY BY GFAA

Client : JACOBS ENGINEERING GROUP
Project : CARSWELL AFB / 05G47900
Batch No. : 97E103
Matrix : WATER

Date Collected : 05/18/97
DaTime Received: 05/22/97
Instrument ID : EMAXTI03

SAMPLE ID	CONTROL NO	RESULTS (mg/L)	DLF	MOIST	PQL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH
MBLK5W	IPE027WB	ND	1	NA	.005	.002	06/03/9720:49	05/29/9713:00	G03F002012	G03F002010	IPE027W
CR-A162108	E103-08	ND	1	NA	.005	.002	06/03/9721:48	05/29/9713:00	G03F002028	G03F002022	IPE027W
CR-A162207*	E103-16	ND	1	NA	.005	.002	06/03/9722:07	05/29/9713:00	G03F002033	G03F002022	IPE027W
CR-A162507**	E103-36	ND	1	NA	.005	.002	06/03/9722:18	05/29/9713:00	G03F002036	G03F002034	IPE027W
CR-A162605***	E103-41	ND	1	NA	.005	.002	06/03/9722:22	05/29/9713:00	G03F002037	G03F002034	IPE027W
CR-A162708****	E103-49	ND	1	NA	.005	.002	06/03/9722:26	05/29/9713:00	G03F002038	G03F002034	IPE027W
CR-A162907*****	E103-66	ND	1	NA	.005	.002	06/03/9722:29	05/29/9713:00	G03F002039	G03F002034	IPE027W

* DATE COLLECTED : 05/16/97
** DATE COLLECTED : 05/15/97
*** DATE COLLECTED : 05/17/97
**** DATE COLLECTED : 05/20/97
***** DATE COLLECTED : 05/19/97
PQL: Practical Quantitation Limit
AFCEE Ver. 1.1

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 3005A/7041

MATRIX: WATER % MOISTURE: NA

DILTN FACTR:	1	1	1		
SAMPLE ID:	CR-A162108				
CONTROL NO.:	E103-08	E103-08M	E103-08S		
LAB FILE ID:	G03F002028	G03F002031	G03F002032		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	05/18/97
DATIME ANALYZD:	06/03/9721:48	06/03/9721:59	06/03/9722:03	DATE RECEIVED:	05/22/97
PREP. BATCH:	IPE027W	IPE027W	IPE027W		
CALIB. REF:	G03F002022	G03F002022	G03F002022		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	SPIKE AMT (mg/L)	MSD RSLT (mg/L)	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
Antimony	ND	.020	.0207	103	.020	.0207	103	0	75-125	15

AFCEE Ver. 1.1

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 3005A/7041

MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	MBLK5W	LCS5W		
CONTROL NO.:	IPE027WB	IPE027WL		
LAB FILE ID:	G03F002012	G03F002013		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	NA
DATIME ANALYZD:	06/03/9720:49	06/03/9720:53	DATE RECEIVED:	05/29/97
PREP. BATCH:	IPE027W	IPE027W		
CALIB. REF:	G03F002010	G03F002010		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	QC LIMIT (%)
Antimony	ND	.020	.0204	97	75-125

0073

EPA 1312/3020/7041
SPLP/ANTIMONY BY GFAA

Client : JACOBS ENGINEERING GROUP
Project : CARSWELL AFB / 05G47900
Batch No. : 97E103
Matrix : WATER

Date Collected : 05/18/97
DaTime Received: 05/22/97
Instrument ID : EMAXTI06

SAMPLE ID	CONTROL NO	RESULTS (mg/L)	DLF	MOIST	PRL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH
CR-A162101	E103-01	ND	1	NA	.05	.02	06/03/9716:36	05/29/9713:00	G06F001017	G06F001008	IPE025W
CR-A162105*	E103-05	ND	1	NA	.05	.02	06/03/9716:54	05/29/9713:00	G06F001022	G06F001008	IPE025W
CR-A162106*	E103-06	ND	1	NA	.05	.02	06/03/9718:30	05/29/9713:00	G06F001041	G06F001038	IPE025W
CR-A162201**	E103-10	ND	1	NA	.05	.02	06/03/9718:34	05/29/9713:00	G06F001042	G06F001038	IPE025W
CR-A162202**	E103-11	ND	1	NA	.05	.02	06/03/9718:37	05/29/9713:00	G06F001043	G06F001038	IPE025W
CR-A162203**	E103-12	ND	1	NA	.05	.02	06/03/9718:41	05/29/9713:00	G06F001044	G06F001038	IPE025W
CR-A162204**	E103-13	ND	1	NA	.05	.02	06/03/9718:44	05/29/9713:00	G06F001045	G06F001038	IPE025W
CR-A162205**	E103-14	ND	1	NA	.05	.02	06/03/9718:48	05/29/9713:00	G06F001046	G06F001038	IPE025W
CR-A162206**	E103-15	ND	1	NA	.05	.02	06/03/9718:52	05/29/9713:00	G06F001047	G06F001038	IPE025W
CR-A162301***	E103-17	ND	1	NA	.05	.02	06/03/9718:56	05/29/9713:00	G06F001048	G06F001038	IPE025W
CR-A162302***	E103-18	ND	1	NA	.05	.02	06/03/9718:59	05/29/9713:00	G06F001049	G06F001038	IPE025W
CR-A162303***	E103-19	ND	1	NA	.05	.02	06/03/9719:11	05/29/9713:00	G06F001052	G06F001050	IPE025W
CR-A162304**	E103-20	ND	1	NA	.05	.02	06/03/9719:15	05/29/9713:00	G06F001053	G06F001050	IPE025W
CR-A162305**	E103-21	ND	1	NA	.05	.02	06/03/9719:18	05/29/9713:00	G06F001054	G06F001050	IPE025W
CR-A162306****	E103-22	ND	1	NA	.05	.02	06/03/9719:22	05/29/9713:00	G06F001055	G06F001050	IPE025W
CR-A162401*****	E103-23	ND	1	NA	.05	.02	06/03/9719:26	05/29/9713:00	G06F001056	G06F001050	IPE025W
CR-A162402****	E103-24	ND	1	NA	.05	.02	06/03/9719:30	05/29/9713:00	G06F001057	G06F001050	IPE025W
CR-A162403**	E103-25	ND	1	NA	.05	.02	06/03/9719:33	05/29/9713:00	G06F001058	G06F001050	IPE025W
CR-A162404**	E103-26	ND	1	NA	.05	.02	06/03/9719:37	05/29/9713:00	G06F001059	G06F001050	IPE025W
CR-A162405*****	E103-27	ND	1	NA	.05	.02	06/03/9719:41	05/29/9713:00	G06F001060	G06F001050	IPE025W
CR-A162406**!	E103-28	ND	1	NA	.05	.02	06/03/9718:13	05/29/9713:00	G03F001021	G03F001010	IPE026W
CR-A162407****!	E103-29	ND	1	NA	.05	.02	06/03/9718:24	05/29/9713:00	G03F001024	G03F001022	IPE026W
CR-A162501**!	E103-30	ND	1	NA	.05	.02	06/03/9718:28	05/29/9713:00	G03F001025	G03F001022	IPE026W
CR-A162502**!	E103-31	ND	1	NA	.05	.02	06/03/9718:31	05/29/9713:00	G03F001026	G03F001022	IPE026W
CR-A162503*****!	E103-32	ND	1	NA	.05	.02	06/03/9718:35	05/29/9713:00	G03F001027	G03F001022	IPE026W
CR-A162504****!	E103-33	ND	1	NA	.05	.02	06/03/9718:39	05/29/9713:00	G03F001028	G03F001022	IPE026W
CR-A162505*****!	E103-34	ND	1	NA	.05	.02	06/03/9718:42	05/29/9713:00	G03F001029	G03F001022	IPE026W
CR-A162506****!	E103-35	ND	1	NA	.05	.02	06/03/9718:46	05/29/9713:00	G03F001030	G03F001022	IPE026W
CR-A162601****!	E103-37	ND	1	NA	.05	.02	06/03/9718:50	05/29/9713:00	G03F001031	G03F001022	IPE026W
CR-A162602****!	E103-38	ND	1	NA	.05	.02	06/03/9718:54	05/29/9713:00	G03F001032	G03F001022	IPE026W
CR-A162603****!	E103-39	ND	1	NA	.05	.02	06/03/9718:58	05/29/9713:00	G03F001033	G03F001022	IPE026W
CR-A162604****!	E103-40	ND	1	NA	.05	.02	06/03/9719:09	05/29/9713:00	G03F001036	G03F001034	IPE026W
CR-A162701!	E103-42	ND	1	NA	.05	.02	06/03/9719:13	05/29/9713:00	G03F001037	G03F001034	IPE026W
CR-A162702!	E103-43	ND	1	NA	.05	.02	06/03/9719:17	05/29/9713:00	G03F001038	G03F001034	IPE026W
CR-A162703!	E103-44	ND	1	NA	.05	.02	06/03/9719:20	05/29/9713:00	G03F001039	G03F001034	IPE026W
CR-A162704!	E103-45	ND	1	NA	.05	.02	06/03/9719:24	05/29/9713:00	G03F001040	G03F001034	IPE026W
CR-A162705!	E103-46	ND	1	NA	.05	.02	06/03/9719:28	05/29/9713:00	G03F001041	G03F001034	IPE026W
CR-A162706!	E103-47	ND	1	NA	.05	.02	06/03/9719:31	05/29/9713:00	G03F001042	G03F001034	IPE026W
CR-A162707!	E103-48	ND	1	NA	.05	.02	06/03/9717:55	05/29/9713:00	G03F001016	G03F001010	IPE026W
CR-A162806!	E103-56	ND	1	NA	.05	.02	06/03/9719:35	05/29/9713:00	G03F001043	G03F001034	IPE026W
CR-A162807!	E103-57	ND	1	NA	.05	.02	06/03/9721:04	05/29/9713:00	G03F002016	G03F002010	IPE027W
CR-A162809*!	E103-59	ND	1	NA	.05	.02	06/03/9721:22	05/29/9713:00	G03F002021	G03F002010	IPE027W
CR-A162901*!	E103-60	ND	1	NA	.05	.02	06/03/9721:33	05/29/9713:00	G03F002024	G03F002022	IPE027W

CR-A162902*!	E103-61	ND	1	NA	.05	.02	06/03/9721:37	05/29/9713:00	G03F002025	G03F002022	IPE027W
CR-A163007******!	E103-74	ND	1	NA	.05	.02	06/03/9721:41	05/29/9713:00	G03F002026	G03F002022	IPE027W
CR-A163009******!	E103-76	ND	1	NA	.05	.02	06/03/9721:44	05/29/9713:00	G03F002027	G03F002022	IPE027W
MBLK1W	IPE025WB	ND	1	NA	.05	.02	06/03/9716:22	05/29/9713:00	G06F001013	G06F001008	IPE025W
MBLK2W	TXE005SB	ND	1	NA	.05	.02	06/03/9716:29	05/29/9713:00	G06F001015	G06F001008	IPE025W
MBLK3W!	IPE026WB	ND	1	NA	.05	.02	06/03/9717:40	05/29/9713:00	G03F001012	G03F001010	IPE026W
MBLK4W!	TXE006SB	ND	1	NA	.05	.02	06/03/9717:48	05/29/9713:00	G03F001014	G03F001010	IPE026W
MBLK5W!	IPE027WB	ND	1	NA	.05	.02	06/03/9721:11	05/29/9713:00	G03F002018	G03F002010	IPE027W
MBLK6W!	TXE007SB	ND	1	NA	.05	.02	06/03/9721:19	05/29/9713:00	G03F002020	G03F002010	IPE027W

* DATE COLLECTED : 05/19/97
** DATE COLLECTED : 05/16/97
*** DATE COLLECTED : 05/14/97
**** DATE COLLECTED : 05/17/97
***** DATE COLLECTED : 05/15/97
****** DATE COLLECTED : 05/20/97
! Instrument ID : EMAXTI03
PQL: Practical Quantitation Limit
Leaching Date: xx/xx/xx
AFCEE Ver. 1.1

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 1312/7041

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	CR-A162101				
CONTROL NO.:	E103-01	E103-01M	E103-01S		
LAB FILE ID:	G06F001017	G06F001020	G06F001021		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	05/18/97
DATIME ANALYZD:	06/03/9716:36	06/03/9716:47	06/03/9716:51	DATE RECEIVED:	05/22/97
PREP. BATCH:	IPE025W	IPE025W	IPE025W		
CALIB. REF:	G06F001008	G06F001008	G06F001008		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	SPIKE AMT (mg/L)	MSD RSLT (mg/L)	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
Antimony	ND	.200	.183	92	.200	.189	95	3	75-125	15

AFCEE Ver. 1.1

0076

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 1312/7041

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	CR-A162707				
CONTROL NO.:	E103-48	E103-48M	E103-48S		
LAB FILE ID:	G03F001016	G03F001019	G03F001020		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	05/18/97
DATIME ANALYZD:	06/03/9717:55	06/03/9718:06	06/03/9718:09	DATE RECEIVED:	05/22/97
PREP. BATCH:	IPE026W	IPE026W	IPE026W		
CALIB. REF:	G03F001010	G03F001010	G03F001010		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	SPIKE AMT (mg/L)	MSD RSLT (mg/L)	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
Antimony	ND	.200	.186	93	.200	.206	103	10	75-125	15

AFCEE Ver. 1.1

0077

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 1312/7041

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	CR-A162807				
CONTROL NO.:	E103-57	E103-57M	E103-57S		
LAB FILE ID:	G03F002016	G03F002019	G03F002020		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	05/18/97
DATIME ANALYZD:	06/03/9721:04	06/03/9721:15	06/03/9721:19	DATE RECEIVED:	05/22/97
PREP. BATCH:	IPE027W	IPE027W	IPE027W		
CALIB. REF:	G03F002010	G03F002010	G03F002010		

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	SPIKE AMT (mg/L)	MSD RSLT (mg/L)	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
Antimony	ND	.200	.199	100	.200	.191	96	4	75-125	15

AFCEE Ver. 1.1

0078

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 1312/7041

MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	MBLK1W	LCS1W		
CONTROL NO.:	IPE025WB	IPE025WL		
LAB FILE ID:	G06F001013	G06F001014		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	NA
DATIME ANALYZD:	06/03/9716:22	06/03/9716:25	DATE RECEIVED:	NA
PREP. BATCH:	IPE025W	IPE025W		
CALIB. REF:	G06F001008	G06F001008		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	QC LIMIT (%)
Antimony	ND	.20	.206	103	75-125

0079

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 1312/7041

==========

MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	MBLK3W	LCS3W		
CONTROL NO.:	IPE026WB	IPE026WL		
LAB FILE ID:	G03F001012	G03F001013		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	NA
DATIME ANALYZD:	06/03/9717:40	06/03/9717:44	DATE RECEIVED:	NA
PREP. BATCH:	IPE026W	IPE026W		
CALIB. REF:	G03F001010	G03F001010		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	QC LIMIT (%)
Antimony	ND	.20	.216	108	75-125

0080

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: EPA 1312/7041

==========

MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	MBLK5W	LCS5W		
CONTROL NO.:	IPE027WB	IPE027WL		
LAB FILE ID:	G03F002018	G03F002019		
DATIME EXTRCTD:	05/29/9713:00	05/29/9713:00	DATE COLLECTED:	NA
DATIME ANALYZD:	06/03/9721:11	06/03/9721:15	DATE RECEIVED:	NA
PREP. BATCH:	IPE027W	IPE027W		
CALIB. REF:	G03F002010	G03F002010		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	QC LIMIT (%)
Antimony	ND	.20	.204	102	75-125

0081

LABORATORY REPORT FOR

JACOBS ENGINEERING GROUP

CARSWELL AFB / 05G47900

SW1312/8081
SPLP/CHLORINATED PESTICIDES

SDG#: 97E103

JUNE 10, 1997

CASE NARRATIVE

CLIENT: JACOBS ENGINEERING GROUP

PROJECT: CARSWELL AFB / 05G47900

SDG: 97E103

SW1312/8081
SPLP/CHLORINATED PESTICIDES

Fourteen (14) soil and two (2) water samples were received on 05/22/97 for Chlorinated Pesticides analyses by SW1312/8081 in accordance with SW846(1994,9).

1. Holding Time

   All samples were extracted and analyzed within holding time.

2. Surrogate Recovery

   All surrogate recoveries were within QC limits.

3. Matrix Spike/Matrix Spike Duplicate

   All recoveries and RPDs were within the QC limits.

4. Lab Control Sample/Lab Control Sample Duplicate

   All recoveries and RPDs were within the QC limits.

5. Method Blank

   Method blanks were free of contamination.

6. Instrument Performance and Calibration

   Initial calibration was at five-point for Pesticides, the RSD were all within the QC limits. Continue calibration was done at 12 hour interval. All %D were within 15% except beta-BHC, DDT and Methoxychlor on confirmation column (DB1701) in daily calibration check on 05/25/97. The continuing calibrations were all within QC limits.

7. Sample Analysis

   All sample analyses were done within QC requirements.

05/27/1997 11:58

LAB CHRONICLE
SPLP Pesticides

CLIENT: Jacobs Engineering Group
PROJECT: Carswell AFB / 05G47900

SDG/BATCH NO.: 97E103
MATRIX: Soil

SAMPLE ID	CONTROL NO	%H2O	PREPARATION BATCH/DATE/TIME	ANALYTICAL BATCH/DATE/TIME	CALIB REF	FILE ID
CR-A162101	E103-01	13.7	CPE013W 5/24/97 15:00	WE25	WE25-3	WE25-11
CR-A162102	E103-02	16.8				12
CR-A162103	E103-03	21.4				13
CR-A162104	E103-04	21.0				14
CR-A162105	E103-05	19.6				17
CR-A162107	E103-07	16.0				18
A162801	E103-51	18.0				19
CR-A162802	E103-52	20.5				20
CR-A162803	E103-53	NA			WE25-23	26
CR-A162804	E103-54	NA				27
CR-A162805	E103-55	NA				28
CR-A162806	E103-56	NA				29
CR-A162807	E103-57	NA				30
CR-A162808	E103-58	NA				31
CR-A162104MS	E103-04M	21.0				15
CR-A162104MSD	E103-04S	21.0				16
MBLK1W	CPE013WB	NA				6
LCS1W	CPE013WL	NA				7
[illegible]1W	CPE013WC	NA				8
MBLK2W KV 6/5/97	~~CPE~~ TXE003SB	NA				9
LCS2W	TXE003SL	NA				10

* Date and time of SPLP extraction 5/23/97 15:00

05/27/1997 11:58

LAB CHRONICLE
EPA 608 (Pestic

CLIENT: Jacobs Engineering Group
PROJECT: Carswell AFB / 05G47900

SDG/BATCH NO.: 97E103
MATRIX: Water

SAMPLE ID	CONTROL NO	%H2O	PREPARATION BATCH/DATE/TIME	ANALYTICAL BATCH/DATE/TIME	CALIB REF	FILE ID
CR-A162109	E103-09	NA	CPE013W 5/24/97 15:00	WE25	WE25-23	WE25.

05/27/1997 11:58

LAB CHRONICLE
EPA 8080

CLIENT: Jacobs Engineering Group
PROJECT: Carswell AFB / 05G47900

LDG/BATCH NO.: 97E103
MATRIX: water

SAMPLE ID	CONTROL NO	%H2O	PREPARATION BATCH/DATE/TIME	ANALYTICAL BATCH/DATE/TIME	CALIB REF	FILE ID
CR-A162908	E103-67	NA	CPE013W 5/24/97 15:00	WE25	WE25-33	WE25-2

SAMPLE RESULTS

SW1312/8081
SPLP/PESTICIDES

Client	: JACOBS ENGINEERING GROUP	DaTime Collcted:	05/18/97
Project	: CARSWELL AFB / 05G47900	DaTime Received:	05/22/97
Batch No.	: 97E103	DaTime Extrctd :	05/24/97 15:00
Sample ID	: CR-A162101	DaTime Analyzd :	05/26/97 02:24
Lab Cnt NO.:	E103-01	Dilutn Factor :	1
Lab File ID:	WE25-11	Matrix :	WATER
Ext Btch ID:	CPE013W	% Moisture :	NA
Calib. Ref.:	WE25-3	Instrument ID :	GCT016

PARAMETERS	RESULTS (ug/L)		PQL (ug/L)	MDL (ug/L)	
alpha-BHC	(ND)	ND	.1	.038	.03
gamma-BHC (Lindane)	(ND)	ND	.1	.033	.033
Heptachlor	(ND)	ND	.1	.032	.031
Aldrin	(ND)	ND	.2	.016	.013
beta-BHC	(ND)	ND	.1	.021	.024
delta-BHC	(ND)	ND	.1	.007	.004
Heptachlor Epoxide	(ND)	.0233J	.1	.006	.005
Endosulfan I	(ND)	ND	.1	.014	.011
gamma-Chlordane	(ND)	ND	.1	.005	.004
alpha-Chlordane	(ND)	ND	.1	.008	.003
4,4'-DDE	(ND)	ND	.2	.01	.007
Dieldrin	(ND)	ND	.2	.024	.019
Endrin	(ND)	ND	.2	.025	.021
4,4'-DDD	(ND)	ND	.2	.022	.012
Endosulfan II	(ND)	.0211J	.2	.008	.007
4,4'-DDT	(ND)	ND	.2	.015	.013
Endrin aldehyde	(ND)	ND	.2	.012	.098
Methoxychlor	(ND)	ND	.8	.096	.069
Endosulfan Sulfate	(ND)	ND	.2	.073	.009
Toxaphene	(ND)	ND	1	.349	.283

SURROGATE PARAMETERS	% RECOVERY		QC LIMIT
Tetrachloro-m-xylene	(68)	82	45-125
Decachlorobiphenyl	(100)	99	34-133

PQL: Practical Quantitation Limit
Left of | is related to first column ; Right of | related to second column
( ) included the reported column
Date and Time of SPLP Extraction 05/23/97 15:00
* : Out side of QC Limit.
JACWHTG/JACWHTS: Revision 0, 19-DEC-96

SW1312/8081
SPLP/PESTICIDES

Client	: JACOBS ENGINEERING GROUP	DaTime Collcted:	05/18/97
Project	: CARSWELL AFB / 05G47900	DaTime Received:	05/22/97
Batch No.	: 97E103	DaTime Extrctd :	05/24/97 15:00
Sample ID	: CR-A162102	DaTime Analyzd :	05/26/97 03:01
Lab Cnt NO.:	E103-02	Dilutn Factor :	1
Lab File ID:	WE25-12	Matrix :	WATER
Ext Btch ID:	CPE013W	% Moisture :	NA
Calib. Ref.:	WE25-3	Instrument ID :	GCT016

PARAMETERS	RESULTS (ug/L)		PQL (ug/L)	MDL (ug/L)	
alpha-BHC	(ND)	ND	.1	.038	.03
gamma-BHC (Lindane)	(ND)	ND	.1	.033	.033
Heptachlor	(ND)	ND	.1	.032	.031
Aldrin	(ND)	ND	.2	.016	.013
beta-BHC	(ND)	ND	.1	.021	.024
delta-BHC	(ND)	.0143J	.1	.007	.004
Heptachlor Epoxide	(ND)	.00893J	.1	.006	.005
Endosulfan I	(ND)	ND	.1	.014	.011
gamma-Chlordane	(ND)	ND	.1	.005	.004
alpha-Chlordane	(ND)	ND	.1	.008	.003
4,4'-DDE	(ND)	ND	.2	.01	.007
Dieldrin	(ND)	ND	.2	.024	.019
Endrin	(ND)	ND	.2	.025	.021
4,4'-DDD	(ND)	ND	.2	.022	.012
Endosulfan II	(ND)	.0212J	.2	.008	.007
4,4'-DDT	(ND)	.019J	.2	.015	.013
Endrin aldehyde	(ND)	ND	.2	.012	.098
Methoxychlor	(ND)	ND	.8	.096	.069
Endosulfan Sulfate	(ND)	ND	.2	.073	.009
Toxaphene	(ND)	ND	1	.349	.283

SURROGATE PARAMETERS	% RECOVERY		QC LIMIT
Tetrachloro-m-xylene	(65)	85	45-125
Decachlorobiphenyl	(102)	102	34-133

PQL: Practical Quantitation Limit
Left of | is related to first column ; Right of | related to second column
( ) included the reported column
Date and Time of SPLP Extraction 05/23/97 15:00
* : Out side of QC Limit.
JACWHTG/JACWHTS: Revision 0, 19-DEC-96

SW1312/8081
SPLP/PESTICIDES

Client	: JACOBS ENGINEERING GROUP	DaTime Collcted:	05/19/97
Project	: CARSWELL AFB / 05G47900	DaTime Received:	05/22/97
Batch No.	: 97E103	DaTime Extrctd :	05/24/97 15:00
Sample ID	: CR-A162103	DaTime Analyzd :	05/26/97 03:37
Lab Cnt NO.:	E103-03	Dilutn Factor :	1
Lab File ID:	WE25-13	Matrix :	WATER
Ext Btch ID:	CPE013W	% Moisture :	NA
Calib. Ref.:	WE25-3	Instrument ID :	GCT016

PARAMETERS	RESULTS (ug/L)		PQL (ug/L)	MDL (ug/L)	
alpha-BHC	(ND)	ND	.1	.038	.03
gamma-BHC (Lindane)	(ND)	ND	.1	.033	.033
Heptachlor	(ND)	ND	.1	.032	.031
Aldrin	(ND)	ND	.2	.016	.013
beta-BHC	(ND)	ND	.1	.021	.024
delta-BHC	(ND)	ND	.1	.007	.004
Heptachlor Epoxide	(ND)	ND	.1	.006	.005
Endosulfan I	(ND)	ND	.1	.014	.011
gamma-Chlordane	(ND)	ND	.1	.005	.004
alpha-Chlordane	(ND)	ND	.1	.008	.003
4,4'-DDE	(ND)	ND	.2	.01	.007
Dieldrin	(ND)	ND	.2	.024	.019
Endrin	(ND)	ND	.2	.025	.021
4,4'-DDD	(ND)	ND	.2	.022	.012
Endosulfan II	(ND)	.0168J	.2	.008	.007
4,4'-DDT	(ND)	ND	.2	.015	.013
Endrin aldehyde	(ND)	ND	.2	.012	.098
Methoxychlor	(ND)	ND	.8	.096	.069
Endosulfan Sulfate	(ND)	ND	.2	.073	.009
Toxaphene	(ND)	ND	1	.349	.283

SURROGATE PARAMETERS	% RECOVERY		QC LIMIT
Tetrachloro-m-xylene	(57)	61	45-125
Decachlorobiphenyl	(105)	104	34-133

PQL: Practical Quantitation Limit
Left of | is related to first column ; Right of | related to second column
( ) included the reported column
Date and Time of SPLP Extraction 05/23/97 15:00
* : Out side of QC Limit.
JACWHTG/JACWHTS: Revision 0, 19-DEC-96

SW1312/8081
SPLP/PESTICIDES

Client	: JACOBS ENGINEERING GROUP	DaTime Collcted:	05/19/97
Project	: CARSWELL AFB / 05G47900	DaTime Received:	05/22/97
Batch No.	: 97E103	DaTime Extrctd :	05/24/97 15:00
Sample ID	: CR-A162104	DaTime Analyzd :	05/26/97 04:14
Lab Cnt NO.:	E103-04	Dilutn Factor :	1
Lab File ID:	WE25-14	Matrix :	WATER
Ext Btch ID:	CPE013W	% Moisture :	NA
Calib. Ref.:	WE25-3	Instrument ID :	GCT016

PARAMETERS	RESULTS (ug/L)		PQL (ug/L)	MDL (ug/L)	
alpha-BHC	(ND)	ND	.1	.038	.03
gamma-BHC (Lindane)	(ND)	ND	.1	.033	.033
Heptachlor	(ND)	ND	.1	.032	.031
Aldrin	(ND)	ND	.2	.016	.013
beta-BHC	(ND)	ND	.1	.021	.024
delta-BHC	(ND)	.00952J	.1	.007	.004
Heptachlor Epoxide	(ND)	.0164J	.1	.006	.005
Endosulfan I	(ND)	ND	.1	.014	.011
gamma-Chlordane	(ND)	ND	.1	.005	.004
alpha-Chlordane	(ND)	ND	.1	.008	.003
4,4'-DDE	(ND)	ND	.2	.01	.007
Dieldrin	(ND)	ND	.2	.024	.019
Endrin	(ND)	ND	.2	.025	.021
4,4'-DDD	(ND)	ND	.2	.022	.012
Endosulfan II	(ND)	.0191J	.2	.008	.007
4,4'-DDT	(ND)	ND	.2	.015	.013
Endrin aldehyde	(ND)	ND	.2	.012	.098
Methoxychlor	(ND)	ND	.8	.096	.069
Endosulfan Sulfate	(ND)	ND	.2	.073	.009
Toxaphene	(ND)	ND	1	.349	.283

SURROGATE PARAMETERS	% RECOVERY		QC LIMIT
Tetrachloro-m-xylene	(63)	77	45-125
Decachlorobiphenyl	(94)	94	34-133

PQL: Practical Quantitation Limit
Left of | is related to first column ; Right of | related to second column
( ) included the reported column
Date and Time of SPLP Extraction 05/23/97 15:00
* : Out side of QC Limit.
JACWHTG/JACWHTS: Revision 0, 19-DEC-96

SW1312/8081
SPLP/PESTICIDES

Client	: JACOBS ENGINEERING GROUP	DaTime Collcted:	05/19/97
Project	: CARSWELL AFB / 05G47900	DaTime Received:	05/22/97
Batch No.	: 97E103	DaTime Extrctd :	05/24/97 15:00
Sample ID	: CR-A162105	DaTime Analyzd :	05/26/97 06:04
Lab Cnt NO.	: E103-05	Dilutn Factor :	1
Lab File ID	: WE25-17	Matrix :	WATER
Ext Btch ID	: CPE013W	% Moisture :	NA
Calib. Ref.	: WE25-3	Instrument ID :	GCT016

PARAMETERS	RESULTS (ug/L)		PQL (ug/L)	MDL (ug/L)	
alpha-BHC	(ND)	ND	.1	.038	.03
gamma-BHC (Lindane)	(ND)	ND	.1	.033	.033
Heptachlor	(ND)	ND	.1	.032	.031
Aldrin	(ND)	ND	.2	.016	.013
beta-BHC	(ND)	.984	.1	.021	.024
delta-BHC	(ND)	ND	.1	.007	.004
Heptachlor Epoxide	(ND)	ND	.1	.006	.005
Endosulfan I	(ND)	ND	.1	.014	.011
gamma-Chlordane	(ND)	ND	.1	.005	.004
alpha-Chlordane	(ND)	ND	.1	.008	.003
4,4'-DDE	(ND)	ND	.2	.01	.007
Dieldrin	(ND)	ND	.2	.024	.019
Endrin	(.0714J)	.0415J	.2	.025	.021
4,4'-DDD	(ND)	ND	.2	.022	.012
Endosulfan II	(ND)	.00933J	.2	.008	.007
4,4'-DDT	(ND)	.0189J	.2	.015	.013
Endrin aldehyde	(ND)	ND	.2	.012	.098
Methoxychlor	(ND)	ND	.8	.096	.069
Endosulfan Sulfate	(ND)	ND	.2	.073	.009
Toxaphene	(ND)	ND	1	.349	.283

SURROGATE PARAMETERS	% RECOVERY		QC LIMIT
Tetrachloro-m-xylene	(54)	60	45-125
Decachlorobiphenyl	(91)	92	34-133

PQL: Practical Quantitation Limit
Left of | is related to first column ; Right of | related to second column
( ) included the reported column
Date and Time of SPLP Extraction 05/23/97 15:00
* : Out side of QC Limit.
JACWHTG/JACWHTS: Revision 0, 19-DEC-96

SW1312/8081
SPLP/PESTICIDES

Client	: JACOBS ENGINEERING GROUP	DaTime Collcted	: 05/18/97
Project	: CARSWELL AFB / 05G47900	DaTime Received	: 05/22/97
Batch No.	: 97E103	DaTime Extrctd	: 05/24/97 15:00
Sample ID	: CR-A162107	DaTime Analyzd	: 05/26/97 06:41
Lab Cnt NO.	: E103-07	Dilutn Factor	: 1
Lab File ID	: WE25-18	Matrix	: WATER
Ext Btch ID	: CPE013W	% Moisture	: NA
Calib. Ref.	: WE25-3	Instrument ID	: GCT016

PARAMETERS	RESULTS (ug/L)		PQL (ug/L)	MDL (ug/L)	
alpha-BHC	(ND)	ND	.1	.038	.03
gamma-BHC (Lindane)	(ND)	ND	.1	.033	.033
Heptachlor	(ND)	ND	.1	.032	.031
Aldrin	(ND)	ND	.2	.016	.013
beta-BHC	(ND)	ND	.1	.021	.024
delta-BHC	(ND)	ND	.1	.007	.004
Heptachlor Epoxide	(ND)	ND	.1	.006	.005
Endosulfan I	(ND)	ND	.1	.014	.011
gamma-Chlordane	(ND)	ND	.1	.005	.004
alpha-Chlordane	(ND)	ND	.1	.008	.003
4,4'-DDE	(ND)	ND	.2	.01	.007
Dieldrin	(ND)	ND	.2	.024	.019
Endrin	(ND)	ND	.2	.025	.021
4,4'-DDD	(ND)	ND	.2	.022	.012
Endosulfan II	(ND)	.0113J	.2	.008	.007
4,4'-DDT	(ND)	ND	.2	.015	.013
Endrin aldehyde	(ND)	ND	.2	.012	.098
Methoxychlor	(ND)	ND	.8	.096	.069
Endosulfan Sulfate	(ND)	ND	.2	.073	.009
Toxaphene	(ND)	ND	1	.349	.283

SURROGATE PARAMETERS	% RECOVERY		QC LIMIT
Tetrachloro-m-xylene	(67)	71	45-125
Decachlorobiphenyl	(103)	106	34-133

PQL: Practical Quantitation Limit
Left of | is related to first column ; Right of | related to second column
( ) included the reported column
Date and Time of SPLP Extraction 05/23/97 15:00
* : Out side of QC Limit.
JACWHTG/JACWHTS: Revision 0, 19-DEC-96

SW3520/8081
PESTICIDES

Client	: JACOBS ENGINEERING GROUP	DaTime Collcted:	05/18/97
Project	: CARSWELL AFB / 05G47900	DaTime Received:	05/22/97
Batch No.	: 97E103	DaTime Extrctd :	05/24/97 15:00
Sample ID	: CR-A162109	DaTime Analyzd :	05/26/97 15:14
Lab Cnt NO.:	E103-09	Dilutn Factor :	1
Lab File ID:	WE25-32	Matrix :	WATER
Ext Btch ID:	CPE013W	% Moisture :	NA
Calib. Ref.:	WE25-23	Instrument ID :	GCT016

PARAMETERS	RESULTS (ug/L)		PQL (ug/L)	MDL (ug/L)	
alpha-BHC	(ND)	ND	.1	.038	.03
gamma-BHC (Lindane)	(ND)	ND	.1	.033	.033
Heptachlor	(ND)	ND	.1	.032	.031
Aldrin	(ND)	ND	.2	.016	.013
beta-BHC	(ND)	ND	.1	.021	.024
delta-BHC	(ND)	ND	.1	.007	.004
Heptachlor Epoxide	(ND)	ND	.1	.006	.005
Endosulfan I	(ND)	ND	.1	.014	.011
gamma-Chlordane	(ND)	ND	.1	.005	.004
alpha-Chlordane	(ND)	ND	.1	.008	.003
4,4'-DDE	(ND)	ND	.2	.01	.007
Dieldrin	(ND)	ND	.2	.024	.019
Endrin	(ND)	ND	.2	.025	.021
4 4'-DDD	(ND)	ND	.2	.022	.012
.osulfan II	(ND)	ND	.2	.008	.007
4,4'-DDT	(ND)	ND	.2	.015	.013
Endrin aldehyde	(ND)	ND	.2	.012	.098
Methoxychlor	(ND)	ND	.8	.096	.069
Endosulfan Sulfate	(ND)	ND	.2	.073	.009
Toxaphene	(ND)	ND	1	.349	.283

SURROGATE PARAMETERS	% RECOVERY		QC LIMIT
Tetrachloro-m-xylene	(85)	90	45-125
Decachlorobiphenyl	(97)	105	34-133

PQL: Practical Quantitation Limit
Left of | is related to first column ; Right of | related to second column
( ) included the reported column
* : Out side of QC Limit.
JACWHTG/JACWHTS: Revision 0, 19-DEC-96

SW1312/8081
SPLP/PESTICIDES

Client	: JACOBS ENGINEERING GROUP	DaTime Collcted:	05/18/97
Project	: CARSWELL AFB / 05G47900	DaTime Received:	05/22/97
Batch No.	: 97E103	DaTime Extrctd :	05/24/97 15:00
Sample ID	: CR-A162801	DaTime Analyzd :	05/26/97 07:17
Lab Cnt NO.	: E103-51	Dilutn Factor :	1
Lab File ID	: WE25-19	Matrix :	WATER
Ext Btch ID	: CPE013W	% Moisture :	NA
Calib. Ref.	: WE25-3	Instrument ID :	GCT016

PARAMETERS	RESULTS (ug/L)		PQL (ug/L)	MDL (ug/L)	
alpha-BHC	(ND)	ND	.1	.038	.03
gamma-BHC (Lindane)	(ND)	ND	.1	.033	.033
Heptachlor	(ND)	ND	.1	.032	.031
Aldrin	(ND)	ND	.2	.016	.013
beta-BHC	(ND)	.318	.1	.021	.024
delta-BHC	(ND)	ND	.1	.007	.004
Heptachlor Epoxide	(ND)	ND	.1	.006	.005
Endosulfan I	(ND)	ND	.1	.014	.011
gamma-Chlordane	(ND)	ND	.1	.005	.004
alpha-Chlordane	(ND)	ND	.1	.008	.003
4,4'-DDE	(ND)	ND	.2	.01	.007
Dieldrin	(ND)	ND	.2	.024	.019
Endrin	(ND)	ND	.2	.025	.021
4,4'-DDD	(ND)	ND	.2	.022	.012
Endosulfan II	(ND)	.0183J	.2	.008	.007
4,4'-DDT	(ND)	ND	.2	.015	.013
Endrin aldehyde	(ND)	ND	.2	.012	.098
Methoxychlor	(ND)	ND	.8	.096	.069
Endosulfan Sulfate	(ND)	ND	.2	.073	.009
Toxaphene	(ND)	ND	1	.349	.283

SURROGATE PARAMETERS	% RECOVERY		QC LIMIT
Tetrachloro-m-xylene	(70)	73	45-125
Decachlorobiphenyl	(84)	86	34-133

PQL: Practical Quantitation Limit
Left of | is related to first column ; Right of | related to second column
( ) included the reported column
Date and Time of SPLP Extraction 05/23/97 15:00
* : Out side of QC Limit.
JACWHTG/JACWHTS: Revision 0, 19-DEC-96

SW1312/8081
SPLP/PESTICIDES

Client	: JACOBS ENGINEERING GROUP	DaTime Collcted	: 05/18/97
Project	: CARSWELL AFB / 05G47900	DaTime Received	: 05/22/97
Batch No.	: 97E103	DaTime Extrctd	: 05/24/97 15:00
Sample ID	: CR-A162802	DaTime Analyzd	: 05/26/97 07:54
Lab Cnt NO.	: E103-52	Dilutn Factor	: 1
Lab File ID	: WE25-20	Matrix	: WATER
Ext Btch ID	: CPE013W	% Moisture	: NA
Calib. Ref.	: WE25-3	Instrument ID	: GCT016

PARAMETERS	RESULTS (ug/L)		PQL (ug/L)	MDL (ug/L)	
alpha-BHC	(ND)	ND	.1	.038	.03
gamma-BHC (Lindane)	(ND)	ND	.1	.033	.033
Heptachlor	(ND)	ND	.1	.032	.031
Aldrin	(ND)	ND	.2	.016	.013
beta-BHC	(ND)	ND	.1	.021	.024
delta-BHC	(ND)	ND	.1	.007	.004
Heptachlor Epoxide	(ND)	ND	.1	.006	.005
Endosulfan I	(ND)	ND	.1	.014	.011
gamma-Chlordane	(ND)	ND	.1	.005	.004
alpha-Chlordane	(ND)	ND	.1	.008	.003
4,4'-DDE	(ND)	ND	.2	.01	.007
Dieldrin	(ND)	ND	.2	.024	.019
Endrin	(ND)	ND	.2	.025	.021
4,4'-DDD	(ND)	ND	.2	.022	.012
Endosulfan II	(ND)	.0119J	.2	.008	.007
4,4'-DDT	(ND)	ND	.2	.015	.013
Endrin aldehyde	(ND)	ND	.2	.012	.098
Methoxychlor	(ND)	ND	.8	.096	.069
Endosulfan Sulfate	(ND)	ND	.2	.073	.009
Toxaphene	(ND)	ND	1	.349	.283

SURROGATE PARAMETERS	% RECOVERY		QC LIMIT
Tetrachloro-m-xylene	(79)	80	45-125
Decachlorobiphenyl	(98)	104	34-133

PQL: Practical Quantitation Limit
Left of | is related to first column ; Right of | related to second column
( ) included the reported column
Date and Time of SPLP Extraction 05/23/97 15:00
* : Out side of QC Limit.
JACWHTG/JACWHTS: Revision 0, 19-DEC-96

SW1312/8081
SPLP/PESTICIDES

Client	: JACOBS ENGINEERING GROUP	DaTime Collcted:	05/18/97
Project	: CARSWELL AFB / 05G47900	DaTime Received:	05/22/97
Batch No.	: 97E103	DaTime Extrctd :	05/24/97 15:00
Sample ID	: CR-A162803	DaTime Analyzd :	05/26/97 11:34
Lab Cnt NO.:	E103-53	Dilutn Factor :	1
Lab File ID:	WE25-26	Matrix :	WATER
Ext Btch ID:	CPE013W	% Moisture :	NA
Calib. Ref.:	WE25-23	Instrument ID :	GCT016

PARAMETERS	RESULTS (ug/L)		PQL (ug/L)	MDL (ug/L)	
alpha-BHC	(ND)	ND	.1	.038	.03
gamma-BHC (Lindane)	(ND)	ND	.1	.033	.033
Heptachlor	(ND)	ND	.1	.032	.031
Aldrin	(ND)	ND	.2	.016	.013
beta-BHC	(ND)	ND	.1	.021	.024
delta-BHC	(ND)	ND	.1	.007	.004
Heptachlor Epoxide	(ND)	ND	.1	.006	.005
Endosulfan I	(ND)	.0256J	.1	.014	.011
gamma-Chlordane	.0227J	(ND)	.1	.005	.004
alpha-Chlordane	(ND)	ND	.1	.008	.003
4,4'-DDE	(ND)	ND	.2	.01	.007
Dieldrin	(ND)	ND	.2	.024	.019
Endrin	(ND)	ND	.2	.025	.021
4,4'-DDD	(ND)	ND	.2	.022	.012
Endosulfan II	(ND)	.0216J	.2	.008	.007
4,4'-DDT	(ND)	ND	.2	.015	.013
Endrin aldehyde	(ND)	ND	.2	.012	.098
Methoxychlor	(ND)	ND	.8	.096	.069
Endosulfan Sulfate	(ND)	ND	.2	.073	.009
Toxaphene	(ND)	ND	1	.349	.283

SURROGATE PARAMETERS	% RECOVERY		QC LIMIT
Tetrachloro-m-xylene	(66)	71	45-125
Decachlorobiphenyl	(96)	96	34-133

PQL: Practical Quantitation Limit
Left of | is related to first column ; Right of | related to second column
( ) included the reported column
Date and Time of SPLP Extraction 05/23/97 15:00
* : Out side of QC Limit.
JACWHTG/JACWHTS: Revision 0, 19-DEC-96

SW1312/8081
SPLP/PESTICIDES

Client	: JACOBS ENGINEERING GROUP	DaTime Collcted:	05/18/97
Project	: CARSWELL AFB / 05G47900	DaTime Received:	05/22/97
Batch No.	: 97E103	DaTime Extrctd :	05/24/97 15:00
Sample ID	: CR-A162804	DaTime Analyzd :	05/26/97 12:10
Lab Cnt NO.	: E103-54	Dilutn Factor :	1
Lab File ID	: WE25-27	Matrix :	WATER
Ext Btch ID	: CPE013W	% Moisture :	NA
Calib. Ref.	: WE25-23	Instrument ID :	GCT016

PARAMETERS	RESULTS (ug/L)		PQL (ug/L)	MDL (ug/L)	
alpha-BHC	(ND)	ND	.1	.038	.03
gamma-BHC (Lindane)	(ND)	ND	.1	.033	.033
Heptachlor	(ND)	ND	.1	.032	.031
Aldrin	(ND)	ND	.2	.016	.013
beta-BHC	(ND)	ND	.1	.021	.024
delta-BHC	(ND)	ND	.1	.007	.004
Heptachlor Epoxide	(ND)	ND	.1	.006	.005
Endosulfan I	(ND)	.0185J	.1	.014	.011
gamma-Chlordane	.0158J	(ND)	.1	.005	.004
alpha-Chlordane	(ND)	ND	.1	.008	.003
4,4'-DDE	(ND)	ND	.2	.01	.007
Dieldrin	(ND)	ND	.2	.024	.019
Endrin	(ND)	ND	.2	.025	.021
4,4'-DDD	(ND)	ND	.2	.022	.012
Endosulfan II	(ND)	.0199J	.2	.008	.007
4,4'-DDT	(ND)	ND	.2	.015	.013
Endrin aldehyde	(ND)	ND	.2	.012	.098
Methoxychlor	(ND)	ND	.8	.096	.069
Endosulfan Sulfate	(ND)	ND	.2	.073	.009
Toxaphene	(ND)	ND	1	.349	.283

SURROGATE PARAMETERS	% RECOVERY		QC LIMIT
Tetrachloro-m-xylene	(72)	77	45-125
Decachlorobiphenyl	(95)	96	34-133

PQL: Practical Quantitation Limit
Left of | is related to first column ; Right of | related to second column
( ) included the reported column
Date and Time of SPLP Extraction 05/23/97 15:00
* : Out side of QC Limit.
JACWHTG/JACWHTS: Revision 0, 19-DEC-96

SW1312/8081
SPLP/PESTICIDES

Client	: JACOBS ENGINEERING GROUP	DaTime Collcted:	05/18/97
Project	: CARSWELL AFB / 05G47900	DaTime Received:	05/22/97
Batch No.	: 97E103	DaTime Extrctd :	05/24/97 15:00
Sample ID	: CR-A162805	DaTime Analyzd :	05/26/97 12:47
Lab Cnt NO.	: E103-55	Dilutn Factor :	1
Lab File ID	: WE25-28	Matrix :	WATER
Ext Btch ID	: CPE013W	% Moisture :	NA
Calib. Ref.	: WE25-23	Instrument ID :	GCT016

PARAMETERS	RESULTS (ug/L)		PQL (ug/L)	MDL (ug/L)	
alpha-BHC	(ND)	ND	.1	.038	.03
gamma-BHC (Lindane)	(ND)	ND	.1	.033	.033
Heptachlor	(ND)	ND	.1	.032	.031
Aldrin	(ND)	ND	.2	.016	.013
beta-BHC	(ND)	ND	.1	.021	.024
delta-BHC	(ND)	ND	.1	.007	.004
Heptachlor Epoxide	(ND)	ND	.1	.006	.005
Endosulfan I	(ND)	ND	.1	.014	.011
gamma-Chlordane	(ND)	ND	.1	.005	.004
alpha-Chlordane	(ND)	ND	.1	.008	.003
4,4'-DDE	(ND)	ND	.2	.01	.007
Dieldrin	(ND)	ND	.2	.024	.019
Endrin	(ND)	ND	.2	.025	.021
4,4'-DDD	(ND)	ND	.2	.022	.012
Endosulfan II	(ND)	.0114J	.2	.008	.007
4,4'-DDT	(ND)	ND	.2	.015	.013
Endrin aldehyde	(ND)	ND	.2	.012	.098
Methoxychlor	(ND)	ND	.8	.096	.069
Endosulfan Sulfate	(ND)	ND	.2	.073	.009
Toxaphene	(ND)	ND	1	.349	.283

SURROGATE PARAMETERS	% RECOVERY		QC LIMIT
Tetrachloro-m-xylene	(68)	73	45-125
Decachlorobiphenyl	(96)	97	34-133

PQL: Practical Quantitation Limit
Left of | is related to first column ; Right of | related to second column
( ) included the reported column
Date and Time of SPLP Extraction 05/23/97 15:00
* : Out side of QC Limit.
JACWHTG/JACWHTS: Revision 0, 19-DEC-96

SW1312/8081
SPLP/PESTICIDES

Client	: JACOBS ENGINEERING GROUP	DaTime Collcted:	05/18/97
Project	: CARSWELL AFB / 05G47900	DaTime Received:	05/22/97
Batch No.	: 97E103	DaTime Extrctd :	05/24/97 15:00
Sample ID	: CR-A162806	DaTime Analyzd :	05/26/97 13:24
Lab Cnt NO.:	E103-56	Dilutn Factor :	1
Lab File ID:	WE25-29	Matrix :	WATER
Ext Btch ID:	CPE013W	% Moisture :	NA
Calib. Ref.:	WE25-23	Instrument ID :	GCT016

PARAMETERS	RESULTS (ug/L)		PQL (ug/L)	MDL (ug/L)	
alpha-BHC	(ND)	ND	.1	.038	.03
gamma-BHC (Lindane)	(ND)	ND	.1	.033	.033
Heptachlor	(ND)	ND	.1	.032	.031
Aldrin	(ND)	ND	.2	.016	.013
beta-BHC	(ND)	ND	.1	.021	.024
delta-BHC	(ND)	ND	.1	.007	.004
Heptachlor Epoxide	(ND)	ND	.1	.006	.005
Endosulfan I	(ND)	ND	.1	.014	.011
gamma-Chlordane	(ND)	ND	.1	.005	.004
alpha-Chlordane	(ND)	ND	.1	.008	.003
4,4'-DDE	(ND)	ND	.2	.01	.007
Dieldrin	(ND)	ND	.2	.024	.019
Endrin	(ND)	ND	.2	.025	.021
4,4'-DDD	(ND)	ND	.2	.022	.012
Endosulfan II	(ND)	.016J	.2	.008	.007
4,4'-DDT	(ND)	ND	.2	.015	.013
Endrin aldehyde	(ND)	ND	.2	.012	.098
Methoxychlor	(ND)	ND	.8	.096	.069
Endosulfan Sulfate	(ND)	ND	.2	.073	.009
Toxaphene	(ND)	ND	1	.349	.283

SURROGATE PARAMETERS	% RECOVERY		QC LIMIT
Tetrachloro-m-xylene	(68)	81	45-125
Decachlorobiphenyl	(97)	101	34-133

PQL: Practical Quantitation Limit
Left of | is related to first column ; Right of | related to second column
( ) included the reported column
Date and Time of SPLP Extraction 05/23/97 15:00
* : Out side of QC Limit.
JACWHTG/JACWHTS: Revision 0, 19-DEC-96

SW1312/8081
SPLP/PESTICIDES

Client	: JACOBS ENGINEERING GROUP	DaTime Collcted:	05/18/97
Project	: CARSWELL AFB / 05G47900	DaTime Received:	05/22/97
Batch No.	: 97E103	DaTime Extrctd :	05/24/97 15:00
Sample ID	: CR-A162807	DaTime Analyzd :	05/26/97 14:00
Lab Cnt NO.:	E103-57	Dilutn Factor :	1
Lab File ID:	WE25-30	Matrix :	WATER
Ext Btch ID:	CPE013W	% Moisture :	NA
Calib. Ref.:	WE25-23	Instrument ID :	GCT016

PARAMETERS	RESULTS (ug/L)		PQL (ug/L)	MDL (ug/L)	
alpha-BHC	(ND)	ND	.1	.038	.03
gamma-BHC (Lindane)	(ND)	ND	.1	.033	.033
Heptachlor	(ND)	ND	.1	.032	.031
Aldrin	(ND)	ND	.2	.016	.013
beta-BHC	(ND)	ND	.1	.021	.024
delta-BHC	(ND)	ND	.1	.007	.004
Heptachlor Epoxide	(ND)	.0238J	.1	.006	.005
Endosulfan I	(ND)	ND	.1	.014	.011
gamma-Chlordane	(ND)	ND	.1	.005	.004
alpha-Chlordane	(ND)	ND	.1	.008	.003
4,4'-DDE	(ND)	ND	.2	.01	.007
Dieldrin	(ND)	ND	.2	.024	.019
Endrin	(ND)	ND	.2	.025	.021
4,4'-DDD	(ND)	ND	.2	.022	.012
Endosulfan II	(ND)	ND	.2	.008	.007
4,4'-DDT	(ND)	ND	.2	.015	.013
Endrin aldehyde	(ND)	ND	.2	.012	.098
Methoxychlor	(ND)	ND	.8	.096	.069
Endosulfan Sulfate	(ND)	ND	.2	.073	.009
Toxaphene	(ND)	ND	1	.349	.283

SURROGATE PARAMETERS	% RECOVERY		QC LIMIT
Tetrachloro-m-xylene	(56)	62	45-125
Decachlorobiphenyl	(92)	95	34-133

PQL: Practical Quantitation Limit
Left of | is related to first column ; Right of | related to second column
( ) included the reported column
Date and Time of SPLP Extraction 05/23/97 15:00
* : Out side of QC Limit.
JACWHTG/JACWHTS: Revision 0, 19-DEC-96

SW1312/8081
SPLP/PESTICIDES

Client	: JACOBS ENGINEERING GROUP	DaTime Collcted:	05/19/97
Project	: CARSWELL AFB / 05G47900	DaTime Received:	05/22/97
Batch No.	: 97E103	DaTime Extrctd :	05/24/97 15:00
Sample ID	: CR-A162808	DaTime Analyzd :	05/26/97 14:37
Lab Cnt NO.:	E103-58	Dilutn Factor :	1
Lab File ID:	WE25-31	Matrix :	WATER
Ext Btch ID:	CPE013W	% Moisture :	NA
Calib. Ref.:	WE25-23	Instrument ID :	GCT016

PARAMETERS	RESULTS (ug/L)		PQL (ug/L)	MDL (ug/L)	
alpha-BHC	(ND)	ND	.1	.038	.03
gamma-BHC (Lindane)	(ND)	ND	.1	.033	.033
Heptachlor	(ND)	ND	.1	.032	.031
Aldrin	.0177J	(ND)	.2	.016	.013
beta-BHC	(ND)	ND	.1	.021	.024
delta-BHC	(ND)	.0288J	.1	.007	.004
Heptachlor Epoxide	(ND)	.0312J	.1	.006	.005
Endosulfan I	(ND)	ND	.1	.014	.011
gamma-Chlordane	(ND)	.0127J	.1	.005	.004
alpha-Chlordane	(ND)	ND	.1	.008	.003
4,4'-DDE	(ND)	ND	.2	.01	.007
Dieldrin	(ND)	ND	.2	.024	.019
Endrin	(ND)	ND	.2	.025	.021
4'-DDD	(ND)	ND	.2	.022	.012
Endosulfan II	(ND)	ND	.2	.008	.007
4,4'-DDT	(ND)	.0162J	.2	.015	.013
Endrin aldehyde	(ND)	ND	.2	.012	.098
Methoxychlor	(ND)	ND	.8	.096	.069
Endosulfan Sulfate	(ND)	ND	.2	.073	.009
Toxaphene	(ND)	ND	1	.349	.283

SURROGATE PARAMETERS	% RECOVERY		QC LIMIT
Tetrachloro-m-xylene	(68)	79	45-125
Decachlorobiphenyl	(116)	110	34-133

PQL: Practical Quantitation Limit
Left of | is related to first column ; Right of | related to second column
( ) included the reported column
Date and Time of SPLP Extraction 05/23/97 15:00
* : Out side of QC Limit.
JACWHTG/JACWHTS: Revision 0, 19-DEC-96

SW3520/8081
PESTICIDES

Client	: JACOBS ENGINEERING GROUP	DaTime Collcted:	05/19/97
Project	: CARSWELL AFB / 05G47900	DaTime Received:	05/22/97
Batch No.	: 97E103	DaTime Extrctd :	05/24/97 15:(
Sample ID	: CR-A162908	DaTime Analyzd :	05/26/97 15:5
Lab Cnt NO.	: E103-67	Dilutn Factor :	1
Lab File ID	: WE25-33	Matrix :	WATER
Ext Btch ID	: CPE013W	% Moisture :	NA
Calib. Ref.	: WE25-23	Instrument ID :	GCT016

PARAMETERS	RESULTS (ug/L)		PQL (ug/L)	MDL (ug/L)	
alpha-BHC	(ND)	ND	.1	.038	.03
gamma-BHC (Lindane)	(ND)	ND	.1	.033	.033
Heptachlor	(ND)	ND	.1	.032	.031
Aldrin	(ND)	ND	.2	.016	.013
beta-BHC	(ND)	ND	.1	.021	.024
delta-BHC	(ND)	ND	.1	.007	.004
Heptachlor Epoxide	(ND)	ND	.1	.006	.005
Endosulfan I	(ND)	ND	.1	.014	.011
gamma-Chlordane	(ND)	ND	.1	.005	.004
alpha-Chlordane	(ND)	ND	.1	.008	.003
4,4'-DDE	(ND)	ND	.2	.01	.007
Dieldrin	(ND)	ND	.2	.024	.019
Endrin	(ND)	ND	.2	.025	.021
4,4'-DDD	(ND)	ND	.2	.022	.012
Endosulfan II	(ND)	ND	.2	.008	.007
4,4'-DDT	(ND)	ND	.2	.015	.013
Endrin aldehyde	(ND)	ND	.2	.012	.098
Methoxychlor	(ND)	ND	.8	.096	.069
Endosulfan Sulfate	(ND)	ND	.2	.073	.009
Toxaphene	(ND)	ND	1	.349	.283

SURROGATE PARAMETERS	% RECOVERY		QC LIMIT
Tetrachloro-m-xylene	(87)	88	45-125
Decachlorobiphenyl	(108)	108	34-133

PQL: Practical Quantitation Limit
Left of | is related to first column ; Right of | related to second column
( ) included the reported column
* : Out side of QC Limit.
JACWHTG/JACWHTS: Revision 0, 19-DEC-96

SW3520/8081
PESTICIDES

Client	: JACOBS ENGINEERING GROUP	DaTime Collcted:	NA
Project	: CARSWELL AFB / 05G47900	DaTime Received:	05/24/97
Batch No.	: 97E103	DaTime Extrctd :	05/24/97 15:00
Sample ID	: MBLK1W	DaTime Analyzd :	05/25/97 23:21
Lab Cnt NO.	: CPE013WB	Dilutn Factor :	1
Lab File ID	: WE25-6	Matrix :	WATER
Ext Btch ID	: CPE013W	% Moisture :	NA
Calib. Ref.	: WE25-3	Instrument ID :	GCT016

PARAMETERS	RESULTS (ug/L)		PQL (ug/L)	MDL (ug/L)	
alpha-BHC	(ND)	ND	.1	.038	.03
gamma-BHC (Lindane)	(ND)	ND	.1	.033	.033
Heptachlor	(ND)	ND	.1	.032	.031
Aldrin	(ND)	ND	.2	.016	.013
beta-BHC	(ND)	ND	.1	.021	.024
delta-BHC	(ND)	ND	.1	.007	.004
Heptachlor Epoxide	(ND)	ND	.1	.006	.005
Endosulfan I	(ND)	ND	.1	.014	.011
gamma-Chlordane	(ND)	ND	.1	.005	.004
alpha-Chlordane	(ND)	ND	.1	.008	.003
4,4'-DDE	(ND)	ND	.2	.01	.007
Dieldrin	(ND)	ND	.2	.024	.019
Endrin	(ND)	ND	.2	.025	.021
4.4'-DDD	(ND)	ND	.2	.022	.012
Endosulfan II	(ND)	ND	.2	.008	.007
4,4'-DDT	(ND)	ND	.2	.015	.013
Endrin aldehyde	(ND)	ND	.2	.012	.098
Methoxychlor	(ND)	ND	.8	.096	.069
Endosulfan Sulfate	(ND)	ND	.2	.073	.009
Toxaphene	(ND)	ND	1	.349	.283

SURROGATE PARAMETERS	% RECOVERY		QC LIMIT
Tetrachloro-m-xylene	(79)	78	45-125
Decachlorobiphenyl	(98)	88	34-133

PQL: Practical Quantitation Limit
Left of | is related to first column ; Right of | related to second column
( ) included the reported column
* : Out side of QC Limit.
JACWHTG/JACWHTS: Revision 0, 19-DEC-96

SW1312/8081
SPLP/PESTICIDES

Client	: JACOBS ENGINEERING GROUP	DaTime Collcted:	NA
Project	: CARSWELL AFB / 05G47900	DaTime Received:	05/24/97
Batch No.	: 97E103	DaTime Extrctd :	05/24/97 15:00
Sample ID	: MBLK2W	DaTime Analyzd :	05/26/97 01:11
Lab Cnt NO.:	TXE003SB	Dilutn Factor :	1
Lab File ID:	WE25-9	Matrix :	WATER
Ext Btch ID:	CPE013W	% Moisture :	NA
Calib. Ref.:	WE25-3	Instrument ID :	GCT016

PARAMETERS	RESULTS (ug/L)		PQL (ug/L)	MDL (ug/L)	
alpha-BHC	(ND)	ND	.1	.038	.03
gamma-BHC (Lindane)	(ND)	ND	.1	.033	.033
Heptachlor	(ND)	ND	.1	.032	.031
Aldrin	(ND)	ND	.2	.016	.013
beta-BHC	(ND)	.104	.1	.021	.024
delta-BHC	(ND)	ND	.1	.007	.004
Heptachlor Epoxide	(ND)	ND	.1	.006	.005
Endosulfan I	(ND)	ND	.1	.014	.011
gamma-Chlordane	(ND)	ND	.1	.005	.004
alpha-Chlordane	(ND)	ND	.1	.008	.003
4,4'-DDE	(ND)	ND	.2	.01	.007
Dieldrin	(ND)	ND	.2	.024	.019
Endrin	(ND)	ND	.2	.025	.021
4,4'-DDD	(ND)	ND	.2	.022	.012
Endosulfan II	(ND)	ND	.2	.008	.007
4,4'-DDT	(ND)	ND	.2	.015	.013
Endrin aldehyde	(ND)	ND	.2	.012	.098
Methoxychlor	(ND)	ND	.8	.096	.069
Endosulfan Sulfate	(ND)	ND	.2	.073	.009
Toxaphene	(ND)	ND	1	.349	.283

SURROGATE PARAMETERS	% RECOVERY		QC LIMIT
Tetrachloro-m-xylene	(87)	88	45-125
Decachlorobiphenyl	(117)	110	34-133

PQL: Practical Quantitation Limit
Left of | is related to first column ; Right of | related to second column
( ) included the reported column
Date and Time of SPLP Extraction 05/23/97 15:00
* : Out side of QC Limit.
JACWHTG/JACWHTS: Revision 0, 19-DEC-96

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: SW3520/8081

MATRIX: WATER % MOISTURE: NA

DILTN FACTR:	1	1	1
SAMPLE ID:	MBLK1W		
CONTROL NO.:	CPE013WB	CPE013WL	CPE013WC
LAB FILE ID:	WE25-6	WE25-7	WE25-8
DATIME EXTRCTD:	05/24/9715:00	05/24/9715:00	05/24/9715:00
DATIME ANALYZD:	05/25/9723:21	05/25/9723:57	05/26/9700:34
PREP. BATCH:	CPE013W	CPE013W	CPE013W
CALIB. REF:	WE25-3	WE25-3	WE25-3

DATE COLLECTED: NA
DATE RECEIVED: 05/24/97

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD %	QC LIMIT %	MAX RPD %
4,4'-DDE	(ND)|ND	.4	(.377)|.368	(94)|92	.4	(.395)|.392	(99)|98	5|6	45-139	30
Dieldrin	(ND)|ND	.4	(.375)|.366	(94)|92	.4	(.394)|.392	(98)|98	5|7	42-132	30
4,4'-DDT	(ND)|ND	.4	(.371)|.361	(93)|90	.4	(.389)|.384	(97)|96	5|6	34-143	30

SURROGATE PARAMETER	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	QC LIMIT %
Tetrachloro-m-xylene	.4	(.214)|.217	(54)|54	.4	(.221)|.222	(55)|56	45-125
Decachlorobiphenyl	.8	(.689)|.734	(86)|92	.8	(.714)|.774	(89)|97	34-133

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: SW1312/8081

MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	MBLK2W			
CONTROL NO.:	TXE003SB	TXE003SL		
LAB FILE ID:	WE25-9	WE25-10		
DATIME EXTRCTD:	05/24/9715:00	05/24/9715:00	DATE COLLECTED:	NA
DATIME ANALYZD:	05/26/9701:11	05/26/9701:47	DATE RECEIVED:	05/24/97
PREP. BATCH:	CPE013W	CPE013W		
CALIB. REF:	WE25-3	WE25-3		

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	QC LIMIT (%)
4,4'-DDE	(ND)|ND	.4	(.382)|.367	(96)|92	45-139
Dieldrin	(ND)|ND	.4	(.332)|.319	(83)|80	42-132
4,4'-DDT	(ND)|ND	.4	(.34)|.32	(85)|80	34-143

SURROGATE PARAMETER	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	QC LIMIT (%)
Tetrachloro-m-xylene	.4	(.224)|.231	(56)|58	45-125
Decachlorobiphenyl	.8	(.651)|.706	(81)|88	34-133

Date and Time of SPLP Extraction 05/23/97 15:00

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: SW1312/8081

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	CR-A162104				
CONTROL NO.:	E103-04	E103-04M	E103-04S		
LAB FILE ID:	WE25-14	WE25-15	WE25-16		
DATIME EXTRCTD:	05/24/9715:00	05/24/9715:00	05/24/9715:00	DATE COLLECTED:	05/19/97
DATIME ANALYZD:	05/26/9704:14	05/26/9704:51	05/26/9705:27	DATE RECEIVED:	05/22/97
PREP. BATCH:	CPE013W	CPE013W	CPE013W		
CALIB. REF:	WE25-3	WE25-3	WE25-3		

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SPIKE AMT (ug/L)	MS RSLT (ug/L)	MS % REC	SPIKE AMT (ug/L)	MSD RSLT (ug/L)	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
4,4'-DDE	(ND)|ND	.4	(.346)|.314	(86)|78	.4	(.355)|.37	(89)|92	3|16	45-139	30
Dieldrin	(ND)|ND	.4	(.343)|.341	(86)|85	.4	(.34)|.346	(85)|86	1|1	42-132	30
4,4'-DDT	(ND)|ND	.4	(.383)|.355	(96)|89	.4	(.402)|.37	(100)|92	5|4	34-143	30

SURROGATE PARAMETER	SPIKE AMT (ug/L)	MS RSLT (ug/L)	MS % REC	SPIKE AMT (ug/L)	MSD RSLT (ug/L)	MSD % REC	QC LIMIT %
Tetrachloro-m-xylene	.2	(.156)|.208	(78)|104	.2	(.148)|.173	(74)|86	45-125
Decachlorobiphenyl	.2	(.648)|.711	(81)|89	.2	(.664)|.736	(83)|92	34-133

Date and Time of SPLP Extraction 05/23/97 15:00

0026

CALIBRATION

INITIAL CALIBRATION
METHOD 8081

Lab Name : EMAX Inc
Instrument ID : GCT016
Column : DB608
Column size ID: 0.32MMX30M
LFID & Datime: WE24-9 05-24-97 18:52:52 WE24-10 0 05-24-97 19:29:33
LFID & Datime: WE24-11 05-24-97 20:06:15 WE24-12 0 05-24-97 20:42:54
LFID & Datime: WE24-13 05-24-97 21:19:34 WE24-14 0 05-24-97 21:56:15
LFID & Datime: WE24-15 05-24-97 22:32:57 WE24-16 0 05-24-97 23:09:40
LFID & Datime: WE24-17 05-24-97 23:46:21 WE24-18 0 05-25-97 00:23:00
CONC UNIT: ppb

COMPOUND	CONC X	CALIBRATION FACTORS (AREA/UNIT) 1.0X	2.0X	4.0X	8.0X	12.0X	MEAN	%RSD
alpha-BHC	5.0	7497	7069	6870	6552	6390	6875	6
gamma-BHC	5.0	7533	6948	6629	6209	5979	6660	9
beta-BHC	5.0	4403	4200	3834	3515	3290	3848	12
Heptachlor	5.0	7947	7139	6559	5862	5501	6602	15
delta-BHC	5.0	6753	6602	6225	6003	5796	6276	6
Aldrin	5.0	9705	9289	8681	8246	7826	8749	9
Heptachlor Epoxide	5.0	9143	8540	7732	7090	6621	7825	13
gamma-Chlordane	5.0	9292	8713	7946	7379	6981	8062	12
alpha-Chlordane	5.0	9688	9086	8291	7674	7217	8391	12
Endosulfan I	5.0	8478	7634	7118	6483	6133	7169	13
DDE	10.0	7060	6787	6483	6192	5935	6491	7
Dieldrin	10.0	7913	7096	6692	6188	5893	6757	12
Endrin	10.0	6925	6170	5746	5222	4910	5795	14
D	10.0	4682	4228	4009	3860	3689	4094	9
Endosulfan II	10.0	6646	6204	5671	5228	4913	5732	12
DDT	10.0	4134	3734	3559	3274	3132	3566	11
Endrin Aldehyde	10.0	4783	4492	4121	3846	3568	4162	12
Endosulfan Sulfate	10.0	6638	5833	5181	4747	4454	5371	16
Methoxychlor	50.0	1773	1543	1402	1288	1201	1442	16
Endrin Ketone	10.0	5455	5062	4576	4185	3892	4634	14
Tetrachloro-m-xylene	5.0	10037	9612	9404	8973	8698	9345	6
Decachlorobiphenyl	10.0	9759	8494	7745	6887	6361	7849	17

INITIAL CALIBRATION
METHOD 8081

Lab Name : EMAX Inc
Instrument ID : GCT016
GC Column : DB608
Column size ID: 0.32MMX30M
LFID & Datime: WE24-9 05-24-97 18:52:52 WE24-10 0
LFID & Datime: WE24-11 05-24-97 20:06:15 WE24-12 0
LFID & Datime: WE24-13 05-24-97 21:19:34 WE24-14 0
LFID & Datime: WE24-15 05-24-97 22:32:57 WE24-16 0
LFID & Datime: WE24-17 05-24-97 23:46:21 WE24-18 0

COMPOUND	RT OF STANDARDS (MIN) 1.0X	2.0X	4.0X	8.0X	12.0X	MEAN RT	RT WINDOW FROM	TO
alpha-BHC	8.60	8.60	8.60	8.60	8.60	8.60	8.55	8.65
gamma-BHC	10.24	10.25	10.25	10.25	10.25	10.25	10.20	10.30
beta-BHC	10.59	10.60	10.60	10.60	10.60	10.60	10.55	10.65
Heptachlor	11.61	11.62	11.62	11.62	11.62	11.62	11.57	11.67
delta-BHC	12.19	12.19	12.19	12.19	12.19	12.19	12.14	12.24
Aldrin	13.04	13.06	13.04	13.04	13.04	13.05	13.00	13.10
Heptachlor Epoxide	15.65	15.66	15.66	15.66	15.66	15.66	15.61	15.71
gamma-Chlordane	16.40	16.42	16.42	16.42	16.42	16.41	16.31	16.51
alpha-Chlordane	17.17	17.17	17.17	17.17	17.17	17.17	17.07	17.27
Endosulfan I	17.23	17.25	17.25	17.25	17.25	17.25	17.15	17.35
DDE	18.49	18.50	18.50	18.50	18.50	18.50	18.40	18.60
Dieldrin	18.69	18.69	18.69	18.69	18.69	18.69	18.59	18.79
Endrin	20.36	20.37	20.37	20.37	20.37	20.37	20.27	20.47
DDD	21.11	21.11	21.11	21.11	21.11	21.11	21.01	21.21
Endosulfan II	21.26	21.26	21.26	21.26	21.26	21.26	21.16	21.36
DDT	22.48	22.49	22.49	22.49	22.49	22.49	22.39	22.59
Endrin Aldehyde	22.83	22.83	22.83	22.83	22.83	22.83	22.73	22.93
Endosulfan Sulfate	23.40	23.41	23.41	23.41	23.41	23.41	23.31	23.51
Methoxychlor	26.65	26.67	26.67	26.67	26.67	26.67	26.57	26.77
Endrin Ketone	26.92	26.92	26.92	26.92	26.92	26.92	26.82	27.02
Tetrachloro-m-xylene	5.96	5.98	5.96	5.98	5.98	5.97	5.87	6.07
Decachlorobiphenyl	32.33	32.33	32.33	32.33	32.33	32.33	32.23	32.43

INITIAL CALIBRATION
METHOD 8081

Lab Name : EMAX Inc
Instrument ID : GCT016
GC Column : DB1701
Column size ID: 0.32MMX30M
LFID & Datime: XE24-9 05-24-97 18:52:52 XE24-10 0 05-24-97 19:29:33
LFID & Datime: XE24-11 05-24-97 20:06:15 XE24-12 0 05-24-97 20:42:54
LFID & Datime: XE24-13 05-24-97 21:19:34 XE24-14 0 05-24-97 21:56:15
LFID & Datime: XE24-15 05-24-97 22:32:57 XE24-16 0 05-24-97 23:09:40
LFID & Datime: XE24-17 05-24-97 23:46:21 XE24-18 0 05-25-97 00:23:00
CONC UNIT: ppb

COMPOUND	CONC X	CALIBRATION FACTORS (AREA/UNIT) 1.0X	2.0X	4.0X	8.0X	12.0X	MEAN	%RSD
alpha-BHC	5.0	6901	6912	7431	8613	8970	7765	12
gamma-BHC	5.0	7612	7519	7873	8186	8328	7904	4
beta-BHC	5.0	5795	5515	5132	4855	4681	5196	9
Heptachlor	5.0	7728	7289	7066	6777	6621	7097	6
delta-BHC	5.0	7652	8025	8434	9187	9385	8537	9
Aldrin	5.0	7574	7650	7751	8228	8368	7914	5
Heptachlor Epoxide	5.0	8185	8083	7878	7908	7801	7971	2
gamma-Chlordane	5.0	8166	8057	7847	7925	7878	7975	2
alpha-Chlordane	5.0	8591	8536	8413	8588	8565	8539	1
Endosulfan I	5.0	7830	7363	7378	7334	7324	7446	3
DDE	10.0	7103	7500	7977	8648	8721	7990	9
Dieldrin	10.0	7271	7001	7266	7370	7362	7254	2
drin	10.0	6744	6378	6544	6436	6296	6479	3
DD	10.0	5188	4959	5113	5149	5157	5113	2
Endosulfan II	10.0	7241	7173	7023	6974	6789	7040	3
DDT	10.0	4962	4617	4579	4443	4357	4592	5
Endrin Aldehyde	10.0	5173	5184	5341	5800	5699	5439	5
Endosulfan Sulfate	10.0	6794	6632	6376	6238	6039	6416	5
Methoxychlor	50.0	2515	2259	2129	1949	1854	2141	12
Endrin Ketone	10.0	6862	6775	6541	6328	6030	6507	5
Tetrachloro-m-xylene	5.0	8994	8827	8971	8861	8750	8881	1
Decachlorobiphenyl	10.0	10479	9802	9635	9033	8761	9542	7

INITIAL CALIBRATION
METHOD 8081

Lab Name : EMAX Inc
Instrument ID : GCT016
GC Column : DB1701
Column size ID: 0.32MMX30M
LFID & Datime: XE24-9 05-24-97 18:52:52 XE24-10 0
LFID & Datime: XE24-11 05-24-97 20:06:15 XE24-12 0
LFID & Datime: XE24-13 05-24-97 21:19:34 XE24-14 0
LFID & Datime: XE24-15 05-24-97 22:32:57 XE24-16 0
LFID & Datime: XE24-17 05-24-97 23:46:21 XE24-18 0

COMPOUND	RT OF STANDARDS (MIN) 1.0X	2.0X	4.0X	8.0X	12.0X	MEAN RT	RT WINDOW FROM	TO
alpha-BHC	5.84	5.84	5.84	5.84	5.84	5.84	5.79	5.89
gamma-BHC	7.06	7.08	7.08	7.08	7.08	7.08	7.03	7.13
beta-BHC	9.85	9.85	9.85	9.85	9.85	9.85	9.80	9.90
Heptachlor	7.67	7.67	7.67	7.67	7.67	7.67	7.62	7.72
delta-BHC	10.60	10.60	10.60	10.60	10.60	10.60	10.55	10.65
Aldrin	8.52	8.52	8.52	8.52	8.52	8.52	8.47	8.57
Heptachlor Epoxide	11.16	11.16	11.16	11.16	11.16	11.16	11.11	11.21
gamma-Chlordane	12.41	12.41	12.41	12.41	12.41	12.41	12.31	12.51
alpha-Chlordane	12.71	12.73	12.71	12.71	12.73	12.72	12.62	12.82
Endosulfan I	12.09	12.09	12.09	12.09	12.09	12.09	11.99	12.19
DDE	13.14	13.14	13.14	13.14	13.14	13.14	13.04	13.24
Dieldrin	13.56	13.58	13.58	13.58	13.58	13.57	13.47	13.67
Endrin	14.36	14.36	14.36	14.36	14.36	14.36	14.26	14.46
DDD	16.38	16.40	16.40	16.40	16.40	16.40	16.30	16.50
Endosulfan II	16.43	16.43	16.43	16.43	16.43	16.43	16.33	16.53
DDT	17.03	17.03	17.03	17.03	17.03	17.03	16.93	17.13
Endrin Aldehyde	18.15	18.15	18.15	18.15	18.15	18.15	18.05	18.25
Endosulfan Sulfate	19.52	19.54	19.52	19.52	19.54	19.53	19.43	19.63
Methoxychlor	19.87	19.87	19.87	19.87	19.87	19.87	19.77	19.97
Endrin Ketone	20.99	20.99	20.99	20.99	20.99	20.99	20.89	21.09
Tetrachloro-m-xylene	3.59	3.61	3.61	3.61	3.61	3.60	3.50	3.70
Decachlorobiphenyl	25.02	25.03	25.03	25.03	25.03	25.03	24.93	25.13

INITIAL CALIBRATION
METHOD 8081

lame : EMAX Inc
Instrument ID : GCT016
GC Column : DB608
Column size ID: 0.32mmX30m
LFID & Datime : WE23-12 05/23/97 21:03:11 WE23-13 05/23/97 21:39:49
LFID & Datime : WE23-14 05/23/97 22:16:29 WE23-15 05/23/97 22:53:08
LFID & Datime : WE23-16 05/23/97 23:29:48
Conc Unit : ppb

COMPOUND	CONC X	CALIBRATION FACTORS (AREA/UNIT) 1.0X	2.0X	5.0X	8.0X	10.0X	MEAN	%RSD
Toxaphene-1	100.0	42	38	43	41	40	41	4.3
Toxaphene-2	100.0	48	45	41	38	39	42	9.8
Toxaphene-3	100.0	169	152	162	149	159	158	5.1
Toxaphene-4	100.0	122	127	119	111	123	120	5.1
Toxaphene-5	100.0	57	52	50	48	57	53	7.9
Tetrachloro-m-xylene	5.0	10316	9670	9420	9204	8899	9502	5.6
Decachlorobiphenyl	5.0	8002	7858	7120	6548	6671	7240	9.2

INITIAL CALIBRATION
METHOD 8081

Lab Name : EMAX Inc
Instrument ID : GCT016
GC Column : DB1701
Column size ID: 0.32mmX30m
LFID & Datime : XE23-12 05/23/97 21:03:11 XE23-13 05/23/97 21:39:49
LFID & Datime : XE23-14 05/23/97 22:16:29 XE23-15 05/23/97 22:53:08
LFID & Datime : XE23-16 05/23/97 23:29:48
Conc Unit : ppb

COMPOUND	CONC X	CALIBRATION FACTORS (AREA/UNIT) 1.0X	2.5X	5.0X	8.0X	10.0X	MEAN	%RSD
Toxaphene-1	100.0	32	51	48	46	52	46	17.6
Toxaphene-2	100.0	59	56	73	68	73	66	12.2
Toxaphene-3	100.0	60	57	74	71	77	68	13.0
Toxaphene-4	100.0	49	50	60	58	58	55	9.6
Toxaphene-5	100.0	60	69	74	72	71	69	7.8
Tetrachloro-m-xylene	5.0	9003	8835	8947	8978	8748	8902	1.2
Decachlorobiphenyl	5.0	9163	8747	8404	8662	8458	8687	3.5

INITIAL CALIBRATION
METHOD 8081

ab Name : EMAX Inc
nstrument ID : GCTD16
GC Column : DB608
olumn size ID: 0.32mmX30m
FID & Datime : WE23-12 05/23/97 21:03:11 WE23-13 05/23/97 21:39:49
LFID & Datime : WE23-14 05/23/97 22:16:29 WE23-15 05/23/97 22:53:08
LFID & Datime : WE23-16 05/23/97 23:29:48
onc Unit : ppb

COMPOUND	RT OF STANDARDS 1.0X	2.0X	5.0X	8.0X	10.0X	MEAN	RT WINDOW FROM	TO
Toxaphene-1	18.15	18.15	18.15	18.17	18.17	18.16	18.06	18.26
Toxaphene-2	18.44	18.44	18.44	18.44	18.44	18.44	18.34	18.54
Toxaphene-3	22.46	22.46	22.46	22.46	22.46	22.46	22.36	22.56
Toxaphene-4	22.78	22.78	22.78	22.78	22.78	22.78	22.68	22.88
Toxaphene-5	23.78	23.78	23.78	23.78	23.78	23.78	23.68	23.88
Tetrachloro-m-xylene	5.96	5.96	5.96	5.96	5.96	5.96	5.86	6.06
Decachlorobiphenyl	32.31	32.31	32.33	32.33	32.33	32.32	32.22	32.42

INITIAL CALIBRATION
METHOD 8081

Lab Name : EMAX Inc
Instrument ID : GCT016
GC Column : DB1701
Column size ID: 0.32mmX30m
LFID & Datime : XE23-12 05/23/97 21:03:11 XE23-13 05/23/97 21:39:49
LFID & Datime : XE23-14 05/23/97 22:16:29 XE23-15 05/23/97 22:53:08
LFID & Datime : XE23-16 05/23/97 23:29:48
Conc Unit : ppb

COMPOUND	RT DF STANDARDS 1.0X	2.0X	5.0X	8.0X	10.0X	MEAN	RT WINDOW FROM	TO
Toxaphene-1	13.98	13.98	13.98	13.98	13.98	13.98	13.88	14.08
Toxaphene-2	14.71	14.71	14.71	14.71	14.71	14.71	14.61	14.81
Toxaphene-3	14.88	14.88	14.88	14.88	14.88	14.88	14.78	14.98
Toxaphene-4	21.56	21.56	21.56	21.56	21.56	21.56	21.46	21.66
Toxaphene-5	22.09	22.09	22.09	22.09	22.09	22.09	21.99	22.19
Tetrachloro-m-xylene	3.59	3.59	3.59	3.59	3.59	3.59	3.49	3.69
Decachlorobiphenyl	25.02	25.02	25.02	25.02	25.02	25.02	24.92	25.12

CONTINUE CALIBRATION
METHOD 8081

Name : EMAX
Instrument ID : GCT016 HP-5890
GC Columm : DB608
Column size ID : .32MM X 30M
Mid Conc Init LFID & Datime: WE24-12 05-24-97 20:42:54
Mid Conc Init LFID & Datime: WE24-13 05-24-97 21:19:34
Mid Conc Cont LFID & Datime: WE25-3 05-25-97 21:31:05
Mid Conc Cont LFID & Datime: WE25-4 05-25-97 22:07:46
CONC UNIT : ppb

COMPOUND	CONC 4.0X	AVERAGE CF	RESULT AREA	RESULT CONC	%D	RT min
alpha-BHC	20.0	6875	121626	17.7	11.6	8.601
gamma-BHC	20.0	6660	117653	17.7	11.7	10.237
beta-BHC	20.0	3848	68958	17.9	10.4	10.588
Heptachlor	20.0	6602	114873	17.4	13.0	11.606
delta-BHC	20.0	6276	109258	17.4	13.0	12.191
Aldrin	20.0	8749	158310	18.1	9.5	13.043
Heptachlor Epoxide	20.0	7825	138500	17.7	11.5	15.648
gamma-Chlordane	20.0	8062	143842	17.8	10.8	16.399
alpha-Chlordane	20.0	8391	150990	18.0	10.0	17.168
Endosulfan I	20.0	7169	126601	17.7	11.7	17.234
DDE	40.0	6491	232597	35.8	10.4	18.487
Dieldrin	40.0	6757	238743	35.3	11.7	18.671
Endrin	40.0	5795	204770	35.3	11.7	20.357
DDD	40.0	4094	142433	34.8	13.0	21.109
Endosulfan II	40.0	5732	200341	34.9	12.6	21.242
DDT	40.0	3566	125303	35.1	12.2	22.478
Endrin Aldehyde	40.0	4162	145486	35.0	12.6	22.812
Endosulfan Sulfate	40.0	5371	182793	34.0	14.9	23.397
Methoxychlor	200.0	1442	251946	174.8	12.6	26.653
Endrin Ketone	40.0	4634	160930	34.7	13.2	26.920
Tetrachloro-m-xylene	20.0	9345	170911	18.3	8.6	5.962
Decachlorobiphenyl	40.0	7849	281534	35.9	10.3	32.314

CONTINUE CALIBRATION
METHOD 8081

Lab Name : EMAX
Instrument ID : GCT016 HP-5890
GC Columm : DB1701
Column size ID : .32MM X 30M
Mid Conc Init LFID & Datime: XE24-12 05-24-97 20:42:54
Mid Conc Init LFID & Datime: XE24-13 05-24-97 21:19:34
Mid Conc Cont LFID & Datime: XE25-3 05-25-97 21:31:05
Mid Conc Cont LFID & Datime: XE25-4 05-25-97 22:07:46
CONC UNIT : ppb

COMPOUND	CONC 4.0X	AVERAGE CF	RESULT AREA	RESULT CONC	%D	RT min
alpha-BHC	20.0	7765	131876	17.0	15.0	5.828
gamma-BHC	20.0	7904	137309	17.4	13.1	7.064
beta-BHC	20.0	5196	87218	16.8	16.1*	9.836
Heptachlor	20.0	7097	122500	17.3	13.7	7.665
delta-BHC	20.0	8537	147441	17.3	13.6	10.604
Aldrin	20.0	7914	139413	17.6	11.9	8.517
Heptachlor Epoxide	20.0	7971	137854	17.3	13.5	11.139
gamma-Chlordane	20.0	7975	140139	17.6	12.1	12.391
alpha-Chlordane	20.0	8539	150181	17.6	12.1	12.709
Endosulfan I	20.0	7446	129231	17.4	13.2	12.091
DDE	40.0	7990	284099	35.6	11.1	13.126
Dieldrin	40.0	7254	251870	34.7	13.2	13.560
Endrin	40.0	6479	224210	34.6	13.5	14.345
DDD	40.0	5113	175531	34.3	14.2	16.383
Endosulfan II	40.0	7040	246569	35.0	12.4	16.416
DDT	40.0	4592	149754	32.6	18.5*	17.034
Endrin Aldehyde	40.0	5439	188372	34.6	13.4	18.153
Endosulfan Sulfate	40.0	6416	223036	34.8	13.1	19.522
Methoxychlor	200.0	2141	330377	154.3	22.8*	19.873
Endrin Ketone	40.0	6507	225032	34.6	13.5	20.992
Tetrachloro-m-xylene	20.0	8881	164044	18.5	7.6	3.591
Decachlorobiphenyl	40.0	9542	325119	34.1	14.8	25.017

Comment : * Out side of QC Limit 15%.

CONTINUE CALIBRATION
METHOD 8081

Name	:	EMAX
Instrument ID	:	GCT016 HP-5890
C Columm	:	DB608
Column size ID	:	.32MM X 30M
Mid Conc Init LFID & Datime	:	WE24-12 05-24-97 20:42:54
Mid Conc Init LFID & Datime	:	WE24-13 05-24-97 21:19:34
Mid Conc Cont LFID & Datime	:	WE25-23 05-26-97 09:44:23
Mid Conc Cont LFID & Datime	:	WE25-24 05-26-97 10:21:00
CONC UNIT	:	ppb

COMPOUND	CONC 4.0X	AVERAGE CF	RESULT AREA	RESULT CONC	%D	RT min
alpha-BHC	20.0	6875	135110	19.7	1.7	8.584
gamma-BHC	20.0	6660	130656	19.6	1.9	10.237
beta-BHC	20.0	3848	75489	19.6	1.9	10.588
Heptachlor	20.0	6602	128604	19.5	2.6	11.606
delta-BHC	20.0	6276	124111	19.8	1.1	12.174
Aldrin	20.0	8749	165638	18.9	5.3	13.026
Heptachlor Epoxide	20.0	7825	149573	19.1	4.4	15.648
gamma-Chlordane	20.0	8062	152950	19.0	5.1	16.399
alpha-Chlordane	20.0	8391	158631	18.9	5.5	17.151
Endosulfan I	20.0	7169	139149	19.4	3.0	17.234
DDE	40.0	6491	251929	38.8	3.0	18.487
Dieldrin	40.0	6757	259811	38.5	3.9	18.671
Endrin	40.0	5795	228675	39.5	1.3	20.357
DDD	40.0	4094	164985	40.3	0.8	21.092
Endosulfan II	40.0	5732	224055	39.1	2.3	21.242
DDT	40.0	3566	139954	39.2	1.9	22.462
Endrin Aldehyde	40.0	4162	163116	39.2	2.0	22.812
Endosulfan Sulfate	40.0	5371	200798	37.4	6.5	23.397
Methoxychlor	200.0	1442	287046	199.1	0.4	26.636
Endrin Ketone	40.0	4634	182756	39.4	1.4	26.904
Tetrachloro-m-xylene	20.0	9345	177054	18.9	5.3	5.962
Decachlorobiphenyl	40.0	7849	289902	36.9	7.7	32.314

CONTINUE CALIBRATION
METHOD 8081

Lab Name : EMAX
Instrument ID : GCT016 HP-5890
GC Columm : DB1701
Column size ID : .32MM X 30M
Mid Conc Init LFID & Datime: XE24-12 05-24-97 20:42:54
Mid Conc Init LFID & Datime: XE24-13 05-24-97 21:19:34
Mid Conc Cont LFID & Datime: XE25-23 05-26-97 09:44:23
Mid Conc Cont LFID & Datime: XE25-24 05-26-97 10:21:00
CONC UNIT : ppb

COMPOUND	CONC 4.0X	AVERAGE CF	RESULT AREA	RESULT CONC	%D	RT min
alpha-BHC	20.0	7765	154051	19.8	0.8	5.828
gamma-BHC	20.0	7904	154199	19.5	2.4	7.064
beta-BHC	20.0	5196	97714	18.8	6.0	9.836
Heptachlor	20.0	7097	137565	19.4	3.1	7.649
delta-BHC	20.0	8537	165448	19.4	3.1	10.588
Aldrin	20.0	7914	150054	19.0	5.2	8.500
Heptachlor Epoxide	20.0	7971	152483	19.1	4.3	11.139
gamma-Chlordane	20.0	7975	152326	19.1	4.5	12.391
alpha-Chlordane	20.0	8539	163051	19.1	4.5	12.709
Endosulfan I	20.0	7446	143717	19.3	3.5	12.074
DDE	40.0	7990	307788	38.5	3.7	13.126
Dieldrin	40.0	7254	285258	39.3	1.7	13.560
Endrin	40.0	6479	263261	40.6	1.6	14.345
DDD	40.0	5113	203926	39.9	0.3	16.383
Endosulfan II	40.0	7040	275914	39.2	2.0	16.416
DDT	40.0	4592	178728	38.9	2.7	17.017
Endrin Aldehyde	40.0	5439	210215	38.6	3.4	18.136
Endosulfan Sulfate	40.0	6416	252339	39.3	1.7	19.506
Methoxychlor	200.0	2141	429577	200.6	0.3	19.856
Endrin Ketone	40.0	6507	259662	39.9	0.2	20.975
Tetrachloro-m-xylene	20.0	8881	169419	19.1	4.6	3.591
Decachlorobiphenyl	40.0	9542	375664	39.4	1.6	25.000

CONTINUE CALIBRATION
METHOD 8081

L Name : EMAX
Instrument ID : GCT016 HP-5890
C Columm : DB608
olumn size ID : .32MM X 30M
Mid Conc Init LFID & Datime: WE24-12 05-24-97 20:42:54
id Conc Init LFID & Datime: WE24-13 05-24-97 21:19:34
id Conc Cont LFID & Datime: WE25-36 05-26-97 17:40:34
Mid Conc Cont LFID & Datime: WE25-37 05-26-97 18:17:12
CONC UNIT : ppb

COMPOUND	CONC 4.0X	AVERAGE CF	RESULT AREA	RESULT CONC	%D	RT min
alpha-BHC	20.0	6875	134456	19.6	2.2	8.584
gamma-BHC	20.0	6660	130662	19.6	1.9	10.237
beta-BHC	20.0	3848	76589	19.9	0.5	10.588
Heptachlor	20.0	6602	128303	19.4	2.8	11.606
delta-BHC	20.0	6276	127444	20.3	1.5	12.174
Aldrin	20.0	8749	166349	19.0	4.9	13.026
Heptachlor Epoxide	20.0	7825	151508	19.4	3.2	15.648
gamma-Chlordane	20.0	8062	154507	19.2	4.2	16.399
alpha-Chlordane	20.0	8391	160240	19.1	4.5	17.151
Endosulfan I	20.0	7169	137687	19.2	4.0	17.234
DDE	40.0	6491	256733	39.5	1.1	18.487
Dieldrin	40.0	6757	259677	38.4	3.9	18.671
Endrin	40.0	5795	228095	39.4	1.6	20.357
DDD	40.0	4094	163616	40.0	0.1	21.092
Endosulfan II	40.0	5732	229483	40.0	0.1	21.242
DDT	40.0	3566	142466	39.9	0.1	22.462
Endrin Aldehyde	40.0	4162	166233	39.9	0.2	22.812
Endosulfan Sulfate	40.0	5371	205217	38.2	4.5	23.397
Methoxychlor	200.0	1442	295275	204.8	2.4	26.636
Endrin Ketone	40.0	4634	189341	40.9	2.1	26.904
Tetrachloro-m-xylene	20.0	9345	175066	18.7	6.3	5.962
Decachlorobiphenyl	40.0	7849	289793	36.9	7.7	32.314

CONTINUE CALIBRATION
METHOD 8081

Lab Name : EMAX
Instrument ID : GCT016 HP-5890
GC Columm : DB1701
Column size ID : .32MM X 30M
Mid Conc Init LFID & Datime: XE24-12 05-24-97 20:42:54
Mid Conc Init LFID & Datime: XE24-13 05-24-97 21:19:34
Mid Conc Cont LFID & Datime: XE25-36 05-26-97 17:40:34
Mid Conc Cont LFID & Datime: XE25-37 05-26-97 18:17:12
CONC UNIT : ppb

COMPOUND	CONC 4.0X	AVERAGE CF	RESULT AREA	RESULT CONC	%D	RT min
alpha-BHC	20.0	7765	151694	19.5	2.3	5.828
gamma-BHC	20.0	7904	152580	19.3	3.5	7.064
beta-BHC	20.0	5196	98946	19.0	4.8	9.836
Heptachlor	20.0	7097	135161	19.0	4.8	7.649
delta-BHC	20.0	8537	167512	19.6	1.9	10.588
Aldrin	20.0	7914	150355	19.0	5.0	8.500
Heptachlor Epoxide	20.0	7971	152967	19.2	4.0	11.139
gamma-Chlordane	20.0	7975	152946	19.2	4.1	12.391
alpha-Chlordane	20.0	8539	163749	19.2	4.1	12.692
Endosulfan I	20.0	7446	142212	19.1	4.5	12.074
DDE	40.0	7990	311336	39.0	2.6	13.126
Dieldrin	40.0	7254	282635	39.0	2.6	13.560
Endrin	40.0	6479	261240	40.3	0.8	14.345
DDD	40.0	5113	203753	39.8	0.4	16.383
Endosulfan II	40.0	7040	278736	39.6	1.0	16.416
DDT	40.0	4592	177235	38.6	3.5	17.017
Endrin Aldehyde	40.0	5439	213132	39.2	2.0	18.136
Endosulfan Sulfate	40.0	6416	255343	39.8	0.5	19.506
Methoxychlor	200.0	2141	424475	198.3	0.9	19.856
Endrin Ketone	40.0	6507	262567	40.4	0.9	20.975
Tetrachloro-m-xylene	20.0	8881	166609	18.8	6.2	3.591
Decachlorobiphenyl	40.0	9542	375317	39.3	1.7	25.000

EPA 8081 DAILY CALIBRATION VERIFICATION SUMMARY

Name : EMAX Inc
SDG No. : 97E103
nst ID : GCT016
ab Sample ID : ICV Lab File ID : WE25-5 XE25-5
Date Analyzed : 05/25/97 Time Analyzed: 22:44:28
olumn ID : 0.32mmX30m GC Column : DB608 DB1701

INDIVIDUAL COMPOUND	TRUE CONC (ug/L)	CALC CONC (ug/L)	%D1	CALC CONC (ug/L)	%D2	Q D1 D2
Toxaphene	500.0	439.5	12.1	398.8	20.3	*
Tetrachloro-m-xylene	25.0	22.8	9.0	23.5	6.0	
Decachlorobiphenyl	25.0	22.8	9.0	21.8	13.0	

omments : * Value out side of QC limits of 15%.

EPA 8081 DAILY CALIBRATION VERIFICATION SUMMARY

Lab Name : EMAX Inc
SDG No. : 97E103
Inst ID : GCT016
Lab Sample ID : DCC01 Lab File ID : WE25-25 XE25-25
Date Analyzed : 05/26/97 Time Analyzed: 10:57:38
Column ID : 0.32mmX30m GC Column : DB608 DB1701

INDIVIDUAL COMPOUND	TRUE CONC (ug/L)	CALC CONC (ug/L)	%D1	CALC CONC (ug/L)	%D2	Q D1	Q D2
Toxaphene	500.0	506.3	1.3	177.8	11.1		
Tetrachloro-m-xylene	25.0	23.3	7.0	24.0	4.0		
Decachlorobiphenyl	25.0	23.3	7.0	23.5	6.0		

Comments :

EPA 8081 DAILY CALIBRATION VERIFICATION SUMMARY

Name : EMAX Inc
No. : 97E103
nst ID : GCT016
ab Sample ID : DCC02 Lab File ID : WE25-38 XE25-38
Date Analyzed : 05/26/97 Time Analyzed: 18:53:50
olumn ID : 0.32mmX30m GC Column : DB608 DB1701

INDIVIDUAL COMPOUND	TRUE CONC (ug/L)	CALC CONC (ug/L)	%D1	CALC CONC (ug/L)	%D2	Q D1 D2
Toxaphene	500.0	468.0	6.4	456.0	8.8	
Tetrachloro-m-xylene	25.0	23.5	6.0	24.3	3.0	
Decachlorobiphenyl	25.0	23.8	5.0	24.3	3.0	

omments :

EPA 8081 DDT AND ENDRIN BREAKDOWN SUMMARY

Lab Name : EMAX Inc
SDG No. : 97E103____
Lab Sample ID : PEM01____
Lab File ID : WE25-2____ Lab File ID : XE25-2____
Date Analyzed : 05/25/97__ Time Analyzed: 20:54:25__
Inst ID : GCT016
GC Column ID : 0.32mmX30m DB608_____ DB1701____

COMPOUND	Area	Area	% Breakdown1	% Breakdown2	Q 1	Q 2
DDE	6900.8	0.0				
DDD	14323.1	11825.6				
DDT	287735.8	351178.4				
DDT			6.9	3.3		
Endrin	248745.5	271318.6				
Endrin Aldehyde	11299.5	7390.3				
Endrin Ketone	0.0	14185.3				
Endrin			4.3	7.4		

Comments : _____

EPA 8081 DDT AND ENDRIN BREAKDOWN SUMMARY

Lab Name : EMAX Inc
DG No. : 97E103____
Lab Sample ID : PEM02_____
Lab File ID : WE25-22___ Lab File ID : XE25-22___
Date Analyzed : 05/26/97__ Time Analyzed: 09:07:45__
nst ID : GCT016
C Column ID : 0.32mmX30m DB608_____ DB1701____

COMPOUND	Area	Area	% Breakdown1	% Breakdown2	Q 1	Q 2
DDE	6422.8	0.0				
DDD	14089.6	11931.8				
DDT	327375.4	455754.2				
DDT			5.9	2.6		
Endrin	283973.3	337473.6				
Endrin Aldehyde	0.0	0.0				
Endrin Ketone	0.0	12542.0				
Endrin			0.0	3.6		

Comments :

ANALYSES SEQUENCE / RUN LOG

ANALYSIS RUN LOG

Analytical Batch WE23 Method 8081 Book # T-A04-001

Instrument ID GCT016 Starting Date 5/23/97 Time NA Ending Date 5/24/97 Time NA

File Name	Run ID	DF	Matrix S	Matrix W	Notes
WE23-1	PIBLK01				
2	S100 1660				ICAL PCB-1660
3	S250				
4	S500				
5	S600				
6	S1000				
7	S100 1254				ICAL PCB-1254
8	S250				
9	S500				
10	S600				
11	S1000				
12	S100 Tox9				ICAL Toxaphene
13	S250				
14	S500				
15	S600				
16	S1000				
17	PIBLK02				
18	ICV 1660				
19	ICV 1254				
20	~~ICV Tox~~				
21	47				
22	5127				
23	W				
24					
25					
26					
27					
28					
29					
30					

Initial Calibration	
WCE2360	
WCE2354	
WCE2370	

Standards KV 5/23/97

Name	ID	Conc. (mg/L)
Hexane	36017	ng/L
PIBLK	SS1B-02-7-1	20
1660	SS1B-02-10-2	2000-100
1254	SS1B-01-07	
Toxaphene	SS1B-01-14	
ICV 1660	SS1B-01-1	2000-100
ICV 1254	SS1B-01-6	

Column	1: 608	2: 1701

Disk Archival	
Name	Location

Analyzed By: KV

Checked By:

Date:

ANALYSIS RUN LOG

Analytical Batch WE24 Method 8081 Book # T-A04-001

Instrument ID GC016 Starting Date 5/24/97 Time NA Ending Date 5/25/97 Time NA

File Name	Run ID	DF	Matrix S	Matrix W	Notes
WE24-1	Hex				
2	Inst BL				
3	Hex				
4	Hex				
5	Test FQC				
6	PIBLK01				
7	PEM01				
8	Mix A S5				ICAL pesticide
9	S5 Mix B				
10	S10				
11	S10				
12	S20				
13	S20				
14	S40				
15	S40				
16	S60				
17	S60				
18	PIBLK02				
19	ICV Mix A				
20	ICV Mix B				

Initial Calibration	
WCE24	

Standards KV 5/24/97

Name	ID	Conc. (mg/L)
Hexane	36017	ug/L
PIBLK	SS1B-02-11-1	20
PEM	SS1B-02-10-3	10-250
Mix A	SS1B-02-11-3	80-800
Mix B	SS1B-02-12-1	80-160
ICV Mix A	S10C-01-68-1	80-800
ICV Mix B	S10C-01-68-2	80-160

Column	1: 60X	2: 170

Disk Archival	
Name	Location

Analyzed By: KV

Checked By:

Date:

ANALYSIS RUN LOG

Analytical Batch WE25 Method 8081 Book # T-A04-001

Instrument ID GCT016 Starting Date 5/25/97 Time NA Ending Date 5/26/97 Time NA

File Name	Run ID	DF	Matrix S	Matrix W	Notes
WE25-1	PIBLK01				
WE25-2	PEM01				
3	DCC01 MixA				
4	DCC01 MixB				
5	ICV Toxa				
6	CPE013WB			X	
7	CPE013WL				
8	CPE013WC				
9	TXE003SB				
10	TXE003SL				
11	97E103-01				Carswell pesticides
12	02				only
13	03				
14	04				
15	04M				
16	04S				
17	05				
18	07				
19	51				
20	52				
21	PIBLK02				
22	PEM02				
23	DCC02 MixA				
24	DCC02 MixB				
25	DCC61 Toxa				
26	97E103-53				
27	54				
28	55				
29	56				
30	57				

Initial Calibration	
WCE25	
WCE23TO	

Standards KV 5/25/97

Name	ID	Conc. (mg/L)
Hexane	36017	ug/L
PIBLK	SS1B-02-11-1	20
PEM	SS1B-02-10-3	10-250
Mix A	SS1B-02-11-3	80-800
Mix B	SS1B-02-12-1	80-160
ICV Toxa	SS1B-01-15	2000-100
Toxa	SS1B-01-14	2000-100

Column	1: 608	2: 1701

Disk Archival	
Name	Location

Analyzed By: KV

Checked By:

Date:

ANALYSIS RUN LOG

Page96

Analytical Batch WE25 Method 8081 Book # T-A04-001

Instrument ID GCT016 Starting Date 5/25/97 Time NA Ending Date 5/26/97 Time NA

File Name	Run ID	DF	Matrix S	Matrix W	Notes
WE25-31	97E103-58			+	
32	09				
33	67				
34	97E102-22				Do not Report
35	PIBLK03				this Betchtel
36	DCC03 MixA				Sample. Will re
37	DCC03 MixB				-extract and
38	DCC02 Toxa				rerun later for
	SPE014				Reposting convinence
	CPE014				
	[illegible]				
	[illegible]				
	[illegible]				
	[illegible]				

Initial Calibration

Standards

Name	ID	Conc. (mg/L)
Hexane		

Column	1: 608	2: 1701

Disk Archival

Name	Location

Analyzed By: KV

Checked By:

Date:

EXTRACTION LOG FOR PESTICIDES

Prep. Batch CPE013W Method 3550 ☐ 3580 ☐ 3510 ☐ 3520 ☑ 3640 ☐ 3545 ☐ CLP ☐ Book # T-E04-001 Page # 133

Matrix SPLP extr., water Starting Date 05/24/97 Time 15:00 Ending Date 05/25/97 Time 12:00

Lab Sample ID	Sample Amount (g/ml)	pH	Extract Volume (ml)	Notes
CPE013WB	1000		10	Δ
CPE013WL	↓		↓ ■	PEST
CPE013WC	↓		↓ ■	
TXE003SB	500		5	* SPLP Blank
TXE003SL	500		5	* SPLP LCS
97E103 - 01	↓	7.13	↓	*
-02		6.34		*
-03		7.17		*
-04		7.69		*
-04M		↓		★
-04S		↓		★
-05		7.14		*
-07		7.13		*
-51		6.99		*
-52		7.44		*
-53		7.23		*
-54		7.34		*
-55		7.35		*
-56		7.37		*
-57		7.14		*
-58	↓	7.16	↓	*
97E103 - 09 v	1000	7.93	10	Δ
- 67 v	1000	7.24	10	Δ
97E102 - 22	1000	8.17	10	Δ

Standards	ID	Amount Added (ml)
Surrogate	SSIB-02-4-2	* 0.5 Δ 1.0
mix A LCS/MS	SSIB-01-16	■ 0.2 ★ 0.1
mixB	SSIB-01-17	■ 0.2 ★ 0.1

Reagent	Lot# / ID
CH_2Cl_2	96222
Hexane	35139
Na_2SO_4	967877
H_2SO_4	NA
NaOH	NA

SDG #	Extract Location
	GC-R2-M 4 yr

Comments:

Prepared By: FY/JL

Standard Added By: FY/JL

Checked By: OS

Extracts Received By: KN

EXTRACTION LOG FOR TCLP

Prep. Batch TXE003S Method 1311 ☑ ☐ Book # T-E11-001 Page # 038

Matrix Soil Starting Date 05-23-97 Time 15:00 Ending Date 05-24-97 Time 12:00

Lab Sample ID	~~Sample~~ Sample pH	Sample Amount (g)	TCLP Fluid Reqd.	Extraction Solution (ml)	Extract pH	Notes sample pH
TXE0038B						
97E103-01	2.39	100	1	1000	7.13	7.53
-02	2.17				6.34	8.37
-03	2.17				7.17	7.39
-04	2.03	300		3000	7.69	8.36
-05	2.13	100		1000	7.14	9.13
-07	2.37				7.13	9.37
-51	1.19				6.99	9.43
-52	2.34				7.44	8.39
-53	2.13				7.23	8.59
-54	2.17				7.34	8.39
-55	2.35				7.35	8.25
-56	2.69				7.37	9.34
-57	2.37				7.14	9.48
-58	2.17				7.16	8.51

Calibration of pH meter 5/23/97 5/97

Buffer ID	Value	Reading
SW7A-01-5	7	7.00
SW7A-01-6	4	4.00
Slope	100	
pH meter ID	EMAX, pH M01	

Preparation of TCLP Solution

Reagents	Lot #	Amount	Final Vol.
Acetic Acid	SPLP solution		
1N NaOH	ID:	SW7B-01	-156
Reagent Water			
pH	4.20	Exp. Date	5/23/98

Rotary Agitator #	3	rpm	30

Room Temperature (°C)

High	Low	Thermostat Setting	Criteria
25	23	23	23 ±2

Comments:

Prepared By: FY

Checked By: ML

Extracts Received By: FY

LABORATORY REPORT FOR

JACOBS ENGINEERING GROUP

CARSWELL AFB / 05G47900

SW1312/8081
SPLP/PCBs

SDG#: 97E103

JUNE 10, 1997

CASE NARRATIVE

CLIENT: JACOBS ENGINEERING GROUP

PROJECT: CARSWELL AFB / 05G47900

SDG: 97E103

SW1312/8081
SPLP/PCBs

Twelve (12) soil and two (2) water samples were received on 05/22/97 to be analyzed for PCBs by SW3520/8081 in accordance with SW846(1994,9).

1. Holding Time

   All samples were extracted and analyzed within holding time.

2. Surrogate Recovery

   All surrogate recoveries were within QC limits.

3. Matrix Spike/Matrix Spike Duplicate

   All recoveries and RPDs were within the QC limits.

4. Lab Control Sample/Lab Control Sample Duplicate

   All recoveries were within QC limits for PCB 1254.

5. Method Blank

   Method blanks were free of contamination.

6. Instrument Performance and Calibration

   Initial calibration was at five-point for PCB-1254, PCB-1016 and PCB-1260, the RSD were all within the QC limits. Continue calibration was done at 12 hour interval. All %D were within 15%.

7. Sample Analysis

   All sample analyses were done within QC requirements.

05/27/1997 11:58

LAB CHRONICLE
SPLP PCBs

CLIENT: Jacobs Engineering Group
PROJECT: Carswell AFB / 05G47900

DG/BATCH NO.: 97E103
MATRIX: Soil

SAMPLE ID	CONTROL NO	%H2O	PREPARATION BATCH/DATE/TIME	ANALYTICAL BATCH/DATE/TIME	CALIB REF	FILE ID
CR-A162903	E103-62	NA	CPE014W 5/27/97 8:00	WE28	WE28-8	WE28-14
R-A162904	E103-63	NA				17
R-A162905	E103-64	NA				18
CR-A162906	E103-65	NA				19
R-A163001	E103-68	NA				20
CR-A163002	E103-69	NA			WE28-23	24
R-A163003	E103-70	NA				25
R-A163004	E103-71	NA				26
CR-A163005	E103-72	NA				27
R-A163006	E103-73	NA				28
CR-A163007	E103-74	NA				29
R-A163008	E103-75	NA				30
MBLK1W	CPE014WB	NA			WE28-8	9
LCS1W	CPE014WL	NA				10
C D1W	CPE014WC	NA				11
MBLK2W	TXE004SB	NA				12
LCS2W	TXE004SL	NA				13

05/27/1997 11:58

LAB CHRONICLE
EPA 608 (PCBs)

CLIENT: Jacobs Engineering Group
PROJECT: Carswell AFB / 05G47900

SDG/BATCH NO.: 97E103
MATRIX: Water

SAMPLE ID	CONTROL NO	%H2O	PREPARATION BATCH/DATE/TIME	ANALYTICAL BATCH/DATE/TIME	CALIB REF	FILE ID
CR-A162709	E103-50	NA	CPE014W 5/27/97 8:00	WE 28	WE28-23	WE28-3
CR-A162908	E103-67	NA	CPE013W 5/24/97 15:00	↓	↓ 34	WE28-5
MBLK3W	CPE013WB	NA	↓	WF05	WF05-3	WF05-
MBLK4W	TXE003SB	NA	↓	↓	↓	↓ 5

SAMPLE RESULTS

SW3520/8081
PCBs

Client	: JACOBS ENGINEERING GROUP	DaTime Collcted:	05/20/97
Project	: CARSWELL AFB / 05G47900	DaTime Received:	05/22/97
Batch No.	: 97E103	DaTime Extrctd :	05/27/97 08:00
Sample ID	: CR-A162709	DaTime Analyzd :	05/29/97 06:05
Lab Cnt NO.	: E103-50	Dilutn Factor :	1
Lab File ID	: WE28-31	Matrix :	WATER
Ext Btch ID	: CPE014W	% Moisture :	NA
Calib. Ref.	: WE28-23	Instrument ID :	GCT016

PARAMETERS	RESULTS (ug/L)		PQL (ug/L)	MDL (ug/L)	
PCB-1016	(ND)	ND	1	.22	.22
PCB-1221	(ND)	ND	1	.21	.21
PCB-1232	(ND)	ND	1	.24	.24
PCB-1242	(ND)	ND	1	.18	.18
PCB-1248	(ND)	ND	1	.33	.33
PCB-1254	(ND)	ND	1	.18	.18
PCB-1260	(ND)	ND	1	.12	.12

SURROGATE PARAMETERS	% RECOVERY		QC LIMIT
Tetrachloro-m-xylene	(84)	86	45-125
Decachlorobiphenyl	(97)	112	34-133

: Practical Quantitation Limit
Left of | is related to first column ; Right of | related to second column
( ) included the reported column
: Out Side of QC Limit.

SW1312/8081
SPLP/PCBs

Client	: JACOBS ENGINEERING GROUP	DaTime Collcted:	05/19/97
Project	: CARSWELL AFB / 05G47900	DaTime Received:	05/22/97
Batch No.	: 97E103	DaTime Extrctd :	05/27/97 08:00
Sample ID	: CR-A162903	DaTime Analyzd :	05/28/97 19:42
Lab Cnt NO.:	E103-62	Dilutn Factor :	1
Lab File ID:	WE28-14	Matrix :	WATER
Ext Btch ID:	CPE014W	% Moisture :	NA
Calib. Ref.:	WE28-8	Instrument ID :	GCT016

PARAMETERS	RESULTS (ug/L)		PQL (ug/L)	MDL (ug/L)	
PCB-1016	(ND)	ND	1	.22	.22
PCB-1221	(ND)	ND	1	.21	.21
PCB-1232	(ND)	ND	1	.24	.24
PCB-1242	(ND)	ND	1	.18	.18
PCB-1248	(ND)	ND	1	.33	.33
PCB-1254	(ND)	ND	1	.18	.18
PCB-1260	(ND)	ND	1	.12	.12

SURROGATE PARAMETERS	% RECOVERY		QC LIMIT
Tetrachloro-m-xylene	(65)	75	45-125
Decachlorobiphenyl	(105)	106	34-133

PQL: Practical Quantitation Limit
Left of | is related to first column ; Right of | related to second column
( ) included the reported column
Date and Time of SPLP Extraction 05/23/97 12:00
* Out Side of QC Limit.

SW1312/8081
SPLP/PCBs

Client	: JACOBS ENGINEERING GROUP	DaTime Collcted:	05/19/97
Project	: CARSWELL AFB / 05G47900	DaTime Received:	05/22/97
Batch No.	: 97E103	DaTime Extrctd :	05/27/97 08:00
Sample ID	: CR-A162904	DaTime Analyzd :	05/28/97 21:32
Lab Cnt NO.	: E103-63	Dilutn Factor :	1
Lab File ID	: WE28-17	Matrix :	WATER
Ext Btch ID	: CPE014W	% Moisture :	NA
Calib. Ref.	: WE28-8	Instrument ID :	GCT016

PARAMETERS	RESULTS (ug/L)	PQL (ug/L)	MDL (ug/L)
PCB-1016	(ND) | ND	1	.22 | .22
PCB-1221	(ND) | ND	1	.21 | .21
PCB-1232	(ND) | ND	1	.24 | .24
PCB-1242	(ND) | ND	1	.18 | .18
PCB-1248	(ND) | ND	1	.33 | .33
PCB-1254	(ND) | ND	1	.18 | .18
PCB-1260	(ND) | ND	1	.12 | .12

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	(64) | 87	45-125
Decachlorobiphenyl	(102) | 107	34-133

: Practical Quantitation Limit
Left of | is related to first column ; Right of | related to second column
( ) included the reported column
Date and Time of SPLP Extraction 05/23/97 12:00
* Out Side of QC Limit.

SW1312/8081
SPLP/PCBs

Client	: JACOBS ENGINEERING GROUP	DaTime Collcted:	05/19/97
Project	: CARSWELL AFB / 05G47900	DaTime Received:	05/22/97
Batch No.	: 97E103	DaTime Extrctd :	05/27/97 08:00
Sample ID	: CR-A162905	DaTime Analyzd :	05/28/97 22:09
Lab Cnt NO.	: E103-64	Dilutn Factor :	1
Lab File ID	: WE28-18	Matrix :	WATER
Ext Btch ID	: CPE014W	% Moisture :	NA
Calib. Ref.	: WE28-8	Instrument ID :	GCT016

PARAMETERS	RESULTS (ug/L)		PQL (ug/L)	MDL (ug/L)	
PCB-1016	(ND)	ND	1	.22	.22
PCB-1221	(ND)	ND	1	.21	.21
PCB-1232	(ND)	ND	1	.24	.24
PCB-1242	(ND)	ND	1	.18	.18
PCB-1248	(ND)	ND	1	.33	.33
PCB-1254	(ND)	ND	1	.18	.18
PCB-1260	(ND)	ND	1	.12	.12

SURROGATE PARAMETERS	% RECOVERY		QC LIMIT
Tetrachloro-m-xylene	(55)	65	45-125
Decachlorobiphenyl	(107)	117	34-133

PQL: Practical Quantitation Limit
Left of | is related to first column ; Right of | related to second column
( ) included the reported column
Date and Time of SPLP Extraction 05/23/97 12:00
* Out Side of QC Limit.

SW1312/8081
SPLP/PCBs

Client	: JACOBS ENGINEERING GROUP	DaTime Collcted:	05/20/97
Project	: CARSWELL AFB / 05G47900	DaTime Received:	05/22/97
Batch No.	: 97E103	DaTime Extrctd :	05/27/97 08:00
Sample ID	: CR-A162906	DaTime Analyzd :	05/28/97 22:46
Lab Cnt NO.	: E103-65	Dilutn Factor :	1
Lab File ID	: WE28-19	Matrix :	WATER
Ext Btch ID	: CPE014W	% Moisture :	NA
Calib. Ref.	: WE28-8	Instrument ID :	GCT016

PARAMETERS	RESULTS (ug/L)		PQL (ug/L)	MDL (ug/L)	
PCB-1016	(ND)	ND	1	.22	.22
PCB-1221	(ND)	ND	1	.21	.21
PCB-1232	(ND)	ND	1	.24	.24
PCB-1242	(ND)	ND	1	.18	.18
PCB-1248	(ND)	ND	1	.33	.33
PCB-1254	(ND)	ND	1	.18	.18
PCB-1260	(ND)	ND	1	.12	.12

SURROGATE PARAMETERS	% RECOVERY		QC LIMIT
Tetrachloro-m-xylene	(73)	82	45-125
Decachlorobiphenyl	(107)	112	34-133

L: Practical Quantitation Limit
Left of | is related to first column ; Right of | related to second column
( ) included the reported column
Date and Time of SPLP Extraction 05/23/97 12:00
* Out Side of QC Limit.

SW3520/8081
PCBs

Client	: JACOBS ENGINEERING GROUP	DaTime Collcted:	05/19/97
Project	: CARSWELL AFB / 05G47900	DaTime Received:	05/22/97
Batch No.	: 97E103	DaTime Extrctd :	05/24/97 15:0(
Sample ID	: CR-A162908	DaTime Analyzd :	05/28/97 13:14
Lab Cnt NO.	: E103-67	Dilutn Factor :	1
Lab File ID	: WE28-35	Matrix :	WATER
Ext Btch ID	: CPE013W	% Moisture :	NA
Calib. Ref.	: WE28-34	Instrument ID :	GCT016

PARAMETERS	RESULTS (ug/L)		PQL (ug/L)	MDL (ug/L)	
PCB-1016	(ND)	ND	1	.22	.22
PCB-1221	(ND)	ND	1	.21	.21
PCB-1232	(ND)	ND	1	.24	.24
PCB-1242	(ND)	ND	1	.18	.18
PCB-1248	(ND)	ND	1	.33	.33
PCB-1254	(ND)	ND	1	.18	.18
PCB-1260	(ND)	ND	1	.12	.12

SURROGATE PARAMETERS	% RECOVERY		QC LIMIT
Tetrachloro-m-xylene	(85)	87	45-125
Decachlorobiphenyl	(111)	115	34-133

PQL: Practical Quantitation Limit
Left of | is related to first column ; Right of | related to second column
( ) included the reported column
* Out Side of QC Limit.

SW1312/8081
SPLP/PCBs

Client	: JACOBS ENGINEERING GROUP	DaTime Collcted	: 05/20/97
Project	: CARSWELL AFB / 05G47900	DaTime Received	: 05/22/97
Batch No.	: 97E103	DaTime Extrctd	: 05/27/97 08:00
Sample ID	: CR-A163001	DaTime Analyzd	: 05/28/97 23:22
Lab Cnt NO.	: E103-68	Dilutn Factor	: 1
Lab File ID	: WE28-20	Matrix	: WATER
Ext Btch ID	: CPE014W	% Moisture	: NA
Calib. Ref.	: WE28-8	Instrument ID	: GCT016

PARAMETERS	RESULTS (ug/L)	PQL (ug/L)	MDL (ug/L)
PCB-1016	(ND) | ND	1	.22 | .22
PCB-1221	(ND) | ND	1	.21 | .21
PCB-1232	(ND) | ND	1	.24 | .24
PCB-1242	(ND) | ND	1	.18 | .18
PCB-1248	(ND) | ND	1	.33 | .33
PCB-1254	(ND) | ND	1	.18 | .18
PCB-1260	(ND) | ND	1	.12 | .12

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	(77) | 85	45-125
Decachlorobiphenyl	(112) | 124	34-133

L: Practical Quantitation Limit
Left of | is related to first column ; Right of | related to second column
( ) included the reported column
Date and Time of SPLP Extraction 05/23/97 12:00
* Out Side of QC Limit.

SW1312/8081
SPLP/PCBs

Client	: JACOBS ENGINEERING GROUP	DaTime Collcted	: 05/20/97
Project	: CARSWELL AFB / 05G47900	DaTime Received	: 05/22/97
Batch No.	: 97E103	DaTime Extrctd	: 05/27/97 08:00
Sample ID	: CR-A163002	DaTime Analyzd	: 05/29/97 01:49
Lab Cnt NO.	: E103-69	Dilutn Factor	: 1
Lab File ID	: WE28-24	Matrix	: WATER
Ext Btch ID	: CPE014W	% Moisture	: NA
Calib. Ref.	: WE28-23	Instrument ID	: GCT016

PARAMETERS	RESULTS (ug/L)		PQL (ug/L)	MDL (ug/L)	
PCB-1016	(ND)	ND	1	.22	.22
PCB-1221	(ND)	ND	1	.21	.21
PCB-1232	(ND)	ND	1	.24	.24
PCB-1242	(ND)	ND	1	.18	.18
PCB-1248	(ND)	ND	1	.33	.33
PCB-1254	(ND)	ND	1	.18	.18
PCB-1260	(ND)	ND	1	.12	.12

SURROGATE PARAMETERS	% RECOVERY		QC LIMIT
Tetrachloro-m-xylene	(77)	125	45-125
Decachlorobiphenyl	(111)	117	34-133

PQL: Practical Quantitation Limit
Left of | is related to first column ; Right of | related to second column
( ) included the reported column
Date and Time of SPLP Extraction 05/23/97 12:00
* Out Side of QC Limit.

SW1312/8081
SPLP/PCBs

Client	: JACOBS ENGINEERING GROUP	DaTime Collcted:	05/20/97
Project	: CARSWELL AFB / 05G47900	DaTime Received:	05/22/97
Batch No.	: 97E103	DaTime Extrctd :	05/27/97 08:00
Sample ID	: CR-A163003	DaTime Analyzd :	05/29/97 02:26
Lab Cnt NO.	: E103-70	Dilutn Factor :	1
Lab File ID	: WE28-25	Matrix :	WATER
Ext Btch ID	: CPE014W	% Moisture :	NA
Calib. Ref.	: WE28-23	Instrument ID :	GCT016

PARAMETERS	RESULTS (ug/L)		PQL (ug/L)	MDL (ug/L)	
PCB-1016	(ND)	ND	1	.22	.22
PCB-1221	(ND)	ND	1	.21	.21
PCB-1232	(ND)	ND	1	.24	.24
PCB-1242	(ND)	ND	1	.18	.18
PCB-1248	(ND)	ND	1	.33	.33
PCB-1254	(ND)	ND	1	.18	.18
PCB-1260	(ND)	ND	1	.12	.12

SURROGATE PARAMETERS	% RECOVERY		QC LIMIT
Tetrachloro-m-xylene	(72)	81	45-125
Decachlorobiphenyl	(104)	120	34-133

PQL: Practical Quantitation Limit
Left of | is related to first column ; Right of | related to second column
( ) included the reported column
Date and Time of SPLP Extraction 05/23/97 12:00
* Out Side of QC Limit.

SW1312/8081
SPLP/PCBs

Client	: JACOBS ENGINEERING GROUP	DaTime Collcted:	05/20/97
Project	: CARSWELL AFB / 05G47900	DaTime Received:	05/22/97
Batch No.	: 97E103	DaTime Extrctd :	05/27/97 08:00
Sample ID	: CR-A163004	DaTime Analyzd :	05/29/97 03:02
Lab Cnt NO.	: E103-71	Dilutn Factor :	1
Lab File ID	: WE28-26	Matrix :	WATER
Ext Btch ID	: CPE014W	% Moisture :	NA
Calib. Ref.	: WE28-23	Instrument ID :	GCT016

PARAMETERS	RESULTS (ug/L)		PQL (ug/L)	MDL (ug/L)	
PCB-1016	(ND)	ND	1	.22	.22
PCB-1221	(ND)	ND	1	.21	.21
PCB-1232	(ND)	ND	1	.24	.24
PCB-1242	(ND)	ND	1	.18	.18
PCB-1248	(ND)	ND	1	.33	.33
PCB-1254	(ND)	ND	1	.18	.18
PCB-1260	(ND)	ND	1	.12	.12

SURROGATE PARAMETERS	% RECOVERY		QC LIMIT
Tetrachloro-m-xylene	(77)	100	45-125
Decachlorobiphenyl	(122)	127	34-133

PQL: Practical Quantitation Limit
Left of | is related to first column ; Right of | related to second column
( ) included the reported column
Date and Time of SPLP Extraction 05/23/97 12:00
* Out Side of QC Limit.

SW1312/8081
SPLP/PCBs

Client	: JACOBS ENGINEERING GROUP	DaTime Collcted:	05/20/97
Project	: CARSWELL AFB / 05G47900	DaTime Received:	05/22/97
Batch No.	: 97E103	DaTime Extrctd :	05/27/97 08:00
Sample ID	: CR-A163005	DaTime Analyzd :	05/29/97 03:39
Lab Cnt NO.:	E103-72	Dilutn Factor :	1
Lab File ID:	WE28-27	Matrix :	WATER
Ext Btch ID:	CPE014W	% Moisture :	NA
Calib. Ref.:	WE28-23	Instrument ID :	GCT016

PARAMETERS	RESULTS (ug/L)	PQL (ug/L)	MDL (ug/L)
PCB-1016	(ND) | ND	1	.22 | .22
PCB-1221	(ND) | ND	1	.21 | .21
PCB-1232	(ND) | ND	1	.24 | .24
PCB-1242	(ND) | ND	1	.18 | .18
PCB-1248	(ND) | ND	1	.33 | .33
PCB-1254	(ND) | ND	1	.18 | .18
PCB-1260	(ND) | ND	1	.12 | .12

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	(70) | 89	45-125
Decachlorobiphenyl	(107) | 112	34-133

PQL: Practical Quantitation Limit
Left of | is related to first column ; Right of | related to second column
( ) included the reported column
Date and Time of SPLP Extraction 05/23/97 12:00
* Out Side of QC Limit.

SW1312/8081
SPLP/PCBs

Client	: JACOBS ENGINEERING GROUP	DaTime Collcted:	05/20/97
Project	: CARSWELL AFB / 05G47900	DaTime Received:	05/22/97
Batch No.	: 97E103	DaTime Extrctd :	05/27/97 08:00
Sample ID	: CR-A163006	DaTime Analyzd :	05/29/97 04:15
Lab Cnt NO.	: E103-73	Dilutn Factor :	1
Lab File ID	: WE28-28	Matrix :	WATER
Ext Btch ID	: CPE014W	% Moisture :	NA
Calib. Ref.	: WE28-23	Instrument ID :	GCT016

PARAMETERS	RESULTS (ug/L)		PQL (ug/L)	MDL (ug/L)	
PCB-1016	(ND)	ND	1	.22	.22
PCB-1221	(ND)	ND	1	.21	.21
PCB-1232	(ND)	ND	1	.24	.24
PCB-1242	(ND)	ND	1	.18	.18
PCB-1248	(ND)	ND	1	.33	.33
PCB-1254	(ND)	ND	1	.18	.18
PCB-1260	(ND)	ND	1	.12	.12

SURROGATE PARAMETERS	% RECOVERY		QC LIMIT
Tetrachloro-m-xylene	(74)	107	45-125
Decachlorobiphenyl	(91)	110	34-133

PQL: Practical Quantitation Limit
Left of | is related to first column ; Right of | related to second column
( ) included the reported column
Date and Time of SPLP Extraction 05/23/97 12:00
* Out Side of QC Limit.

SW1312/8081
SPLP/PCBs

Client	: JACOBS ENGINEERING GROUP	DaTime Collcted:	05/20/97
Project	: CARSWELL AFB / 05G47900	DaTime Received:	05/22/97
Batch No.	: 97E103	DaTime Extrctd :	05/27/97 08:00
Sample ID	: CR-A163007	DaTime Analyzd :	05/29/97 04:52
Lab Cnt NO.	: E103-74	Dilutn Factor :	1
Lab File ID	: WE28-29	Matrix :	WATER
Ext Btch ID	: CPE014W	% Moisture :	NA
Calib. Ref.	: WE28-23	Instrument ID :	GCT016

PARAMETERS	RESULTS (ug/L)	PQL (ug/L)	MDL (ug/L)
PCB-1016	(ND) | ND	1	.22 | .22
PCB-1221	(ND) | ND	1	.21 | .21
PCB-1232	(ND) | ND	1	.24 | .24
PCB-1242	(ND) | ND	1	.18 | .18
PCB-1248	(ND) | ND	1	.33 | .33
PCB-1254	(ND) | ND	1	.18 | .18
PCB-1260	(ND) | ND	1	.12 | .12

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	(67) | 83	45-125
Decachlorobiphenyl	(104) | 108	34-133

PQL: Practical Quantitation Limit
Left of | is related to first column ; Right of | related to second column
( ) included the reported column
Date and Time of SPLP Extraction 05/23/97 12:00
* Out Side of QC Limit.

SW1312/8081
SPLP/PCBs

Client	: JACOBS ENGINEERING GROUP	DaTime Collcted:	05/20/97
Project	: CARSWELL AFB / 05G47900	DaTime Received:	05/22/97
Batch No.	: 97E103	DaTime Extrctd :	05/27/97 08:00
Sample ID	: CR-A163008	DaTime Analyzd :	05/29/97 05:29
Lab Cnt NO.	: E103-75	Dilutn Factor :	1
Lab File ID	: WE28-30	Matrix :	WATER
Ext Btch ID	: CPE014W	% Moisture :	NA
Calib. Ref.	: WE28-23	Instrument ID :	GCT016

PARAMETERS	RESULTS (ug/L)		PQL (ug/L)	MDL (ug/L)	
PCB-1016	(ND)	ND	1	.22	.22
PCB-1221	(ND)	ND	1	.21	.21
PCB-1232	(ND)	ND	1	.24	.24
PCB-1242	(ND)	ND	1	.18	.18
PCB-1248	(ND)	ND	1	.33	.33
PCB-1254	(ND)	ND	1	.18	.18
PCB-1260	(ND)	ND	1	.12	.12

SURROGATE PARAMETERS	% RECOVERY		QC LIMIT
Tetrachloro-m-xylene	(68)	85	45-125
Decachlorobiphenyl	(99)	110	34-133

PQL: Practical Quantitation Limit
Left of | is related to first column ; Right of | related to second column
( ) included the reported column
Date and Time of SPLP Extraction 05/23/97 12:00
* Out Side of QC Limit.

SW3520/8081
PCBs

Client	: JACOBS ENGINEERING GROUP	DaTime Collcted:	NA
Project	: CARSWELL AFB / 05G47900	DaTime Received:	05/27/97
Batch No.	: 97E103	DaTime Extrctd :	05/27/97 08:00
Sample ID	: MBLK1W	DaTime Analyzd :	05/28/97 16:39
Lab Cnt NO.	: CPE014WB	Dilutn Factor :	1
Lab File ID	: WE28-9	Matrix :	WATER
Ext Btch ID	: CPE014W	% Moisture :	NA
Calib. Ref.	: WE28-8	Instrument ID :	GCT016

PARAMETERS	RESULTS (ug/L)		PQL (ug/L)	MDL (ug/L)	
PCB-1016	(ND)	ND	1	.22	.22
PCB-1221	(ND)	ND	1	.21	.21
PCB-1232	(ND)	ND	1	.24	.24
PCB-1242	(ND)	ND	1	.18	.18
PCB-1248	(ND)	ND	1	.33	.33
PCB-1254	(ND)	ND	1	.18	.18
PCB-1260	(ND)	ND	1	.12	.12

SURROGATE PARAMETERS	% RECOVERY		QC LIMIT
Tetrachloro-m-xylene	(86)	85	45-125
Decachlorobiphenyl	(112)	105	34-133

PQL: Practical Quantitation Limit
Left of | is related to first column ; Right of | related to second column
( ) included the reported column
* Out Side of QC Limit.

SW3520/8081
PCBs

Client	: JACOBS ENGINEERING GROUP	DaTime Collcted:	NA
Project	: CARSWELL AFB / 05G47900	DaTime Received:	05/24/97
Batch No.	: 97E103	DaTime Extrctd :	05/24/97 15:0(
Sample ID	: MBLK3W	DaTime Analyzd :	06/05/97 19:47
Lab Cnt NO.	: CPE013WB	Dilutn Factor :	1
Lab File ID	: WF05-4	Matrix :	WATER
Ext Btch ID	: CPE013W	% Moisture :	NA
Calib. Ref.	: WF05-3	Instrument ID :	GCT016

PARAMETERS	RESULTS (ug/L)		PQL (ug/L)	MDL (ug/L)	
PCB-1016	(ND)	ND	1	.22	.22
PCB-1221	(ND)	ND	1	.21	.21
PCB-1232	(ND)	ND	1	.24	.24
PCB-1242	(ND)	ND	1	.18	.18
PCB-1248	(ND)	ND	1	.33	.33
PCB-1254	(ND)	ND	1	.18	.18
PCB-1260	(ND)	ND	1	.12	.12

SURROGATE PARAMETERS	% RECOVERY		QC LIMIT
Tetrachloro-m-xylene	(71)	63	45-125
Decachlorobiphenyl	(100)	113	34-133

PQL: Practical Quantitation Limit
Left of | is related to first column ; Right of | related to second column
( ) included the reported column
* Out Side of QC Limit.

SW1312/8081
SPLP/PCBs

Client	: JACOBS ENGINEERING GROUP	DaTime Collcted:	NA
Project	: CARSWELL AFB / 05G47900	DaTime Received:	05/27/97
Batch No.	: 97E103	DaTime Extrctd :	05/27/97 08:00
Sample ID	: MBLK2W	DaTime Analyzd :	05/28/97 18:29
Lab Cnt NO.	: TXE004SB	Dilutn Factor :	1
Lab File ID	: WE28-12	Matrix :	WATER
Ext Btch ID	: CPE014W	% Moisture :	NA
Calib. Ref.	: WE28-8	Instrument ID :	GCT016

PARAMETERS	RESULTS (ug/L)	PQL (ug/L)	MDL (ug/L)
PCB-1016	(ND) | ND	1	.22 | .22
PCB-1221	(ND) | ND	1	.21 | .21
PCB-1232	(ND) | ND	1	.24 | .24
PCB-1242	(ND) | ND	1	.18 | .18
PCB-1248	(ND) | ND	1	.33 | .33
PCB-1254	(ND) | ND	1	.18 | .18
PCB-1260	(ND) | ND	1	.12 | .12

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
Tetrachloro-m-xylene	(61) | 63	45-125
Decachlorobiphenyl	(115) | 109	34-133

L: Practical Quantitation Limit
Left of | is related to first column ; Right of | related to second column
( ) included the reported column
Date and Time of SPLP Extraction 05/23/97 12:00
* Out Side of QC Limit.

SW1312/8081
SPLP/PCBs

Client	: JACOBS ENGINEERING GROUP	DaTime Collcted	: NA
Project	: CARSWELL AFB / 05G47900	DaTime Received	: 05/24/97
Batch No.	: 97E103	DaTime Extrctd	: 05/24/97 15:00
Sample ID	: MBLK4W	DaTime Analyzd	: 06/05/97 20:23
Lab Cnt NO.	: TXE003SB	Dilutn Factor	: 1
Lab File ID	: WF05-5	Matrix	: WATER
Ext Btch ID	: CPE013W	% Moisture	: NA
Calib. Ref.	: WF05-3	Instrument ID	: GCT016

PARAMETERS	RESULTS (ug/L)		PQL (ug/L)	MDL (ug/L)	
PCB-1016	(ND)	ND	1	.22	.22
PCB-1221	(ND)	ND	1	.21	.21
PCB-1232	(ND)	ND	1	.24	.24
PCB-1242	(ND)	ND	1	.18	.18
PCB-1248	(ND)	ND	1	.33	.33
PCB-1254	(ND)	ND	1	.18	.18
PCB-1260	(ND)	ND	1	.12	.12

SURROGATE PARAMETERS	% RECOVERY		QC LIMIT
Tetrachloro-m-xylene	(77)	70	45-125
Decachlorobiphenyl	(122)	130	34-133

PQL: Practical Quantitation Limit
Left of | is related to first column ; Right of | related to second column
( ) included the reported column
Date and Time of SPLP Extraction 05/23/97 12:00
* Out Side of QC Limit.

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: SW3520/8081

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	MBLK1W				
CONTROL NO.:	CPE014WB	CPE014WL	CPE014WC		
LAB FILE ID:	WE28-9	WE28-10	WE28-11		
DATIME EXTRCTD:	05/27/9708:00	05/27/9708:00	05/27/9708:00	DATE COLLECTED:	NA
DATIME ANALYZD:	05/28/9716:39	05/28/9717:15	05/28/9717:52	DATE RECEIVED:	05/27/97
PREP. BATCH:	CPE014W	CPE014W	CPE014W		
CALIB. REF:	WE28-8	WE28-8	WE28-8		

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD %	QC LIMIT %	MAX RPD %
PCB-1254	(ND)|ND	5	(4.78)|4.69	(96)|94	5	(5.1)|5.06	(102)|101	6|8	41-126	30

SURROGATE PARAMETER	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	QC LIMIT %
Tetrachloro-m-xylene	.2	(.186)|.182	(93)|91	.2	(.188)|.184	(94)|92	25-150
Decachlorobiphenyl	.2	(.25)|.224	(125)|112	.2	(.259)|.236	(130)|118	32-196

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: JACOBS ENGINEERING GROUP
PROJECT: CARSWELL AFB / 05G47900
BATCH NO.: 97E103
METHOD: SW1312/8081

MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	MBLK2W			
CONTROL NO.:	TXE004SB	TXE004SL		
LAB FILE ID:	WE28-12	WE28-13		
DATIME EXTRCTD:	05/27/9708:00	05/27/9708:00	DATE COLLECTED:	NA
DATIME ANALYZD:	05/28/9718:29	05/28/9719:06	DATE RECEIVED:	05/27/97
PREP. BATCH:	CPE014W	CPE014W		
CALIB. REF:	WE28-8	WE28-8		

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	QC LIMIT (%)
PCB-1254	(ND)|ND	5	(4.4)|4.38	(88)|88	41-126

SURROGATE PARAMETER	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	QC LIMIT (%)
Tetrachloro-m-xylene	.2	(.158)|.158	(79)|79	25-150
Decachlorobiphenyl	.2	(.23)|.225	(115)|112	32-196

Date and Time of SPLP Extraction 05/23/97 12:00

CALIBRATION

INITIAL CALIBRATION
METHOD EPA 8081

Name : EMAX Inc
trument ID : GCT016
GC Column : DB608
Column size ID: 0.32MMX30M
LFID & Datime: WE23-2 05-23-97 14:56:19
LFID & Datime: WE23-3 05-23-97 15:32:57
LFID & Datime: WE23-4 05-23-97 16:09:36
LFID & Datime: WE23-5 05-23-97 16:46:16
LFID & Datime: WE23-6 05-23-97 17:22:58
CONC UNIT: PPB

COMPOUND	CONC X	CALIBRATION FACTORS (AREA/UNIT) 1.0X	2.5X	5.0X	8.0X	10.0X	MEAN	%RSD
PCB-1016-1	100.0	220	189	169	168	158	181	14
PCB-1016-2	100.0	477	400	362	343	321	381	16
PCB-1016-3	100.0	217	194	179	170	160	184	12
PCB-1016-4	100.0	712	615	561	553	523	593	13
PCB-1016-5	100.0	241	206	247	242	168	221	15
PCB-1260-1	100.0	344	294	271	254	239	280	15
PCB-1260-2	100.0	647	542	506	472	442	522	15
PCB-1260-3	100.0	574	479	469	436	409	473	13
PCB-1260-4	100.0	955	803	742	695	659	771	15
PCB-1260-5	100.0	502	452	417	392	371	427	12
trachloro-m-xylene	5.0	10410	9330	8975	9018	8683	9283	7
achlorobiphenyl	5.0	9302	8726	7911	7327	6943	8042	12

INITIAL CALIBRATION
METHOD EPA 8081

Lab Name : EMAX Inc
Instrument ID : GCT016
GC Column : DB1701
Column size ID: 0.32MMX30M
LFID & Datime: XE23-2 05-23-97 14:56:19
LFID & Datime: XE23-3 05-23-97 15:32:57
LFID & Datime: XE23-4 05-23-97 16:09:36
LFID & Datime: XE23-5 05-23-97 16:46:16
LFID & Datime: XE23-6 05-23-97 17:22:58
CONC UNIT: PPB

COMPOUND	CONC X	CALIBRATION FACTORS (AREA/UNIT) 1.0X	2.5X	5.0X	8.0X	10.0X	MEAN	%RSD
PCB-1016-1	100.0	221	213	194	191	181	200	8
PCB-1016-2	100.0	511	439	405	379	356	418	15
PCB-1016-3	100.0	768	685	635	634	605	665	10
PCB-1016-4	100.0	380	335	309	304	302	326	10
PCB-1016-5	100.0	655	575	541	516	488	555	12
PCB-1260-1	100.0	665	576	543	514	483	556	13
PCB-1260-2	100.0	733	637	595	570	535	614	12
PCB-1260-3	100.0	415	366	346	335	314	355	11
PCB-1260-4	100.0	341	306	297	303	280	305	7
PCB-1260-5	100.0	1103	986	954	973	930	989	7
Tetrachloro-m-xylene	5.0	9286	8634	8553	8795	8515	8757	4
Decachlorobiphenyl	5.0	10655	9606	9304	9150	8766	9496	8

INITIAL CALIBRATION
METHOD EPA 8081

Name : EMAX Inc
Instrument ID : GCT016
GC Column : DB608
Column size ID: 0.32MMX30M
LFID & Datime: WE23-2 05-23-97 14:56:19
LFID & Datime: WE23-3 05-23-97 15:32:57
LFID & Datime: WE23-4 05-23-97 16:09:36
LFID & Datime: WE23-5 05-23-97 16:46:16
LFID & Datime: WE23-6 05-23-97 17:22:58

COMPOUND	RT OF STANDARDS (MIN) 1.0X	2.5X	5.0X	8.0X	10.0X	MEAN RT	RT WINDOW FROM	TO
PCB-1016-1	8.45	8.45	8.45	8.45	8.45	8.45	8.35	8.55
PCB-1016-2	10.19	10.19	10.19	10.19	10.19	10.19	10.09	10.29
PCB-1016-3	11.44	11.44	11.44	11.44	11.44	11.44	11.34	11.54
PCB-1016-4	11.77	11.75	11.75	11.75	11.77	11.76	11.66	11.86
PCB-1016-5	12.47	12.47	12.47	12.47	12.47	12.47	12.37	12.57
PCB-1260-1	19.15	19.15	19.15	19.15	19.15	19.15	19.05	19.25
PCB-1260-2	19.99	19.99	19.99	19.99	19.99	19.99	19.89	20.09
PCB-1260-3	20.41	20.41	20.41	20.41	20.41	20.41	20.31	20.51
PCB-1260-4	24.88	24.88	24.88	24.88	24.88	24.88	24.78	24.98
PCB-1260-5	27.00	27.00	27.00	27.00	27.00	27.00	26.90	27.10
Tetrachloro-m-xylene	5.98	5.98	5.98	5.98	5.98	5.98	5.88	6.08
Decachlorobiphenyl	32.33	32.31	32.31	32.33	32.33	32.32	32.22	32.42

INITIAL CALIBRATION
METHOD EPA 8081

Lab Name : EMAX Inc
Instrument ID : GCT016
GC Column : DB1701
Column size ID: 0.32MMX30M
LFID & Datime: XE23-2 05-23-97 14:56:19
LFID & Datime: XE23-3 05-23-97 15:32:57
LFID & Datime: XE23-4 05-23-97 16:09:36
LFID & Datime: XE23-5 05-23-97 16:46:16
LFID & Datime: XE23-6 05-23-97 17:22:58

COMPOUND	RT OF STANDARDS (MIN) 1.0X	2.5X	5.0X	8.0X	10.0X	MEAN RT	RT WINDOW FROM	TO
PCB-1016-1	4.91	4.91	4.91	4.89	4.91	4.90	4.80	5.00
PCB-1016-2	5.99	5.99	5.99	5.99	5.99	5.99	5.89	6.09
PCB-1016-3	7.38	7.36	7.36	7.36	7.36	7.37	7.27	7.47
PCB-1016-4	7.83	7.83	7.83	7.83	7.83	7.83	7.73	7.93
PCB-1016-5	8.57	8.57	8.57	8.62	8.62	8.59	8.49	8.69
PCB-1260-1	14.16	14.14	14.14	14.14	14.16	14.15	14.05	14.25
PCB-1260-2	15.08	15.06	15.06	15.06	15.08	15.07	14.97	15.17
PCB-1260-3	15.51	15.51	15.51	15.51	15.51	15.51	15.41	15.61
PCB-1260-4	15.78	15.78	15.78	15.78	15.78	15.78	15.68	15.88
PCB-1260-5	19.20	19.20	19.20	19.20	19.20	19.20	19.10	19.30
Tetrachloro-m-xylene	3.61	3.61	3.61	3.61	3.61	3.61	3.51	3.71
Decachlorobiphenyl	25.03	25.03	25.01	25.03	25.03	25.03	24.93	25.13

INITIAL CALIBRATION
METHOD EPA 8081

Name : EMAX Inc
trument ID : GCT016
GC Column : DB608
Column size ID: 0.32MMX30M
LFID & Datime: WE23-7 05-23-97 17:59:39
LFID & Datime: WE23-8 05-23-97 18:36:18
LFID & Datime: WE23-9 05-23-97 19:13:11
LFID & Datime: WE23-10 05-23-97 19:49:51
LFID & Datime: WE23-11 05-23-97 20:26:31
CONC UNIT: PPB

COMPOUND	CONC X	CALIBRATION FACTORS (AREA/UNIT) 1.0X	2.5X	5.0X	8.0X	10.0X	MEAN	%RSD
PCB-1254-1	100.0	219	192	175	162	156	181	14
PCB-1254-2	100.0	471	412	369	342	332	385	15
PCB-1254-3	100.0	533	470	422	390	379	439	14
PCB-1254-4	100.0	304	274	252	238	242	262	10
PCB-1254-5	100.0	650	572	521	491	492	545	12
Tetrachloro-m-xylene	5.0	10097	9511	9141	8975	8995	9344	5
Decachlorobiphenyl	5.0	7980	7894	7191	7043	6514	7324	8

INITIAL CALIBRATION
METHOD EPA 8081

Lab Name : EMAX Inc
Instrument ID : GCT016
GC Column : DB1701
Column size ID: 0.32MMX30M
LFID & Datime: XE23-7 05-23-97 17:59:39
LFID & Datime: XE23-8 05-23-97 18:36:18
LFID & Datime: XE23-9 05-23-97 19:13:11
LFID & Datime: XE23-10 05-23-97 19:49:51
LFID & Datime: XE23-11 05-23-97 20:26:31
CONC UNIT: PPB

COMPOUND	CONC X	CALIBRATION FACTORS (AREA/UNIT) 1.0X	2.5X	5.0X	8.0X	10.0X	MEAN	%RSD
PCB-1254-1	100.0	336	308	286	270	262	292	10
PCB-1254-2	100.0	430	390	387	366	353	385	8
PCB-1254-3	100.0	747	692	656	644	625	673	7
PCB-1254-4	100.0	444	417	392	378	367	399	8
PCB-1254-5	100.0	782	737	703	678	659	712	7
Tetrachloro-m-xylene	5.0	9037	8790	8749	8729	8691	8799	2
Decachlorobiphenyl	5.0	9527	8812	8340	8099	7892	8534	8

INITIAL CALIBRATION
METHOD EPA 8081

Name : EMAX Inc
Instrument ID : GCT016
GC Column : DB608
Column size ID: 0.32MMX30M
LFID & Datime: WE23-7 05-23-97 17:59:39
LFID & Datime: WE23-8 05-23-97 18:36:18
LFID & Datime: WE23-9 05-23-97 19:13:11
LFID & Datime: WE23-10 05-23-97 19:49:51
LFID & Datime: WE23-11 05-23-97 20:26:31

COMPOUND	RT OF STANDARDS (MIN) 1.0X	2.5X	5.0X	8.0X	10.0X	MEAN RT	RT WINDOW FROM	TO
PCB-1254-1	13.18	13.18	13.19	13.19	13.18	13.18	13.08	13.28
PCB-1254-2	16.48	16.48	16.48	16.48	16.48	16.48	16.38	16.58
PCB-1254-3	16.78	16.77	16.78	16.77	16.78	16.78	16.68	16.88
PCB-1254-4	18.67	18.67	18.67	18.67	18.67	18.67	18.57	18.77
PCB-1254-5	19.17	19.17	19.17	19.17	19.17	19.17	19.07	19.27
Tetrachloro-m-xylene	5.96	5.96	5.96	5.96	5.96	5.96	5.86	6.06
Decachlorobiphenyl	32.31	32.31	32.31	32.31	32.31	32.31	32.21	32.41

INITIAL CALIBRATION
METHOD EPA 8081

Lab Name : EMAX Inc
Instrument ID : GCT016
GC Column : DB1701
Column size ID: 0.32MMX30M
LFID & Datime: XE23-7 05-23-97 17:59:39
LFID & Datime: XE23-8 05-23-97 18:36:18
LFID & Datime: XE23-9 05-23-97 19:13:11
LFID & Datime: XE23-10 05-23-97 19:49:51
LFID & Datime: XE23-11 05-23-97 20:26:31

COMPOUND	RT OF STANDARDS (MIN) 1.0X	2.5X	5.0X	8.0X	10.0X	MEAN RT	RT WINDOW FROM	TO
PCB-1254-1	8.55	8.55	8.55	8.55	8.55	8.55	8.45	8.65
PCB-1254-2	10.97	10.97	10.97	10.97	10.97	10.97	10.87	11.07
PCB-1254-3	13.46	13.46	13.46	13.46	13.46	13.46	13.36	13.56
PCB-1254-4	14.41	14.41	14.41	14.41	14.41	14.41	14.31	14.51
PCB-1254-5	16.45	16.45	16.45	16.45	16.45	16.45	16.35	16.55
Tetrachloro-m-xylene	3.59	3.59	3.59	3.59	3.59	3.59	3.49	3.69
Decachlorobiphenyl	25.02	25.02	25.02	25.02	25.02	25.02	24.92	25.12

PCB DAILY CALIBRATION VERIFICATION SUMMARY

Lab Name : EMAX Inc
SDG No. : 97E103
Lab Sample ID : DCC01 Lab File ID : WE28-8 XE28-8
Analyzed Date : 05/28/97 Analyzed Time: 15:19:13
Inst ID : GCT016
Column ID : 0.32mmX30m GC Column : DB608 DB1701

INDIVIDUAL COMPOUND	TRUE CONC (ug/L)	CALC CONC (ug/L)	%D1	CALC CONC (ug/L)	%D2	Q D1 D2
PCB-1254	500.0	471.0	5.8	476.8	4.6	
Tetrachloro-m-xylene	25.0	23.9	4.4	23.8	4.8	
Decachlorobiphenyl	25.0	25.0	0.1	23.5	5.9	

Comments :

PCB DAILY CALIBRATION VERIFICATION SUMMARY

Lab Name : EMAX Inc
SDG No. : 97E103
Lab Sample ID : DCC02 Lab File ID : WE28-23 XE28-23
Analyzed Date : 05/29/97 Analyzed Time: 01:12:41
Inst ID : GCT016
Column ID : 0.32mmX30m GC Column : DB608 DB1701

INDIVIDUAL COMPOUND	TRUE CONC (ug/L)	CALC CONC (ug/L)	%D1	CALC CONC (ug/L)	%D2	Q D1	Q D2
PCB-1254	500.0	493.0	1.4	515.0	3.0		
Tetrachloro-m-xylene	25.0	25.0	0.1	25.5	1.8		
Decachlorobiphenyl	25.0	25.1	0.4	25.5	2.2		

Comments :

PCB DAILY CALIBRATION VERIFICATION SUMMARY

Lab Name : EMAX Inc
SDG No. : 97E103
Lab Sample ID : DCC03 Lab File ID : WE28-34 XE28-34
Analyzed Date : 05/29/97 Analyzed Time: 07:55:42
Inst ID : GCT016
Column ID : 0.32mmX30m GC Column : DB608 DB1701

INDIVIDUAL COMPOUND	TRUE CONC (ug/L)	CALC CONC (ug/L)	%D1	CALC CONC (ug/L)	%D2	Q D1 D2
PCB-1254	500.0	504.4	0.9	516.8	3.4	
Tetrachloro-m-xylene	25.0	25.0	0.1	25.4	1.5	
Decachlorobiphenyl	25.0	25.1	0.2	26.2	4.9	

Comments :

PCB DAILY CALIBRATION VERIFICATION SUMMARY

Lab Name : EMAX Inc
SDG No. : 97E103
Lab Sample ID : DCC04 Lab File ID : WE28-38 XE28-38
Analyzed Date : 05/29/97 Analyzed Time: 16:17:36
Inst ID : GCT016
Column ID : 0.32mmX30m GC Column : DB608 DB1701

INDIVIDUAL COMPOUND	TRUE CONC (ug/L)	CALC CONC (ug/L)	%D1	CALC CONC (ug/L)	%D2	Q D1 D2
PCB-1254	500.0	488.4	2.3	489.9	2.0	
Tetrachloro-m-xylene	25.0	24.2	3.3	24.6	1.8	
Decachlorobiphenyl	25.0	25.7	2.6	25.5	2.2	

Comments :

PCB DAILY CALIBRATION VERIFICATION SUMMARY

Lab Name : EMAX Inc
SDG No. : 97E103
Lab Sample ID : DCC01 Lab File ID : WF05-3 XF05-3
Analyzed Date : 06/05/97 Analyzed Time: 19:10:20
Inst ID : GCT016
Column ID : 0.32mmX30m GC Column : DB608 DB1701

INDIVIDUAL COMPOUND	TRUE CONC (ug/L)	CALC CONC (ug/L)	%D1	CALC CONC (ug/L)	%D2	Q D1 D2
PCB-1254	500.0	475.0	5.0	455.0	9.0	
Tetrachloro-m-xylene	25.0	21.3	14.7	19.5	21.9	*
Decachlorobiphenyl	25.0	23.3	6.8	27.4	9.6	

Comments : Value out side of QC limits of 15%.

PCB DAILY CALIBRATION VERIFICATION SUMMARY

Lab Name : EMAX Inc
SDG No. : 97E103
Lab Sample ID : DCC02 Lab File ID : WF05-9 XF05-9
Analyzed Date : 06/05/97 Analyzed Time: 22:50:32
Inst ID : GCT016
Column ID : 0.32mmX30m GC Column : DB608 DB1701

INDIVIDUAL COMPOUND	TRUE CONC (ug/L)	CALC CONC (ug/L)	%D1	CALC CONC (ug/L)	%D2	Q D1	Q D2
PCB-1254	500.0	466.4	6.7	448.0	10.4		
Tetrachloro-m-xylene	25.0	21.4	14.3	19.9	20.5		*
Decachlorobiphenyl	25.0	23.5	5.9	27.4	9.7		

Comments : Value out side of QC limits of 15%.

PCB DAILY CALIBRATION VERIFICATION SUMMARY

ab Name : EMAX Inc
DG No. : 97E103____
Lab Sample ID : DCC01_____ Lab File ID : WE28-7____ XE28-7____
nalyzed Date : 05/28/97__ Analyzed Time: 14:42:32__
nst ID : GCT016____
Column ID : 0.32mmX30m GC Column : DB608_____ DB1701____

INDIVIDUAL COMPOUND	TRUE CONC (ug/L)	CALC CONC (ug/L)	%D1	CALC CONC (ug/L)	%D2	Q D1 D2
PCB-1016	500.0	454.3	9.1	470.2	6.0	
PCB-1260	500.0	479.8	4.0	473.7	5.3	
Tetrachloro-m-xylene	25.0	24.1	3.6	23.8	4.8	
Decachlorobiphenyl	25.0	24.5	1.8	23.2	7.1	

omments :

PCB DAILY CALIBRATION VERIFICATION SUMMARY

Lab Name : EMAX Inc
SDG No. : 97E103____
Lab Sample ID : DCC02_____ Lab File ID : WE28-22___ XE28-22___
Analyzed Date : 05/29/97__ Analyzed Time: 00:36:02__
Inst ID : GCT016____
Column ID : 0.32mmX30m GC Column : DB608_____ DB1701____

INDIVIDUAL COMPOUND	TRUE CONC (ug/L)	CALC CONC (ug/L)	%D1	CALC CONC (ug/L)	%D2	Q D1 D2
PCB-1016	500.0	479.9	4.0	509.0	1.8	
PCB-1260	500.0	501.8	0.4	508.9	1.8	
Tetrachloro-m-xylene	25.0	25.0	0.0	25.4	1.5	
Decachlorobiphenyl	25.0	24.7	1.4	25.5	1.9	

Comments : _____

PCB DAILY CALIBRATION VERIFICATION SUMMARY

Lab Name : EMAX Inc
SDG No. : 97E103
Lab Sample ID : DCC03 Lab File ID : WE28-33 XE28-33
Analyzed Date : 05/29/97 Analyzed Time: 07:19:03
Inst ID : GCT016
Column ID : 0.32mmX30m GC Column : DB608 DB1701

INDIVIDUAL COMPOUND	TRUE CONC (ug/L)	CALC CONC (ug/L)	%D1	CALC CONC (ug/L)	%D2	Q D1 D2
PCB-1016	500.0	489.0	2.2	513.0	2.6	
PCB-1260	500.0	510.6	2.1	501.9	0.4	
Tetrachloro-m-xylene	25.0	24.9	0.5	25.1	0.4	
Decachlorobiphenyl	25.0	24.6	1.5	26.2	4.7	

Comments :

PCB DAILY CALIBRATION VERIFICATION SUMMARY

Lab Name : EMAX Inc
SDG No. : 97E103
Lab Sample ID : DCC04 Lab File ID : WE28-37 XE28-37
Analyzed Date : 05/29/97 Analyzed Time: 15:38:48
Inst ID : GCT016
Column ID : 0.32mmX30m GC Column : DB608 DB1701

INDIVIDUAL COMPOUND	TRUE CONC (ug/L)	CALC CONC (ug/L)	%D1	CALC CONC (ug/L)	%D2	Q D1 D2
PCB-1016	500.0	480.1	4.0	491.0	1.8	
PCB-1260	500.0	471.5	5.7	482.4	3.5	
Tetrachloro-m-xylene	25.0	24.2	3.2	24.1	3.5	
Decachlorobiphenyl	25.0	24.2	3.3	25.2	0.7	

Comments :

PCB DAILY CALIBRATION VERIFICATION SUMMARY

Lab Name : EMAX Inc
SDG No. : 97E103
Lab Sample ID : DCC01 Lab File ID : WF05-2 XF05-2
Analyzed Date : 06/05/97 Analyzed Time: 18:33:39
Inst ID : GCT016
Column ID : 0.32mmX30m GC Column : DB608 DB1701

INDIVIDUAL COMPOUND	TRUE CONC (ug/L)	CALC CONC (ug/L)	%D1	CALC CONC (ug/L)	%D2	Q D1	Q D2
PCB-1016	500.0	429.6	14.1	422.9	15.4		*
PCB-1260	500.0	513.5	2.7	471.9	5.6		
Tetrachloro-m-xylene	25.0	20.3	18.8	18.9	24.6	*	*
Decachlorobiphenyl	25.0	23.5	6.0	27.1	8.6		

Comments : Value out side of QC limits of 15%.

PCB DAILY CALIBRATION VERIFICATION SUMMARY

Lab Name : EMAX Inc
SDG No. : 97E103
Lab Sample ID : DCC02 Lab File ID : WF05-8 XF05-8
Analyzed Date : 06/05/97 Analyzed Time: 22:13:51
Inst ID : GCT016
Column ID : 0.32mmX30m GC Column : DB608 DB1701

INDIVIDUAL COMPOUND	TRUE CONC (ug/L)	CALC CONC (ug/L)	%D1	CALC CONC (ug/L)	%D2	Q D1	Q D2
PCB-1016	500.0	433.7	13.3	414.5	17.1		*
PCB-1260	500.0	499.6	0.1	457.4	8.5		
Tetrachloro-m-xylene	25.0	21.1	15.5	19.4	22.2	*	*
Decachlorobiphenyl	25.0	23.6	5.5	26.9	7.8		

Comments : Value out side of QC limits of 15%.

ANALYSES SEQUENCE / RUN LOG

ANALYSIS RUN LOG

Analytical Batch WE23 Method 8081 Book # T-A04-001

Instrument ID GCT016 Starting Date 5/23/97 Time NA Ending Date 5/24/97 Time NA

File Name	Run ID	DF	Matrix S	Matrix W	Notes
WE23-1	PIBLK01				
2	S100 1660				ICAL PCB-1660
3	S250				
4	S500				
5	S800				
6	S1000				
7	S100 1254				ICAL PCB-1254
8	S250				
9	S500				
10	S800				
11	S1000				
12	S100 Tox9				ICAL Toxaphene
13	S250				
14	S500				
15	S800				
16	S1000				
17	PIBLK02				
18	ICV 1660				
19	ICV 1254				
20	~~ICV Tox9~~				
21					
22	5/27/97				
23	KV				
24					
25					
26					
27					
28					
29					
30					

Initial Calibration	
WCE2360	
WCE2354	
WCE2370	

Standards KV 5/23/97

Name	ID	Conc. (~~mg/L~~)
Hexane	36017	ug/L
PIBLK	SS1B-02-7-1	20
1660	SS1B-02-10-2	2000-100
1254	SS1B-01-07	
Toxaphene	SS1B-01-14	
ICV 1660	SS1B-01-1	2000-100
ICV 1254	SS1B-01-6	

Column	1: 608	2: 1701

Disk Archival	
Name	Location

Analyzed By: KV

Checked By:

Date:

ANALYSIS RUN LOG

Analytical Batch WE28 Method 8081 Book # T-A04-001

Instrument ID GCT016 Starting Date 5/28/97 Time NA Ending Date 5/29/97 Time NA

File Name	Run ID	DF	Matrix S	Matrix W	Notes
WE28-1	PIBLK01				
2	PCB-1221				pattern Recognition
3	PCB-1232				
4	PCB-1242				
5	PCB-1248				
6	PIBLK02				
7	DCC01 1660				
8	DCC01 1254				KV 5/28/97
9	CPE014WB			X	Carswell PCBs
10	CPE014WL				only
11	CPE014WC				Request IEAL
12	TXE004SB				for PCB-1254.
13	TXE004SL				Quantitative
14	97E103-62				on PCB-1254
15	62M				Instead of PCB1660
16	62S				
17	63				
18	64				
19	65				
20	68				
21	PIBLK03				
22	DCC02 1660				
23	DCC02 1254				
24	97E103-69			X	
25	70				
26	71				
27	72				
28	73				
29	74				
30	75				

Initial Calibration	
WCE2354	
WCE2360	

Standards KV 5/28/97

Name	ID	Conc. (mg/L)
Hexane	36017	ng/L
PIBLK	SS1B-02-11-1	20
1221	SS1B-02-1-1 ~~SS1B-02-10-3~~	2000-100 ~~10-250~~
1232	SS1B-01-13	2000-100
1242	SS1B-01-22	
1248	SS1B-02-1-2	
1254	SS1B-01-07	
1660	SS1B-02-10-2	

Column	1: 608	2: 1701

Disk Archival	
Name	Location

Analyzed By: KV

Checked By:

Date:

ANALYSIS RUN LOG

Analytical Batch WE28 Method 8081 Book # T-A04-001

Instrument ID GCT016 Starting Date 5/28/97 Time NA Ending Date 5/29/97 Time NA

File Name	Run ID	DF	Matrix S	Matrix W	Notes
WE28-31	97E103-50			X	
32	PIBLK04				
33	DCC03 1660				
34	DCC03 1254				
35	97E103-~~68~~ 67			✓	KV 5/29/97
36	PIBLK05				
37	DCC04 1660				
38	DCC04 1254				

Initial Calibration	

Standards		
Name	ID	Conc. (mg/L)
Hexane		

Column	1: 608	2: 1701

Disk Archival	
Name	Location

Analyzed By: KV

Checked By:

Date:

ANALYSIS RUN LOG

Analytical Batch WF05 Method 8081 Book # T-A04-001

Instrument ID Starting Date 6/5/97 Time NA Ending Date 6/6/97 Time NA

File Name	Run ID	DF	Matrix S	Matrix W	Notes
WF05-1	PIBLK01				
2	DCC01 1660				
3	DCC02 1254				
4	CPE013WB			X	
5	TXE003SB			X	
6	PIBLK02				
7	PEM01				
8	DCC02 1660				
9	DCC02 1254				
10	DCC01 Toxa				
11	DCC01 MixA				
12	DCC01 MixB				
13	97E142-11		*		Bechtel
14	13				
15	15				
16	19				
17	21				
18	23				
19	25				
20	27				
21	29				
22	31				
23	33				
24	17				
25	03				
26	PIBLK03				
27	DCC02 MixA				
28	DCC02 MixB				
29	DCC02 Toxa				
30	DCC03 1660				

Initial Calibration	
WCE24	WCE2354
WCE23TO	
WCE2360	

Standards KV 6/5/97

Name	ID	Conc. (~~mg/L~~)
Hexane	36017	ug/L
PIBLK	SS1B-02-11-1	20
PEM	SS1B-02-10-2	10-250
MixA	SS1B-02-11-3	80-800
MixB	SS1B-02-12-1	80-160
Toxa	SS1B-02-12-2	2000-10[illegible]
1660	SS1B-02-10-2	
1254	SS1B-01-07	

Column	1: 608	2: 1701

Disk Archival	
Name	Location

Analyzed By: KV

Checked By:

Date:

EXTRACTION LOG FOR PESTICIDES

Prep. Batch CPE014W Method 3550 ☐ 3580 ☐ 3510 ☐ 3520 ☑ 3540 ☐ 3545 ☐ CLP ☐ Book # T-E04-001 Page # 134

Matrix SPLP extr, water Starting Date 05-27-97 Time 8:00 Ending Date 05-28-97 Time 13:00

Lab Sample ID	Sample Amount (g/ml)	pH	Extract Volume (ml)	Notes
CPE014WB	1000		10	*
WL				* ☐
WC				* △
TXE004SB	500		5	
SL				△
97E103-62		7.43		
-62M				△
-62S				△
-63		7.44		
-64		7.24		
-65		7.43		
-68		7.24		
-69		7.73		
-70		7.69		
-71		7.81		
-72		7.56		
-73		7.74		
-74		7.57		
-75		7.72		
-50	1000	5.83	10	*
97E110-01	~~1000~~	7.43	10	*
FY 5/28/97	950			

Standards	ID	Amount Added (ml)
Surrogate	SS18-02-4-2	0.5
* ~~LCS/MS~~ surrog.	SS18-02-4-2	1.0
△ Spike 1254	SS18-02-10-1	0.25
☐ Spike 1254	SS18-02-10-1	0.5

Reagent	Lot# / ID
CH_2Cl_2	36222
Hexane	35139
Na_2SO_4	967877
H_2SO_4	NA
NaOH	NA

SDG #	Extract Location
	GC-R2-Bechtell

Comments: pH meter EMAX, pH 110 1
SW7A-01-05 - 7.00
SW7A-01-06 - 4.01
SW7A-01-07 - 10.02
Sample 97E110-01 was concentr. with chloride until 10 ml, than was taken 1 ml from 10 ml and changed to hexane (prepar. factor = 10)

Prepared By: FY

Standard Added By: FY/ML

Checked By: ML

Extracts Received By: KV

EXTRACTION LOG FOR TCLP

Prep. Batch TXE004S Method 1312 ☑ 1311 ☐ Book # T-E11-001 Page # 039

Matrix Soil Starting Date 05-23-97 Time 12:00 Ending Date 05-24-97 Time 9:00

Lab Sample ID	Sample pH	Sample Amount (g)	TCLP Fluid Reqd.	Extraction Solution (ml)	Extract pH	Notes sample pH
TXE004SB			1 pH 5/24/97	2000		
97E103-62	2.19	200	7.43	2000	7.43	9.13
-63	2.13	100	7.44	1000	7.44	8.34
-64	2.17		7.24		7.24	8.85
-65	1.93				7.43	8.90
-68	1.94				7.24	8.45
-69	2.17				7.73	7.13
-70	3.05				7.69	9.13
-71	2.16				7.81	8.69
-72	2.34				7.56	8.73
-73	2.43				7.74	8.94
-74	2.48				7.57	8.95
-75	2.6				7.72	9.13

Calibration of pH meter 5/23/97

Buffer ID	Value	Reading
SW7A-01-5	7	7.00
SW7A-01-6	4	4.01
Slope	100	
pH meter ID	EMAX, pH401	

Preparation of TCLP Solution

Reagents	Lot #	Amount	Final Vol.
Acetic Acid	SPLP solution		
1N NaOH	ID: SW7B-01-156		
Reagent Water			
pH	4.20	Exp. Date	5/23/98

Rotary Agitator #	3	rpm	30

Room Temperature (°C)

High	Low	Thermostat Setting	Criteria
25	23	23	23 ±2

Comments: pH samples less than 5 after added 3.5ml 1N HCl use solution N 1 pH = 4.20 ± 0.05

Prepared By: FY

Checked By: ML

TAB

2

Comparison of Results from the Final Site Investigation/Site Characterization Technical Report to Background at Grounds Maintenance Yard NAS JRB Fort Worth, TX Jacobs Engineering Group, Inc.

INTRODUCTION

In order to assess if inorganic analytes detected at the Aerospace Museum Site and the Grounds Maintenance Yard represent site contamination and to evaluate if additional sampling is necessary at either of the sites, the results reported in the *Site Investigation/Site Characterization Technical Report for The Aerospace Museum Site and Grounds Maintenance Yard* report (Air Force, 1996) were compared to background concentrations as reported in the NAS Fort Worth JRB, Texas Basewide Background Study, January 1997 (Jacobs, 1997).

COMPARISON OF RESULTS TO BACKGROUND

The reported results were compared to the $UTL_{95,95}$ background screening value, or the value that we can say, with 95 percent confidence, will exceed 95 percent of the background data. Any site value greater than the $UTL_{95,95}$ has only a small probability of being drawn from the background data population, and thus may indicate the presence of site-related contamination. On the other hand, 5 percent of the background data would be expected to exceed the $UTL_{95,95}$. The $UTL_{95,95}$ is established as a screening criterion to identify results which may require additional evaluation. To further evaluate results which exceeded the $UTL_{95,95}$, some of the results were then compared to a $UTL_{95,99}$, or the value that we can say, with 95 percent confidence, will exceed 99 percent of the background data.

Tables 1 and 2 present a summary comparison of metals results to background for the Aerospace Museum Site and Grounds Maintenance Yard, respectively. Additionally, Tables 3 and 4 present all of the metals results by analyte and their comparison to UTL screening values for the Aerospace Museum Site and Grounds Maintenance Yard, respectively. Tables 3 and 4 also compare each result to the Texas Natural Resource Conservation Commission (TNRCC) Soil/Air and Ingestion Standard for Industrial Use (SAI-Ind) Medium-Specific Concentrations (MSCs). The results of the comparisons of

inorganics results to background, as well as a discussion of volatiles, semivolatiles, pesticides/PCBs, and herbicides results for each site, as applicable, follows

Aerospace Museum Site

The results of the background concentrations comparison are presented in Tables 1 and 3. Antimony, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, molybdenum, nickel, silver, and zinc were detected in concentrations that exceeded the $UTL_{95,95}$ established for these analytes. A $UTL_{95,99}$ was established for surface soils to further evaluate the metals exceeding the $UTL_{95,95}$. Metals with concentrations detected above their $UTL_{95,99}$ include cadmium, chromium, cobalt, copper and lead. $UTL_{95,99}$ include could not be calculated for antimony, barium, beryllium, molybdenum, nickel, sodium, or zinc because the $UTL_{95,95}$ was established as the highest value in the background data set (Jacobs, 1997)

An analyte was deemed to require further evaluation if any results exceeded either the background ($UTL_{95,95}$ or $UTL_{95,99}$, as applicable) or the SAI-Ind MSC, where established, for that analyte.

Based on these criteria, 6 of the 22 inorganic analytes require further evaluation. As shown on Table 1, suggested means of further evaluation include:

- qualifying the results because the analyte is an essential nutrient and probably does not present a health risk at any concentration, or
- comparing the results to EPA RBCs, or
- subjecting the site data to non-parametric tests.

Preliminary application of the first two of these methods eliminated all analytes except lead at the Aerospace Museum Site. Non-parametric tests were not performed as part of this evaluation.

Volatile Organic Compounds

Methylene chloride and toluene were detected at the Aerospace Museum. Methylene chloride was detected below the practical quantitation limit (PQL) in all cases. Toluene was detected in 44 of 51 samples, but 27 of the 44 detections were below the PQL. Toluene was detected in samples throughout the site at relatively low concentrations.

Semivolatile Organic Compounds

Semivolatile organic compounds were detected throughout the site. Concentrations detected were generally low, and TNRCC SAI-Ind MSCs or the EPA Region III RBCs for industrial scenario ingestion were not exceeded.

Grounds Maintenance Yard

As Table 2 indicates, there were concentrations of antimony, arsenic, calcium, chromium, copper, lead, magnesium, molybdenum, nickel, and zinc detected which exceeded their respective $UTL_{95,95}$ screening criteria. Furthermore, arsenic, chromium, copper, and lead exceeded their respective $UTL_{95,99}$ screening criteria as well. In the cases of antimony, barium, beryllium, molybdenum, nickel, sodium, and zinc, calculation of a $UTL_{95,99}$ was not possible because the $UTL_{95,95}$ was established as the highest value in the background data set (Jacobs, 1997). Table 2 also indicates which analytes exceeded the TNRCC SAI-Ind MSC, where established. Arsenic was the only analyte which exceeded the SAI-Ind MSC.

An analyte was deemed to require further evaluation if any results exceeded either the background ($UTL_{95,95}$ or $UTL_{95,99}$, as applicable) or the SAI-Ind MSC, where established, for that analyte.

Based on this criteria, four of the 20 inorganic analytes require further evaluation. As shown on Table 2, suggested means of further evaluation include.

- qualifying the results because the analyte is an essential nutrient and probably does not present a health risk at any concentration, or
- comparing the results to EPA RBCs, or
- subject the site data to non-parametric tests.

Preliminary application of the first two of these methods eliminated all analytes except arsenic at the Grounds Maintenance yard. Non-parametric tests were not performed for arsenic as part of this evaluation.

Pesticides and PCBs

Arochlor 1254 was detected twice, and 4,4'-DDE, 4,4'-DDT, and dieldrin were each detected once at concentrations above the TNRCC MSC.

No other chlorinated herbicides, volatiles, or semivolatiles were detected at concentrations above the TNRCC MSC.

RECOMMENDATIONS FOR ADDITIONAL SAMPLING

To evaluate if additional sampling is necessary at either of the sites, the above evaluation of inorganics was combined with an evaluation of volatiles, semivolatiles, pesticides, and herbicides detected at the sites, as applicable. Based on these evaluations, additional sampling is recommended at the Aerospace Museum Site as follows.

Additional sampling of soils for the analysis of volatile organic compounds is not recommended. Methylene chloride is a common laboratory contaminant and was detected at concentrations below the PQL. Toluene was detected in many of the samples collected from the Aerospace Museum site in relatively low concentrations. Toluene was also detected in soil samples collected during the basewide background study in similar concentrations. Given the proximity of the aerospace museum site to Grants Lane and Carswell the concentrations of toluene detected likely represent anthropogenic background concentrations of toluene in the local urban setting.

Additional sampling of soil to further evaluate semivolatile organic compounds detected at the Aerospace Museum is not recommended. Detectable concentrations of semivolatile compounds did not exceed the TNRCC SAI-Ind MSCs, or the EPA Region III RBCs. Sample OT3801SA collected near the storm channel in the northeast corner of the site (Installation Restoration Program (IRP) Site Investigation/Site Characterization Technical Report, February 1996) exhibited the highest concentrations of polycyclic aromatic hydrocarbons at the site. Semivolatile organic compounds were also detected in the surface water and sediment samples collected along Farmers Branch during the basewide background study. Because this storm channel drains Grants Lane and collects water from other storm drains, these PAHs are likely representative of anthropogenic background concentrations.

Additional sampling of soils for metals analysis is not recommended except for lead. All metals with the exception of lead were eliminated for further evaluation based on the results detailed in the Summary Table 1. In, general concentrations of metals exceeding related background concentrations were below the TNRCC established SAI-Ind MSC, the EPA Region III RBC, or could be related to an essential nutrient requirement. A single sample, OT3840SA, exceeded the background concentrations and the TNRCC MSC of 1,000 mg/kg. This sample location is located in the area of a rubble pile containing bricks, concrete, and other miscellaneous debris in the south east portion of the site. It is recommended that that up to 6 additional surface soil samples be collected and analyzed

for lead Two samples could be collected from the rubble pile if the sample location is confirmed to coincide with this pile The remaining four samples could be collected from locations surrounding the pile This rubble pile is scheduled for removal Samples from inside the pile should be collected prior to removal and disposal After the pile has been removed a sample could be collected at the bottom of the excavation

If it is determined that the rubble pile is not related to the sample location OT3840SA, then four samples could be collected surrounding the sample location, and a single sample collected from 5 feet below the ground surface at the location OT3840SA

Additional sampling is recommended at the Grounds Maintenance Yard as follows:

- Sampling for PCBs in the vicinity of the transformers (or former location of transformers),
- Sampling for pesticides along the west fence line of the Grounds Maintenance Yard,
- Sampling for arsenic near sample location OT3907SA (if non-parametric analysis does not eliminate it)

TABLE 2

Summary of Samples Exceeding Screening Criteria
Grounds Maintenance Yard, Naval Air Station, Fort Worth

Analyte	Samples Exceeding UTL $_{95,95}$	Samples Exceeding UTL $_{95,99}$	Samples Exceeding SAI-Ind MSC	Requires Further Evaluation ?	Means of Further Evaluation
Aluminum	0	0	NE	NO	
Antimony	9	-------	0	NO	
Arsenic	2	2	2	YES	Non-Parametric Tests
Barium	0	-------	0	NO	
Beryllium	0	-------	0	NO	
Calcium	15	0	NE	NO	
Chromium	3	2	0	NO	
Cobalt	0	0	NE	NO	
Copper	4	3	NE	YES	Analyte is Essential Nutrient Non-Parametric Tests Comparson to EPA RBCs
Iron	0	0	NE	NO	
Lead	5	4	0	NO	
Magnesium	1	0	NE	NO	
Manganese	0	0	NE	NO	
Molybdenum	10	-------	NE	YES	Analyte is Essential Nutrient Non-Parametric Tests
Nickel	22	-------	0	NO	
Potassium	0	0	NE	NO	
Selenium	0	0	0	NO	
Sodium	0	-------	NE	NO	
Vanadium	0	0	NE	NO	
Zinc	22	-------	NE	YES	Analyte is Essential Nutrient Non-Parametric Tests

Notes.

------- = Calculation of UTL $_{95,99}$ not possible. UTL established as highest value in background data set.
MSC = Medium-Specific Concentration
NE = MSC not established
SAI-Ind = Soil/Air and Ingestion Standard for Industrial Use
TNRCC = Texas Natural Resource Conservation Commission

Table 4

Comparison of Aluminum Concentrations in Surface Soils to Background Concentrations
Grounds Maintenance Yard

Sample Number			Sample Type	Analyte	Result	Qualifier	Detection Limit?	UTL 95,95	UTL 95,99	MSC	UTL 95,95 Exceeded?	UTL 95,99 Exceeded?
OT	3901	SA	Surface Soil	Aluminum	7,850			22,035	26,315	NE	NO	NO
OT	3902	SA	Surface Soil	Aluminum	9,440			22,035	26,315	NE	NO	NO
OT	3903	SA	Surface Soil	Aluminum	7,090			22,035	26,315	NE	NO	NO
OT	3904	SA	Surface Soil	Aluminum	4,370			22,035	26,315	NE	NO	NO
OT	3905	SA	Surface Soil	Aluminum	4,300			22,035	26,315	NE	NO	NO
OT	3906	SA	Surface Soil	Aluminum	5,140			22,035	26,315	NE	NO	NO
OT	3907	SA	Surface Soil	Aluminum	4,060			22,035	26,315	NE	NO	NO
OT	3908	SA	Surface Soil	Aluminum	4,580			22,035	26,315	NE	NO	NO
OT	3909	SA	Surface Soil	Aluminum	5,260			22,035	26,315	NE	NO	NO
OT	3910	SA	Surface Soil	Aluminum	3,880			22,035	26,315	NE	NO	NO
OT	3911	SA	Surface Soil	Aluminum	7,000			22,035	26,315	NE	NO	NO
OT	3912	SA	Surface Soil	Aluminum	4,620			22,035	26,315	NE	NO	NO
OT	3913	SA	Surface Soil	Aluminum	5,790			22,035	26,315	NE	NO	NO
OT	3914	SA	Surface Soil	Aluminum	6,280			22,035	26,315	NE	NO	NO
OT	3915	SA	Surface Soil	Aluminum	5,950			22,035	26,315	NE	NO	NO
OT	3916	SA	Surface Soil	Aluminum	5,890			22,035	26,315	NE	NO	NO
OT	3917	SA	Surface Soil	Aluminum	7,810			22,035	26,315	NE	NO	NO
OT	3918	SA	Surface Soil	Aluminum	6,730			22,035	26,315	NE	NO	NO
OT	3919	SA	Surface Soil	Aluminum	3,540			22,035	26,315	NE	NO	NO
OT	3920	SA	Surface Soil	Aluminum	4,530			22,035	26,315	NE	NO	NO
OT	3921	SA	Surface Soil	Aluminum	4,810			22,035	26,315	NE	NO	NO
OT	3922	SA	Surface Soil	Aluminum	10,800			22,035	26,315	NE	NO	NO
OT	3923	SA	Surface Soil	Aluminum	9,060			22,035	26,315	NE	NO	NO
OT	3924	SA	Surface Soil	Aluminum	5,530			22,035	26,315	NE	NO	NO
OT	3925	SA	Surface Soil	Aluminum	7,520			22,035	26,315	NE	NO	NO
OT	3926	SA	Surface Soil	Aluminum	6,970			22,035	26,315	NE	NO	NO
OT	3927	SA	Surface Soil	Aluminum	7,910			22,035	26,315	NE	NO	NO
OT	3928	SA	Surface Soil	Aluminum	7,700			22,035	26,315	NE	NO	NO
OT	3929	SA	Surface Soil	Aluminum	10,700			22,035	26,315	NE	NO	NO
OT	3930	SA	Surface Soil	Aluminum	9,150			22,035	26,315	NE	NO	NO

Notes

1. J = Estimated quantitation based on QC data.
2. JB = Estimated quantitation: possibly biased high or a false positive based upon blank data.
3. JH = Estimated quantitation: possibly biased high based upon QC data.
4. JL = Estimated quantitation: possibly biased low or a false negative based upon QC data.
5. JQ = Estimated quantitation: detected below the PQL.
6. NE = MSC not established for this analyte.

Table 4
Comparison of Antimony Concentrations in Surface Soils to Background Concentrations
Grounds Maintenance Yard

Sample Number			Sample Type	Analyte	Result	Qualifier	Detection Limit?	UTL $_{95,95}$	SAI-Ind MSC	UTL $_{95,95}$ Exceeded?	MSC Exceeded?
OT	3901	SA	Surface Soil	Antimony	0		<19.8	0.56	818	NO	NO
OT	3902	SA	Surface Soil	Antimony	0		<21.0	0.56	818	NO	NO
OT	3903	SA	Surface Soil	Antimony	0		<23.0	0.56	818	NO	NO
OT	3904	SA	Surface Soil	Antimony	0		<22.3	0.56	818	NO	NO
OT	3905	SA	Surface Soil	Antimony	0		<22.7	0.56	818	NO	NO
OT	3906	SA	Surface Soil	Antimony	0		<23.9	0.56	818	NO	NO
OT	3907	SA	Surface Soil	Antimony	0		<22.6	0.56	818	NO	NO
OT	3908	SA	Surface Soil	Antimony	0		<22.8	0.56	818	NO	NO
OT	3909	SA	Surface Soil	Antimony	2.25	JQ		0.56	818	YES	NO
OT	3910	SA	Surface Soil	Antimony	0		<22.4	0.56	818	NO	NO
OT	3911	SA	Surface Soil	Antimony	0		<24.0	0.56	818	NO	NO
OT	3912	SA	Surface Soil	Antimony	0		<20.7	0.56	818	NO	NO
OT	3913	SA	Surface Soil	Antimony	0		<22.1	0.56	818	NO	NO
OT	3914	SA	Surface Soil	Antimony	2.97	JQ		0.56	818	YES	NO
OT	3915	SA	Surface Soil	Antimony	0		<22.3	0.56	818	NO	NO
OT	3916	SA	Surface Soil	Antimony	3.06	JQ		0.56	818	YES	NO
OT	3917	SA	Surface Soil	Antimony	0		<22.9	0.56	818	NO	NO
OT	3918	SA	Surface Soil	Antimony	0		<21.4	0.56	818	NO	NO
OT	3919	SA	Surface Soil	Antimony	0		<19.6	0.56	818	NO	NO
OT	3920	SA	Surface Soil	Antimony	0	JL	<21.7	0.56	818	NO	NO
OT	3921	SA	Surface Soil	Antimony	2.24	JQ		0.56	818	YES	NO
OT	3922	SA	Surface Soil	Antimony	3.17	JQ		0.56	818	YES	NO
OT	3923	SA	Surface Soil	Antimony	0		<23.9	0.56	818	NO	NO
OT	3924	SA	Surface Soil	Antimony	2.68	JQ		0.56	818	YES	NO
OT	3925	SA	Surface Soil	Antimony	0		<22.3	0.56	818	NO	NO
OT	3926	SA	Surface Soil	Antimony	2.71	JQ		0.56	818	YES	NO
OT	3927	SA	Surface Soil	Antimony	0		<21.2	0.56	818	NO	NO
OT	3928	SA	Surface Soil	Antimony	0		<20.5	0.56	818	NO	NO
OT	3929	SA	Surface Soil	Antimony	1.92	JQ		0.56	818	YES	NO
OT	3930	SA	Surface Soil	Antimony	2.04	JQ		0.56	818	YES	NO

Notes

1. J = Estimated quantitation based on QC data.
2. JB = Estimated quantitation: possibly biased high or a false positive based upon blank data.
3. JH = Estimated quantitation: possibly biased high based upon QC data.
4. JL = Estimated quantitation: possibly biased low or a false negative based upon QC data.
5. JQ = Estimated quantitation: detected below the PQL.
6. NE = MSC not established for this analyte.
7. Comparison to UTL $_{95,99}$ not possible because UTL was established as the highest value in the background dataset.

Table 4
Comparison of Arsenic Concentrations in Surface Soils to Background Concentrations
Grounds Maintenance Yard

Sample Number	Sample Type	Analyte	Result	Qualifier	Detection Limit?	$UTL_{95,95}$	$UTL_{95,99}$	SAI-Ind MSC	$UTL_{95,95}$ Exceeded?	$UTL_{95,99}$ Exceeded?	MSC Exceeded?
OT 3901 SA	Surface Soil	Arsenic	2.23			5.855	6.748	3.27	NO	NO	NO
OT 3902 SA	Surface Soil	Arsenic	1.82			5.855	6.748	3.27	NO	NO	NO
OT 3903 SA	Surface Soil	Arsenic	1.95			5.855	6.748	3.27	NO	NO	NO
OT 3904 SA	Surface Soil	Arsenic	1.47			5.855	6.748	3.27	NO	NO	NO
OT 3905 SA	Surface Soil	Arsenic	1.61			5.855	6.748	3.27	NO	NO	NO
OT 3906 SA	Surface Soil	Arsenic	0.801			5.855	6.748	3.27	NO	NO	NO
OT 3907 SA	Surface Soil	Arsenic	169			5.855	6.748	3.27	YES	YES	YES
OT 3908 SA	Surface Soil	Arsenic	0.456			5.855	6.748	3.27	NO	NO	NO
OT 3909 SA	Surface Soil	Arsenic	2.11			5.855	6.748	3.27	NO	NO	NO
OT 3910 SA	Surface Soil	Arsenic	1.87			5.855	6.748	3.27	NO	NO	NO
OT 3911 SA	Surface Soil	Arsenic	2.05			5.855	6.748	3.27	NO	NO	NO
OT 3912 SA	Surface Soil	Arsenic	0		<0.460	5.855	6.748	3.27	NO	NO	NO
OT 3913 SA	Surface Soil	Arsenic	0.926			5.855	6.748	3.27	NO	NO	NO
OT 3914 SA	Surface Soil	Arsenic	0.989			5.855	6.748	3.27	NO	NO	NO
OT 3915 SA	Surface Soil	Arsenic	0.760	JH		5.855	6.748	3.27	NO	NO	NO
OT 3916 SA	Surface Soil	Arsenic	1.49			5.855	6.748	3.27	NO	NO	NO
OT 3917 SA	Surface Soil	Arsenic	1.40			5.855	6.748	3.27	NO	NO	NO
OT 3918 SA	Surface Soil	Arsenic	2.13			5.855	6.748	3.27	NO	NO	NO
OT 3919 SA	Surface Soil	Arsenic	1.33			5.855	6.748	3.27	NO	NO	NO
OT 3920 SA	Surface Soil	Arsenic	1.39			5.855	6.748	3.27	NO	NO	NO
OT 3921 SA	Surface Soil	Arsenic	14.2			5.855	6.748	3.27	YES	YES	YES
OT 3922 SA	Surface Soil	Arsenic	3.08			5.855	6.748	3.27	NO	NO	NO
OT 3923 SA	Surface Soil	Arsenic	0.566			5.855	6.748	3.27	NO	NO	NO
OT 3924 SA	Surface Soil	Arsenic	1.27			5.855	6.748	3.27	NO	NO	NO
OT 3925 SA	Surface Soil	Arsenic	0.814	JH		5.855	6.748	3.27	NO	NO	NO
OT 3926 SA	Surface Soil	Arsenic	1.08	JH		5.855	6.748	3.27	NO	NO	NO
OT 3927 SA	Surface Soil	Arsenic	1.73			5.855	6.748	3.27	NO	NO	NO
OT 3928 SA	Surface Soil	Arsenic	2.94	J		5.855	6.748	3.27	NO	NO	NO
OT 3929 SA	Surface Soil	Arsenic	2.95			5.855	6.748	3.27	NO	NO	NO
OT 3930 SA	Surface Soil	Arsenic	2.56	JL		5.855	6.748	3.27	NO	NO	NO

Notes

1. J = Estimated quantitation based on QC data
2. JB = Estimated quantitation possibly biased high or a false positive based upon blank data
3. JH = Estimated quantitation. possibly biased high based upon QC data.
4. JL = Estimated quantitation: possibly biased low or a false negative based upon QC data
5. JQ = Estimated quantitation detected below the PQL
6. NE = MSC not established for this analyte.

Table 4
Comparison of Barium Concentrations in Surface Soils to Background Concentrations
Grounds Maintenance Yard

Sample Number			Sample Type	Analyte	Result	Qualifier	Detection Limit?	$UTL_{95,95}$	SAI-Ind MSC	$UTL_{95,95}$ Exceeded?	MSC Exceeded?
OT	3901	SA	Surface Soil	Barium	95.3			233	137,000	NO	NO
OT	3902	SA	Surface Soil	Barium	122			233	137,000	NO	NO
OT	3903	SA	Surface Soil	Barium	121			233	137,000	NO	NO
OT	3904	SA	Surface Soil	Barium	170			233	137,000	NO	NO
OT	3905	SA	Surface Soil	Barium	118			233	137,000	NO	NO
OT	3906	SA	Surface Soil	Barium	179			233	137,000	NO	NO
OT	3907	SA	Surface Soil	Barium	142			233	137,000	NO	NO
OT	3908	SA	Surface Soil	Barium	152			233	137,000	NO	NO
OT	3909	SA	Surface Soil	Barium	150			233	137,000	NO	NO
OT	3910	SA	Surface Soil	Barium	166			233	137,000	NO	NO
OT	3911	SA	Surface Soil	Barium	183			233	137,000	NO	NO
OT	3912	SA	Surface Soil	Barium	172			233	137,000	NO	NO
OT	3913	SA	Surface Soil	Barium	182			233	137,000	NO	NO
OT	3914	SA	Surface Soil	Barium	167			233	137,000	NO	NO
OT	3915	SA	Surface Soil	Barium	161			233	137,000	NO	NO
OT	3916	SA	Surface Soil	Barium	120			233	137,000	NO	NO
OT	3917	SA	Surface Soil	Barium	125			233	137,000	NO	NO
OT	3918	SA	Surface Soil	Barium	130			233	137,000	NO	NO
OT	3919	SA	Surface Soil	Barium	141			233	137,000	NO	NO
OT	3920	SA	Surface Soil	Barium	112	JH		233	137,000	NO	NO
OT	3921	SA	Surface Soil	Barium	82.9			233	137,000	NO	NO
OT	3922	SA	Surface Soil	Barium	133			233	137,000	NO	NO
OT	3923	SA	Surface Soil	Barium	133			233	137,000	NO	NO
OT	3924	SA	Surface Soil	Barium	100			233	137,000	NO	NO
OT	3925	SA	Surface Soil	Barium	125			233	137,000	NO	NO
OT	3926	SA	Surface Soil	Barium	128			233	137,000	NO	NO
OT	3927	SA	Surface Soil	Barium	135			233	137,000	NO	NO
OT	3928	SA	Surface Soil	Barium	119			233	137,000	NO	NO
OT	3929	SA	Surface Soil	Barium	123			233	137,000	NO	NO
OT	3930	SA	Surface Soil	Barium	100			233	137,000	NO	NO

Notes:

1. J = Estimated quantitation based on QC data.
2. JB = Estimated quantitation: possibly biased high or a false positive based upon blank data.
3. JH = Estimated quantitation: possibly biased high based upon QC data.
4. JL = Estimated quantitation: possibly biased low or a false negative based upon QC data.
5. JQ = Estimated quantitation: detected below the PQL.
6. NE = MSC not established for this analyte.
7. Comparison to $UTL_{95,99}$ not possible because UTL was established as the highest value in the background dataset.

Table 4
Comparison of Beryllium Concentrations in Surface Soils to Background Concentrations
Grounds Maintenance Yard

Sample Number			Sample Type	Analyte	Result	Qualifier	Detection Limit?	UTL $_{95,95}$	SAI-Ind MSC	UTL $_{95,95}$ Exceeded?	MSC Exceeded?
OT	3901	SA	Surface Soil	Beryllium	0.634			1.02	1.33	NO	NO
OT	3902	SA	Surface Soil	Beryllium	0		<2.51	1.02	1.33	NO	NO
OT	3903	SA	Surface Soil	Beryllium	0.551			1.02	1.33	NO	NO
OT	3904	SA	Surface Soil	Beryllium	0		<2.68	1.02	1.33	NO	NO
OT	3905	SA	Surface Soil	Beryllium	0		<2.73	1.02	1.33	NO	NO
OT	3906	SA	Surface Soil	Beryllium	0		<2.86	1.02	1.33	NO	NO
OT	3907	SA	Surface Soil	Beryllium	0		<2.72	1.02	1.33	NO	NO
OT	3908	SA	Surface Soil	Beryllium	0		<2.73	1.02	1.33	NO	NO
OT	3909	SA	Surface Soil	Beryllium	0		<2.60	1.02	1.33	NO	NO
OT	3910	SA	Surface Soil	Beryllium	0		<2.68	1.02	1.33	NO	NO
OT	3911	SA	Surface Soil	Beryllium	0	J	<2.88	1.02	1.33	NO	NO
OT	3912	SA	Surface Soil	Beryllium	0		<2.49	1.02	1.33	NO	NO
OT	3913	SA	Surface Soil	Beryllium	0		<2.65	1.02	1.33	NO	NO
OT	3914	SA	Surface Soil	Beryllium	0		<2.78	1.02	1.33	NO	NO
OT	3915	SA	Surface Soil	Beryllium	0		<2.68	1.02	1.33	NO	NO
OT	3916	SA	Surface Soil	Beryllium	0		<2.48	1.02	1.33	NO	NO
OT	3917	SA	Surface Soil	Beryllium	0.458			1.02	1.33	NO	NO
OT	3918	SA	Surface Soil	Beryllium	0.428			1.02	1.33	NO	NO
OT	3919	SA	Surface Soil	Beryllium	0		<2.35	1.02	1.33	NO	NO
OT	3920	SA	Surface Soil	Beryllium	0		<2.61	1.02	1.33	NO	NO
OT	3921	SA	Surface Soil	Beryllium	0		<2.49	1.02	1.33	NO	NO
OT	3922	SA	Surface Soil	Beryllium	0		<2.44	1.02	1.33	NO	NO
OT	3923	SA	Surface Soil	Beryllium	0		<2.87	1.02	1.33	NO	NO
OT	3924	SA	Surface Soil	Beryllium	0		<2.51	1.02	1.33	NO	NO
OT	3925	SA	Surface Soil	Beryllium	0.535			1.02	1.33	NO	NO
OT	3926	SA	Surface Soil	Beryllium	0		<2.71	1.02	1.33	NO	NO
OT	3927	SA	Surface Soil	Beryllium	0.592			1.02	1.33	NO	NO
OT	3928	SA	Surface Soil	Beryllium	0		<2.46	1.02	1.33	NO	NO
OT	3929	SA	Surface Soil	Beryllium	0.610			1.02	1.33	NO	NO
OT	3930	SA	Surface Soil	Beryllium	0.742			1.02	1.33	NO	NO

Notes:

1. J = Estimated quantitation based on QC data.
2. JB = Estimated quantitation: possibly biased high or a false positive based upon blank data.
3. JH = Estimated quantitation: possibly biased high based upon QC data.
4. JL = Estimated quantitation: possibly biased low or a false negative based upon QC data.
5. JQ = Estimated quantitation: detected below the PQL.
6. NE = MSC not established for this analyte.
7. Comparison to UTL $_{95,99}$ not possible because UTL was established as the highest value in the background dataset.

Table 4
Comparison of Calcium Concentrations in Surface Soils to Background Concentrations
Grounds Maintenance Yard

Sample Number			Sample Type	Analyte	Result	Qualifier	Detection Limit?	$UTL_{95,95}$	$UTL_{95,99}$	MSC	$UTL_{95,95}$ Exceeded?	$UTL_{95,99}$ Exceeded?
OT	3901	SA	Surface Soil	Calcium	19,000			167,788	490,604	NE	NO	NO
OT	3902	SA	Surface Soil	Calcium	106,000			167,788	490,604	NE	NO	NO
OT	3903	SA	Surface Soil	Calcium	108,000			167,788	490,604	NE	NO	NO
OT	3904	SA	Surface Soil	Calcium	234,000			167,788	490,604	NE	YES	NO
OT	3905	SA	Surface Soil	Calcium	204,000			167,788	490,604	NE	YES	NO
OT	3906	SA	Surface Soil	Calcium	296,000			167,788	490,604	NE	YES	NO
OT	3907	SA	Surface Soil	Calcium	214,000	JQ		167,788	490,604	NE	YES	NO
OT	3908	SA	Surface Soil	Calcium	269,000			167,788	490,604	NE	YES	NO
OT	3909	SA	Surface Soil	Calcium	220,000			167,788	490,604	NE	YES	NO
OT	3910	SA	Surface Soil	Calcium	281,000			167,788	490,604	NE	YES	NO
OT	3911	SA	Surface Soil	Calcium	177,000			167,788	490,604	NE	YES	NO
OT	3912	SA	Surface Soil	Calcium	219,000			167,788	490,604	NE	YES	NO
OT	3913	SA	Surface Soil	Calcium	232,000			167,788	490,604	NE	YES	NO
OT	3914	SA	Surface Soil	Calcium	196,000			167,788	490,604	NE	YES	NO
OT	3915	SA	Surface Soil	Calcium	197,000			167,788	490,604	NE	YES	NO
OT	3916	SA	Surface Soil	Calcium	197,000			167,788	490,604	NE	YES	NO
OT	3917	SA	Surface Soil	Calcium	111,000			167,788	490,604	NE	NO	NO
OT	3918	SA	Surface Soil	Calcium	139,000			167,788	490,604	NE	NO	NO
OT	3919	SA	Surface Soil	Calcium	234,000			167,788	490,604	NE	YES	NO
OT	3920	SA	Surface Soil	Calcium	165,000			167,788	490,604	NE	NO	NO
OT	3921	SA	Surface Soil	Calcium	157,000			167,788	490,604	NE	NO	NO
OT	3922	SA	Surface Soil	Calcium	119,000			167,788	490,604	NE	NO	NO
OT	3923	SA	Surface Soil	Calcium	120,000			167,788	490,604	NE	NO	NO
OT	3924	SA	Surface Soil	Calcium	193,000			167,788	490,604	NE	YES	NO
OT	3925	SA	Surface Soil	Calcium	122,000			167,788	490,604	NE	NO	NO
OT	3926	SA	Surface Soil	Calcium	121,000	J		167,788	490,604	NE	NO	NO
OT	3927	SA	Surface Soil	Calcium	71,500	J		167,788	490,604	NE	NO	NO
OT	3928	SA	Surface Soil	Calcium	113,000			167,788	490,604	NE	NO	NO
OT	3929	SA	Surface Soil	Calcium	77,100			167,788	490,604	NE	NO	NO
OT	3930	SA	Surface Soil	Calcium	23,000			167,788	490,604	NE	NO	NO

Notes

1. J = Estimated quantitation based on QC data
2. JB = Estimated quantitation possibly biased high or a false positive based upon blank data
3. JH = Estimated quantitation possibly biased high based upon QC data
4. JL = Estimated quantitation possibly biased low or a false negative based upon QC data
5. JQ = Estimated quantitation detected below the PQL
6. NE = MSC not established for this analyte

Table 4
Comparison of Chromium Concentrations in Surface Soils to Background Concentrations
Grounds Maintenance Yard

Sample Number			Sample Type	Analyte	Result	Qualifier	Detection Limit?	$UTL_{95,95}$	$UTL_{95,99}$	SAI-Ind MSC	$UTL_{95,95}$ Exceeded?	$UTL_{95,99}$ Exceeded?	MSC Exceeded?
OT	3901	SA	Surface Soil	Chromium	9.28			21.056	24.604	5,110	NO	NO	NO
OT	3902	SA	Surface Soil	Chromium	0		<41.9	21.056	24.604	5,110	NO	NO	NO
OT	3903	SA	Surface Soil	Chromium	2.85	JQ		21.056	24.604	5,110	NO	NO	NO
OT	3904	SA	Surface Soil	Chromium	14.3	JQ		21.056	24.604	5,110	NO	NO	NO
OT	3905	SA	Surface Soil	Chromium	32.7			21.056	24.604	5,110	YES	YES	NO
OT	3906	SA	Surface Soil	Chromium	0		<47.8	21.056	24.604	5,110	NO	NO	NO
OT	3907	SA	Surface Soil	Chromium	10.8	JQ		21.056	24.604	5,110	NO	NO	NO
OT	3908	SA	Surface Soil	Chromium	0		<45.5	21.056	24.604	5,110	NO	NO	NO
OT	3909	SA	Surface Soil	Chromium	21.7	JQ		21.056	24.604	5,110	YES	NO	NO
OT	3910	SA	Surface Soil	Chromium	0		<44.8	21.056	24.604	5,110	NO	NO	NO
OT	3911	SA	Surface Soil	Chromium	19.2	JQ		21.056	24.604	5,110	NO	NO	NO
OT	3912	SA	Surface Soil	Chromium	9.95	JQ		21.056	24.604	5,110	NO	NO	NO
OT	3913	SA	Surface Soil	Chromium	0		<44.2	21.056	24.604	5,110	NO	NO	NO
OT	3914	SA	Surface Soil	Chromium	0		<46.4	21.056	24.604	5,110	NO	NO	NO
OT	3915	SA	Surface Soil	Chromium	8.03	JQ		21.056	24.604	5,110	NO	NO	NO
OT	3916	SA	Surface Soil	Chromium	13.2	JQ		21.056	24.604	5,110	NO	NO	NO
OT	3917	SA	Surface Soil	Chromium	7.06			21.056	24.604	5,110	NO	NO	NO
OT	3918	SA	Surface Soil	Chromium	6.16			21.056	24.604	5,110	NO	NO	NO
OT	3919	SA	Surface Soil	Chromium	7.04	JQ		21.056	24.604	5,110	NO	NO	NO
OT	3920	SA	Surface Soil	Chromium	7.82	JH		21.056	24.604	5,110	NO	NO	NO
OT	3921	SA	Surface Soil	Chromium	0		<41.4	21.056	24.604	5,110	NO	NO	NO
OT	3922	SA	Surface Soil	Chromium	14.6	JQ		21.056	24.604	5,110	NO	NO	NO
OT	3923	SA	Surface Soil	Chromium	0		<47.8	21.056	24.604	5,110	NO	NO	NO
OT	3924	SA	Surface Soil	Chromium	13.4	JQ		21.056	24.604	5,110	NO	NO	NO
OT	3925	SA	Surface Soil	Chromium	7.4			21.056	24.604	5,110	NO	NO	NO
OT	3926	SA	Surface Soil	Chromium	0		<45.2	21.056	24.604	5,110	NO	NO	NO
OT	3927	SA	Surface Soil	Chromium	7.19			21.056	24.604	5,110	NO	NO	NO
OT	3928	SA	Surface Soil	Chromium	26.2	JQ		21.056	24.604	5,110	YES	YES	NO
OT	3929	SA	Surface Soil	Chromium	10.3			21.056	24.604	5,110	NO	NO	NO
OT	3930	SA	Surface Soil	Chromium	9.56			21.056	24.604	5,110	NO	NO	NO

Notes

1. J = Estimated quantitation based on QC data
2. JB = Estimated quantitation: possibly biased high or a false positive based upon blank data
3. JH = Estimated quantitation: possibly biased high based upon QC data
4. JL = Estimated quantitation: possibly biased low or a false negative based upon QC data
5. JQ = Estimated quantitation: detected below the PQL
6. NE = MSC not established for this analyte

Table 4
Comparison of Cobalt Concentrations in Surface Soils to Background Concentrations
Grounds Maintenance Yard

Sample Number	Sample Type	Analyte	Result	Qualifier	Detection Limit?	$UTL_{95,95}$	$UTL_{95,99}$	MSC	$UTL_{95,95}$ Exceeded?	$UTL_{95,99}$ Exceeded?
OT 3901 SA	Surface Soil	Cobalt	3.57	JQ		11.050	15.687	NE	NO	NO
OT 3902 SA	Surface Soil	Cobalt	2.77	JQ		11.050	15.687	NE	NO	NO
OT 3903 SA	Surface Soil	Cobalt	3.22	JQ		11.050	15.687	NE	NO	NO
OT 3904 SA	Surface Soil	Cobalt	2.14	JQ		11.050	15.687	NE	NO	NO
OT 3905 SA	Surface Soil	Cobalt	2.27	JQ		11.050	15.687	NE	NO	NO
OT 3906 SA	Surface Soil	Cobalt	1.15	JQ		11.050	15.687	NE	NO	NO
OT 3907 SA	Surface Soil	Cobalt	1.54	JQ		11.050	15.687	NE	NO	NO
OT 3908 SA	Surface Soil	Cobalt	1.36	JQ		11.050	15.687	NE	NO	NO
OT 3909 SA	Surface Soil	Cobalt	2.17	JQ		11.050	15.687	NE	NO	NO
OT 3910 SA	Surface Soil	Cobalt	2.42	JQ		11.050	15.687	NE	NO	NO
OT 3911 SA	Surface Soil	Cobalt	3.16	JQ		11.050	15.687	NE	NO	NO
OT 3912 SA	Surface Soil	Cobalt	2.57	JQ		11.050	15.687	NE	NO	NO
OT 3913 SA	Surface Soil	Cobalt	2.03	JQ		11.050	15.687	NE	NO	NO
OT 3914 SA	Surface Soil	Cobalt	2.51	JQ		11.050	15.687	NE	NO	NO
OT 3915 SA	Surface Soil	Cobalt	1.78	JQ		11.050	15.687	NE	NO	NO
OT 3916 SA	Surface Soil	Cobalt	2.48	JQ		11.050	15.687	NE	NO	NO
OT 3917 SA	Surface Soil	Cobalt	3.94	JQ		11.050	15.687	NE	NO	NO
OT 3918 SA	Surface Soil	Cobalt	2.48	JQ		11.050	15.687	NE	NO	NO
OT 3919 SA	Surface Soil	Cobalt	1.09	JQ		11.050	15.687	NE	NO	NO
OT 3920 SA	Surface Soil	Cobalt	2.69	JQ		11.050	15.687	NE	NO	NO
OT 3921 SA	Surface Soil	Cobalt	1.07	JQ		11.050	15.687	NE	NO	NO
OT 3922 SA	Surface Soil	Cobalt	2.60	JQ		11.050	15.687	NE	NO	NO
OT 3923 SA	Surface Soil	Cobalt	1.24	JQ		11.050	15.687	NE	NO	NO
OT 3924 SA	Surface Soil	Cobalt	1.59	JQ		11.050	15.687	NE	NO	NO
OT 3925 SA	Surface Soil	Cobalt	2.59	JQ		11.050	15.687	NE	NO	NO
OT 3926 SA	Surface Soil	Cobalt	2.71	JQ		11.050	15.687	NE	NO	NO
OT 3927 SA	Surface Soil	Cobalt	3.47	JQ		11.050	15.687	NE	NO	NO
OT 3928 SA	Surface Soil	Cobalt	3.03	JQ		11.050	15.687	NE	NO	NO
OT 3929 SA	Surface Soil	Cobalt	3.75	JQ		11.050	15.687	NE	NO	NO
OT 3930 SA	Surface Soil	Cobalt	4.08	JQ		11.050	15.687	NE	NO	NO

Notes

1. J = Estimated quantitation based on QC data
2. JB = Estimated quantitation: possibly biased high or a false positive based upon blank data.
3. JH = Estimated quantitation: possibly biased high based upon QC data
4. JL = Estimated quantitation: possibly biased low or a false negative based upon QC data.
5. JQ = Estimated quantitation: detected below the PQL.
6. NE = MSC not established for this analyte

Table 4
Comparison of Copper Concentrations in Surface Soils to Background Concentrations
Grounds Maintenance Yard

Sample Number			Sample Type	Analyte	Result	Qualifier	Detection Limit?	$UTL_{95,95}$	$UTL_{95,99}$	MSC	$UTL_{95,95}$ Exceeded?	$UTL_{95,99}$ Exceeded?
OT	3901	SA	Surface Soil	Copper	9.04			17.373	19.883	NE	NO	NO
OT	3902	SA	Surface Soil	Copper	5.87	JQ		17.373	19.883	NE	NO	NO
OT	3903	SA	Surface Soil	Copper	8.91			17.373	19.883	NE	NO	NO
OT	3904	SA	Surface Soil	Copper	8.03	JQ		17.373	19.883	NE	NO	NO
OT	3905	SA	Surface Soil	Copper	19.1			17.373	19.883	NE	YES	NO
OT	3906	SA	Surface Soil	Copper	24.8	JQ		17.373	19.883	NE	YES	YES
OT	3907	SA	Surface Soil	Copper	9.06			17.373	19.883	NE	NO	NO
OT	3908	SA	Surface Soil	Copper	7.28	JQ		17.373	19.883	NE	NO	NO
OT	3909	SA	Surface Soil	Copper	4.34	JQ		17.373	19.883	NE	NO	NO
OT	3910	SA	Surface Soil	Copper	4.48	JQ		17.373	19.883	NE	NO	NO
OT	3911	SA	Surface Soil	Copper	9.59	JQ		17.373	19.883	NE	NO	NO
OT	3912	SA	Surface Soil	Copper	7.46	JQ		17.373	19.883	NE	NO	NO
OT	3913	SA	Surface Soil	Copper	8.84	JQ		17.373	19.883	NE	NO	NO
OT	3914	SA	Surface Soil	Copper	12.1	JQ		17.373	19.883	NE	NO	NO
OT	3915	SA	Surface Soil	Copper	8.03	JQ		17.373	19.883	NE	NO	NO
OT	3916	SA	Surface Soil	Copper	9.92	JQ		17.373	19.883	NE	NO	NO
OT	3917	SA	Surface Soil	Copper	9.35			17.373	19.883	NE	NO	NO
OT	3918	SA	Surface Soil	Copper	8.21			17.373	19.883	NE	NO	NO
OT	3919	SA	Surface Soil	Copper	21.9			17.373	19.883	NE	YES	YES
OT	3920	SA	Surface Soil	Copper	3.48	JH		17.373	19.883	NE	NO	NO
OT	3921	SA	Surface Soil	Copper	8.29	JQ		17.373	19.883	NE	NO	NO
OT	3922	SA	Surface Soil	Copper	10.6	JQ		17.373	19.883	NE	NO	NO
OT	3923	SA	Surface Soil	Copper	16.3	JQ		17.373	19.883	NE	NO	NO
OT	3924	SA	Surface Soil	Copper	21.8	JQ		17.373	19.883	NE	YES	YES
OT	3925	SA	Surface Soil	Copper	9.81			17.373	19.883	NE	NO	NO
OT	3926	SA	Surface Soil	Copper	9.93	JQ		17.373	19.883	NE	NO	NO
OT	3927	SA	Surface Soil	Copper	13.0			17.373	19.883	NE	NO	NO
OT	3928	SA	Surface Soil	Copper	10.7	JQ		17.373	19.883	NE	NO	NO
OT	3929	SA	Surface Soil	Copper	9.84			17.373	19.883	NE	NO	NO
OT	3930	SA	Surface Soil	Copper	9.47			17.373	19.883	NE	NO	NO

Notes

1. J = Estimated quantitation based on QC data.
2. JB = Estimated quantitation: possibly biased high or a false positive based upon blank data.
3. JH = Estimated quantitation: possibly biased high based upon QC data.
4. JL = Estimated quantitation: possibly biased low or a false negative based upon QC data.
5. JQ = Estimated quantitation: detected below the PQL.
6. NE = MSC not established for this analyte

Table 4
Comparison of Iron Concentrations in Surface Soils to Background Concentrations
Grounds Maintenance Yard

Sample Number	Sample Type	Analyte	Result	Qualifier	Detection Limit?	$UTL_{95,95}$	$UTL_{95,99}$	MSC	$UTL_{95,95}$ Exceeded?	$UTL_{95,99}$ Exceeded?
OT 3901 SA	Surface Soil	Iron	10,800			17,717	20,574	NE	NO	NO
OT 3902 SA	Surface Soil	Iron	7,090			17,717	20,574	NE	NO	NO
OT 3903 SA	Surface Soil	Iron	6,680			17,717	20,574	NE	NO	NO
OT 3904 SA	Surface Soil	Iron	4,200			17,717	20,574	NE	NO	NO
OT 3905 SA	Surface Soil	Iron	5,410			17,717	20,574	NE	NO	NO
OT 3906 SA	Surface Soil	Iron	4,550			17,717	20,574	NE	NO	NO
OT 3907 SA	Surface Soil	Iron	4,210			17,717	20,574	NE	NO	NO
OT 3908 SA	Surface Soil	Iron	3,750			17,717	20,574	NE	NO	NO
OT 3909 SA	Surface Soil	Iron	5,470			17,717	20,574	NE	NO	NO
OT 3910 SA	Surface Soil	Iron	4,580			17,717	20,574	NE	NO	NO
OT 3911 SA	Surface Soil	Iron	6,830			17,717	20,574	NE	NO	NO
OT 3912 SA	Surface Soil	Iron	4,090			17,717	20,574	NE	NO	NO
OT 3913 SA	Surface Soil	Iron	4,390			17,717	20,574	NE	NO	NO
OT 3914 SA	Surface Soil	Iron	5,300			17,717	20,574	NE	NO	NO
OT 3915 SA	Surface Soil	Iron	5,160			17,717	20,574	NE	NO	NO
OT 3916 SA	Surface Soil	Iron	6,240			17,717	20,574	NE	NO	NO
OT 3917 SA	Surface Soil	Iron	7,730			17,717	20,574	NE	NO	NO
OT 3918 SA	Surface Soil	Iron	6,570			17,717	20,574	NE	NO	NO
OT 3919 SA	Surface Soil	Iron	4,920			17,717	20,574	NE	NO	NO
OT 3920 SA	Surface Soil	Iron	5,240			17,717	20,574	NE	NO	NO
OT 3921 SA	Surface Soil	Iron	5,280			17,717	20,574	NE	NO	NO
OT 3922 SA	Surface Soil	Iron	7,920			17,717	20,574	NE	NO	NO
OT 3923 SA	Surface Soil	Iron	8,570			17,717	20,574	NE	NO	NO
OT 3924 SA	Surface Soil	Iron	4,620			17,717	20,574	NE	NO	NO
OT 3925 SA	Surface Soil	Iron	6,910			17,717	20,574	NE	NO	NO
OT 3926 SA	Surface Soil	Iron	5,930			17,717	20,574	NE	NO	NO
OT 3927 SA	Surface Soil	Iron	6,790			17,717	20,574	NE	NO	NO
OT 3928 SA	Surface Soil	Iron	9,630	J		17,717	20,574	NE	NO	NO
OT 3929 SA	Surface Soil	Iron	7,590			17,717	20,574	NE	NO	NO
OT 3930 SA	Surface Soil	Iron	7,480			17,717	20,574	NE	NO	NO

Notes

1. J = Estimated quantitation based on QC data
2. JB = Estimated quantitation: possibly biased high or a false positive based upon blank data
3. JH = Estimated quantitation: possibly biased high based upon QC data
4. JL = Estimated quantitation: possibly biased low or a false negative based upon QC data
5. JQ = Estimated quantitation: detected below the PQL.
6. NE = MSC not established for this analyte.

Table 4
Comparison of Lead Concentrations in Surface Soils to Background Concentrations
Grounds Maintenance Yard

Sample Number			Sample Type	Analyte	Result	Qualifier	Detection Limit?	$UTL_{95.95}$	$UTL_{95.99}$	SAI-Ind MSC	$UTL_{95.95}$ Exceeded?	$UTL_{95.99}$ Exceeded?	MSC Exceeded?
OT	3901	SA	Surface Soil	Lead	12.4			30.97	42.397	1,000	NO	NO	NO
OT	3902	SA	Surface Soil	Lead	10.1			30.97	42.397	1,000	NO	NO	NO
OT	3903	SA	Surface Soil	Lead	15.5	JH		30.97	42.397	1,000	NO	NO	NO
OT	3904	SA	Surface Soil	Lead	5.87			30.97	42.397	1,000	NO	NO	NO
OT	3905	SA	Surface Soil	Lead	71.9			30.97	42.397	1,000	YES	YES	NO
OT	3906	SA	Surface Soil	Lead	10.1			30.97	42.397	1,000	NO	NO	NO
OT	3907	SA	Surface Soil	Lead	44.6			30.97	42.397	1,000	YES	YES	NO
OT	3908	SA	Surface Soil	Lead	5.92			30.97	42.397	1,000	NO	NO	NO
OT	3909	SA	Surface Soil	Lead	25.6			30.97	42.397	1,000	NO	NO	NO
OT	3910	SA	Surface Soil	Lead	6.59			30.97	42.397	1,000	NO	NO	NO
OT	3911	SA	Surface Soil	Lead	20.2			30.97	42.397	1,000	NO	NO	NO
OT	3912	SA	Surface Soil	Lead	10.1			30.97	42.397	1,000	NO	NO	NO
OT	3913	SA	Surface Soil	Lead	6.66			30.97	42.397	1,000	NO	NO	NO
OT	3914	SA	Surface Soil	Lead	8.48			30.97	42.397	1,000	NO	NO	NO
OT	3915	SA	Surface Soil	Lead	9.19			30.97	42.397	1,000	NO	NO	NO
OT	3916	SA	Surface Soil	Lead	20.3	JH		30.97	42.397	1,000	NO	NO	NO
OT	3917	SA	Surface Soil	Lead	7.96			30.97	42.397	1,000	NO	NO	NO
OT	3918	SA	Surface Soil	Lead	14.9			30.97	42.397	1,000	NO	NO	NO
OT	3919	SA	Surface Soil	Lead	11.3			30.97	42.397	1,000	NO	NO	NO
OT	3920	SA	Surface Soil	Lead	46.7			30.97	42.397	1,000	YES	YES	NO
OT	3921	SA	Surface Soil	Lead	14.6			30.97	42.397	1,000	NO	NO	NO
OT	3922	SA	Surface Soil	Lead	9.11			30.97	42.397	1,000	NO	NO	NO
OT	3923	SA	Surface Soil	Lead	33.1			30.97	42.397	1,000	YES	NO	NO
OT	3924	SA	Surface Soil	Lead	14.0			30.97	42.397	1,000	NO	NO	NO
OT	3925	SA	Surface Soil	Lead	8.67			30.97	42.397	1,000	NO	NO	NO
OT	3926	SA	Surface Soil	Lead	8.57			30.97	42.397	1,000	NO	NO	NO
OT	3927	SA	Surface Soil	Lead	22.9			30.97	42.397	1,000	NO	NO	NO
OT	3928	SA	Surface Soil	Lead	86.0	J		30.97	42.397	1,000	YES	YES	NO
OT	3929	SA	Surface Soil	Lead	8.02			30.97	42.397	1,000	NO	NO	NO
OT	3930	SA	Surface Soil	Lead	10.0	J		30.97	42.397	1,000	NO	NO	NO

Notes

1. J = Estimated quantitation based on QC data.
2. JB = Estimated quantitation: possibly biased high or a false positive based upon blank data
3. JH = Estimated quantitation: possibly biased high based upon QC data.
4. JL = Estimated quantitation: possibly biased low or a false negative based upon QC data.
5. JQ = Estimated quantitation: detected below the PQL
6. NE = MSC not established for this analyte

Table 4
Comparison of Magnesium Concentrations in Surface Soils to Background Concentrations
Grounds Maintenance Yard

Sample Number	Sample Type	Analyte	Result	Qualifier	Detection Limit?	$UTL_{95,95}$	$UTL_{95,99}$	MSC	$UTL_{95,95}$ Exceeded?	$UTL_{95,99}$ Exceeded?
OT 3901 SA	Surface Soil	Magnesium	1,790			3,003	3,624	NE	NO	NO
OT 3902 SA	Surface Soil	Magnesium	2,370			3,003	3,624	NE	NO	NO
OT 3903 SA	Surface Soil	Magnesium	2,390			3,003	3,624	NE	NO	NO
OT 3904 SA	Surface Soil	Magnesium	2,250			3,003	3,624	NE	NO	NO
OT 3905 SA	Surface Soil	Magnesium	1,420			3,003	3,624	NE	NO	NO
OT 3906 SA	Surface Soil	Magnesium	1,770			3,003	3,624	NE	NO	NO
OT 3907 SA	Surface Soil	Magnesium	1,450			3,003	3,624	NE	NO	NO
OT 3908 SA	Surface Soil	Magnesium	1,420			3,003	3,624	NE	NO	NO
OT 3909 SA	Surface Soil	Magnesium	1,860			3,003	3,624	NE	NO	NO
OT 3910 SA	Surface Soil	Magnesium	2,080			3,003	3,624	NE	NO	NO
OT 3911 SA	Surface Soil	Magnesium	2,260			3,003	3,624	NE	NO	NO
OT 3912 SA	Surface Soil	Magnesium	1,930			3,003	3,624	NE	NO	NO
OT 3913 SA	Surface Soil	Magnesium	2,100			3,003	3,624	NE	NO	NO
OT 3914 SA	Surface Soil	Magnesium	2,000			3,003	3,624	NE	NO	NO
OT 3915 SA	Surface Soil	Magnesium	1,830			3,003	3,624	NE	NO	NO
OT 3916 SA	Surface Soil	Magnesium	2,080			3,003	3,624	NE	NO	NO
OT 3917 SA	Surface Soil	Magnesium	2,160			3,003	3,624	NE	NO	NO
OT 3918 SA	Surface Soil	Magnesium	2,140			3,003	3,624	NE	NO	NO
OT 3919 SA	Surface Soil	Magnesium	2,150			3,003	3,624	NE	NO	NO
OT 3920 SA	Surface Soil	Magnesium	1,670			3,003	3,624	NE	NO	NO
OT 3921 SA	Surface Soil	Magnesium	1,770			3,003	3,624	NE	NO	NO
OT 3922 SA	Surface Soil	Magnesium	2,630			3,003	3,624	NE	NO	NO
OT 3923 SA	Surface Soil	Magnesium	2,210			3,003	3,624	NE	NO	NO
OT 3924 SA	Surface Soil	Magnesium	2,480			3,003	3,624	NE	NO	NO
OT 3925 SA	Surface Soil	Magnesium	2,140			3,003	3,624	NE	NO	NO
OT 3926 SA	Surface Soil	Magnesium	2,020			3,003	3,624	NE	NO	NO
OT 3927 SA	Surface Soil	Magnesium	2,260			3,003	3,624	NE	NO	NO
OT 3928 SA	Surface Soil	Magnesium	2,310			3,003	3,624	NE	NO	NO
OT 3929 SA	Surface Soil	Magnesium	3,140			3,003	3,624	NE	YES	NO
OT 3930 SA	Surface Soil	Magnesium	2,380			3,003	3,624	NE	NO	NO

Notes

1. J = Estimated quantitation based on QC data
2. JB = Estimated quantitation: possibly biased high or a false positive based upon blank data.
3. JH = Estimated quantitation: possibly biased high based upon QC data
4. JL = Estimated quantitation: possibly biased low or a false negative based upon QC data.
5. JQ = Estimated quantitation: detected below the PQL.
6. NE = MSC not established for this analyte.

Table 4
Comparison of Manganese Concentrations in Surface Soils to Background Concentrations
Grounds Maintenance Yard

Sample Number			Sample Type	Analyte	Result	Qualifier	Detection Limit?	$UTL_{95,95}$	$UTL_{95,99}$	MSC	$UTL_{95,95}$ Exceeded?	$UTL_{95,99}$ Exceeded?
OT	3901	SA	Surface Soil	Manganese	333			849.1	1,271	NE	NO	NO
OT	3902	SA	Surface Soil	Manganese	334			849.1	1,271	NE	NO	NO
OT	3903	SA	Surface Soil	Manganese	315			849.1	1,271	NE	NO	NO
OT	3904	SA	Surface Soil	Manganese	384			849.1	1,271	NE	NO	NO
OT	3905	SA	Surface Soil	Manganese	340			849.1	1,271	NE	NO	NO
OT	3906	SA	Surface Soil	Manganese	271			849.1	1,271	NE	NO	NO
OT	3907	SA	Surface Soil	Manganese	332			849.1	1,271	NE	NO	NO
OT	3908	SA	Surface Soil	Manganese	271			849.1	1,271	NE	NO	NO
OT	3909	SA	Surface Soil	Manganese	379			849.1	1,271	NE	NO	NO
OT	3910	SA	Surface Soil	Manganese	447			849.1	1,271	NE	NO	NO
OT	3911	SA	Surface Soil	Manganese	493			849.1	1,271	NE	NO	NO
OT	3912	SA	Surface Soil	Manganese	418			849.1	1,271	NE	NO	NO
OT	3913	SA	Surface Soil	Manganese	406			849.1	1,271	NE	NO	NO
OT	3914	SA	Surface Soil	Manganese	332			849.1	1,271	NE	NO	NO
OT	3915	SA	Surface Soil	Manganese	302			849.1	1,271	NE	NO	NO
OT	3916	SA	Surface Soil	Manganese	321			849.1	1,271	NE	NO	NO
OT	3917	SA	Surface Soil	Manganese	313			849.1	1,271	NE	NO	NO
OT	3918	SA	Surface Soil	Manganese	313			849.1	1,271	NE	NO	NO
OT	3919	SA	Surface Soil	Manganese	310			849.1	1,271	NE	NO	NO
OT	3920	SA	Surface Soil	Manganese	328			849.1	1,271	NE	NO	NO
OT	3921	SA	Surface Soil	Manganese	273			849.1	1,271	NE	NO	NO
OT	3922	SA	Surface Soil	Manganese	222			849.1	1,271	NE	NO	NO
OT	3923	SA	Surface Soil	Manganese	163			849.1	1,271	NE	NO	NO
OT	3924	SA	Surface Soil	Manganese	372			849.1	1,271	NE	NO	NO
OT	3925	SA	Surface Soil	Manganese	220			849.1	1,271	NE	NO	NO
OT	3926	SA	Surface Soil	Manganese	275			849.1	1,271	NE	NO	NO
OT	3927	SA	Surface Soil	Manganese	279			849.1	1,271	NE	NO	NO
OT	3928	SA	Surface Soil	Manganese	381			849.1	1,271	NE	NO	NO
OT	3929	SA	Surface Soil	Manganese	322			849.1	1,271	NE	NO	NO
OT	3930	SA	Surface Soil	Manganese	397			849.1	1,271	NE	NO	NO

Notes

1. J = Estimated quantitation based on QC data
2. JB = Estimated quantitation: possibly biased high or a false positive based upon blank data.
3. JH = Estimated quantitation: possibly biased high based upon QC data
4. JL = Estimated quantitation: possibly biased low or a false negative based upon QC data.
5. JQ = Estimated quantitation: detected below the PQL
6. NE = MSC not established for this analyte.

Table 4

Comparison of Molybdenum Concentrations in Surface Soils to Background Concentrations
Grounds Maintenance Yard

Sample Number			Sample Type	Analyte	Result	Qualifier	Detection Limit?	UTL $_{95,95}$	MSC	UTL $_{95,95}$ Exceeded?
OT	3901	SA	Surface Soil	Molybdenum	1.43	JQ		1.460	NE	NO
OT	3902	SA	Surface Soil	Molybdenum	1.59	JQ		1.460	NE	YES
OT	3903	SA	Surface Soil	Molybdenum	0		<4.60	1.460	NE	NO
OT	3904	SA	Surface Soil	Molybdenum	0		<4.46	1.460	NE	NO
OT	3905	SA	Surface Soil	Molybdenum	1.91	JQ		1.460	NE	YES
OT	3906	SA	Surface Soil	Molybdenum	1.43	JQ		1.460	NE	NO
OT	3907	SA	Surface Soil	Molybdenum	0		<4.53	1.460	NE	NO
OT	3908	SA	Surface Soil	Molybdenum	0		<4.55	1.460	NE	NO
OT	3909	SA	Surface Soil	Molybdenum	0		<4.34	1.460	NE	NO
OT	3910	SA	Surface Soil	Molybdenum	1.52	JQ		1.460	NE	YES
OT	3911	SA	Surface Soil	Molybdenum	2.30	JQ		1.460	NE	YES
OT	3912	SA	Surface Soil	Molybdenum	0		<4.14	1.460	NE	NO
OT	3913	SA	Surface Soil	Molybdenum	1.86	JL		1.460	NE	NO
OT	3914	SA	Surface Soil	Molybdenum	0		<4.64	1.460	NE	YES
OT	3915	SA	Surface Soil	Molybdenum	0		<4.46	1.460	NE	NO
OT	3916	SA	Surface Soil	Molybdenum	0		<4.14	1.460	NE	NO
OT	3917	SA	Surface Soil	Molybdenum	2.02			1.460	NE	YES
OT	3918	SA	Surface Soil	Molybdenum	2.31	JQ		1.460	NE	YES
OT	3919	SA	Surface Soil	Molybdenum	1.25	JQ		1.460	NE	NO
OT	3920	SA	Surface Soil	Molybdenum	0		<4.34	1.460	NE	NO
OT	3921	SA	Surface Soil	Molybdenum	1.41	JQ		1.460	NE	NO
OT	3922	SA	Surface Soil	Molybdenum	0		<4.06	1.460	NE	NO
OT	3923	SA	Surface Soil	Molybdenum	1.53	JQ		1.460	NE	YES
OT	3924	SA	Surface Soil	Molybdenum	0		<4.18	1.460	NE	NO
OT	3925	SA	Surface Soil	Molybdenum	0		<4.46	1.460	NE	NO
OT	3926	SA	Surface Soil	Molybdenum	0		<4.52	1.460	NE	NO
OT	3927	SA	Surface Soil	Molybdenum	0		<4.23	1.460	NE	NO
OT	3928	SA	Surface Soil	Molybdenum	1.72	JQ		1.460	NE	YES
OT	3929	SA	Surface Soil	Molybdenum	2.26	JQ		1.460	NE	YES
OT	3930	SA	Surface Soil	Molybdenum	0	JL	<4.64	1.460	NE	NO

Notes:

1. J = Estimated quantitation based on QC data.
2. JB = Estimated quantitation: possibly biased high or a false positive based upon blank data.
3. JH = Estimated quantitation: possibly biased high based upon QC data.
4. JL = Estimated quantitation: possibly biased low or a false negative based upon QC data.
5. JQ = Estimated quantitation: detected below the PQL.
6. NE = MSC not established for this analyte.
7. Comparison to UTL $_{95,99}$ not possible because UTL was established as the highest value in the background dataset.

Table 4
Comparison of Nickel Concentrations in Surface Soils to Background Concentrations
Grounds Maintenance Yard

Sample Number			Sample Type	Analyte	Result	Qualifier	Detection Limit?	UTL $_{95,95}$	SAI-Ind MSC	UTL $_{95,95}$ Exceeded?	MSC Exceeded?
OT	3901	SA	Surface Soil	Nickel	8.72			14.6	20,400	NO	NO
OT	3902	SA	Surface Soil	Nickel	114			14.6	20,400	YES	NO
OT	3903	SA	Surface Soil	Nickel	7.35			14.6	20,400	NO	NO
OT	3904	SA	Surface Soil	Nickel	235			14.6	20,400	YES	NO
OT	3905	SA	Surface Soil	Nickel	242			14.6	20,400	YES	NO
OT	3906	SA	Surface Soil	Nickel	153			14.6	20,400	YES	NO
OT	3907	SA	Surface Soil	Nickel	239			14.6	20,400	YES	NO
OT	3908	SA	Surface Soil	Nickel	243			14.6	20,400	YES	NO
OT	3909	SA	Surface Soil	Nickel	231			14.6	20,400	YES	NO
OT	3910	SA	Surface Soil	Nickel	238			14.6	20,400	YES	NO
OT	3911	SA	Surface Soil	Nickel	257			14.6	20,400	YES	NO
OT	3912	SA	Surface Soil	Nickel	222			14.6	20,400	YES	NO
OT	3913	SA	Surface Soil	Nickel	236			14.6	20,400	YES	NO
OT	3914	SA	Surface Soil	Nickel	249			14.6	20,400	YES	NO
OT	3915	SA	Surface Soil	Nickel	240			14.6	20,400	YES	NO
OT	3916	SA	Surface Soil	Nickel	222			14.6	20,400	YES	NO
OT	3917	SA	Surface Soil	Nickel	6.60			14.6	20,400	NO	NO
OT	3918	SA	Surface Soil	Nickel	6.58			14.6	20,400	NO	NO
OT	3919	SA	Surface Soil	Nickel	126			14.6	20,400	YES	NO
OT	3920	SA	Surface Soil	Nickel	233			14.6	20,400	YES	NO
OT	3921	SA	Surface Soil	Nickel	134			14.6	20,400	YES	NO
OT	3922	SA	Surface Soil	Nickel	114			14.6	20,400	YES	NO
OT	3923	SA	Surface Soil	Nickel	155			14.6	20,400	YES	NO
OT	3924	SA	Surface Soil	Nickel	135			14.6	20,400	YES	NO
OT	3925	SA	Surface Soil	Nickel	7.76			14.6	20,400	NO	NO
OT	3926	SA	Surface Soil	Nickel	65.8			14.6	20,400	YES	NO
OT	3927	SA	Surface Soil	Nickel	7.61			14.6	20,400	NO	NO
OT	3928	SA	Surface Soil	Nickel	116	J		14.6	20,400	YES	NO
OT	3929	SA	Surface Soil	Nickel	8.88			14.6	20,400	NO	NO
OT	3930	SA	Surface Soil	Nickel	8.44			14.6	20,400	NO	NO

Notes

1 J = Estimated quantitation based on QC data.
2 JB = Estimated quantitation: possibly biased high or a false positive based upon blank data.
3 JH = Estimated quantitation: possibly biased high based upon QC data.
4 JL = Estimated quantitation: possibly biased low or a false negative based upon QC data.
5 JQ = Estimated quantitation: detected below the PQL.
6 NE = MSC not established for this analyte.
7 Comparison to UTL $_{95,99}$ not possible because UTL was established as the highest value in the background dataset

Table 4
Comparison of Potassium Concentrations in Surface Soils to Background Concentrations
Grounds Maintenance Yard

Sample Number			Sample Type	Analyte	Result	Qualifier	Detection Limit?	$UTL_{95,95}$	$UTL_{95,99}$	MSC	$UTL_{95,95}$ Exceeded?	$UTL_{95,99}$ Exceeded?
OT	3901	SA	Surface Soil	Potassium	2,170	JH		2,895	4,099	NE	NO	NO
OT	3902	SA	Surface Soil	Potassium	1,480			2,895	4,099	NE	NO	NO
OT	3903	SA	Surface Soil	Potassium	1,500			2,895	4,099	NE	NO	NO
OT	3904	SA	Surface Soil	Potassium	1,100	JH		2,895	4,099	NE	NO	NO
OT	3905	SA	Surface Soil	Potassium	1,010			2,895	4,099	NE	NO	NO
OT	3906	SA	Surface Soil	Potassium	869			2,895	4,099	NE	NO	NO
OT	3907	SA	Surface Soil	Potassium	1,370	JH		2,895	4,099	NE	NO	NO
OT	3908	SA	Surface Soil	Potassium	831			2,895	4,099	NE	NO	NO
OT	3909	SA	Surface Soil	Potassium	995			2,895	4,099	NE	NO	NO
OT	3910	SA	Surface Soil	Potassium	792			2,895	4,099	NE	NO	NO
OT	3911	SA	Surface Soil	Potassium	1,930			2,895	4,099	NE	NO	NO
OT	3912	SA	Surface Soil	Potassium	977			2,895	4,099	NE	NO	NO
OT	3913	SA	Surface Soil	Potassium	1,120			2,895	4,099	NE	NO	NO
OT	3914	SA	Surface Soil	Potassium	1,390			2,895	4,099	NE	NO	NO
OT	3915	SA	Surface Soil	Potassium	991			2,895	4,099	NE	NO	NO
OT	3916	SA	Surface Soil	Potassium	1,120			2,895	4,099	NE	NO	NO
OT	3917	SA	Surface Soil	Potassium	1,840			2,895	4,099	NE	NO	NO
OT	3918	SA	Surface Soil	Potassium	1,740			2,895	4,099	NE	NO	NO
OT	3919	SA	Surface Soil	Potassium	738			2,895	4,099	NE	NO	NO
OT	3920	SA	Surface Soil	Potassium	1,170			2,895	4,099	NE	NO	NO
OT	3921	SA	Surface Soil	Potassium	984			2,895	4,099	NE	NO	NO
OT	3922	SA	Surface Soil	Potassium	1,970			2,895	4,099	NE	NO	NO
OT	3923	SA	Surface Soil	Potassium	1,860			2,895	4,099	NE	NO	NO
OT	3924	SA	Surface Soil	Potassium	1,130			2,895	4,099	NE	NO	NO
OT	3925	SA	Surface Soil	Potassium	1,660			2,895	4,099	NE	NO	NO
OT	3926	SA	Surface Soil	Potassium	1,580			2,895	4,099	NE	NO	NO
OT	3927	SA	Surface Soil	Potassium	2,010			2,895	4,099	NE	NO	NO
OT	3928	SA	Surface Soil	Potassium	2,060			2,895	4,099	NE	NO	NO
OT	3929	SA	Surface Soil	Potassium	2,290			2,895	4,099	NE	NO	NO
OT	3930	SA	Surface Soil	Potassium	2,000			2,895	4,099	NE	NO	NO

Notes

1. J = Estimated quantitation based on QC data
2. JB = Estimated quantitation: possibly biased high or a false positive based upon blank data.
3. JH = Estimated quantitation: possibly biased high based upon QC data
4. JL = Estimated quantitation: possibly biased low or a false negative based upon QC data
5. JQ = Estimated quantitation: detected below the PQL
6. NE = MSC not established for this analyte

Table 4
Comparison of Selenium Concentrations in Surface Soils to Background Concentrations
Grounds Maintenance Yard

Sample Number	Sample Type	Analyte	Result	Qualifier	Detection Limit?	$UTL_{95,95}$	$UTL_{95,99}$	SAI-Ind MSC	$UTL_{95,95}$ Exceeded?	$UTL_{95,99}$ Exceeded?	MSC Exceeded?
OT 3901 SA	Surface Soil	Selenium		JL	<0.426	0.9072	1.714	10,200	NO	NO	NO
OT 3902 SA	Surface Soil	Selenium			<2.16	0.9072	1.714	10,200	NO	NO	NO
OT 3903 SA	Surface Soil	Selenium		JL	<2.35	0.9072	1.714	10,200	NO	NO	NO
OT 3904 SA	Surface Soil	Selenium		JL	<2.18	0.9072	1.714	10,200	NO	NO	NO
OT 3905 SA	Surface Soil	Selenium			<0.454	0.9072	1.714	10,200	NO	NO	NO
OT 3906 SA	Surface Soil	Selenium	0.310	JQ		0.9072	1.714	10,200	NO	NO	NO
OT 3907 SA	Surface Soil	Selenium			<2.33	0.9072	1.714	10,200	NO	NO	NO
OT 3908 SA	Surface Soil	Selenium	0.478	JQ		0.9072	1.714	10,200	NO	NO	NO
OT 3909 SA	Surface Soil	Selenium	0.562	JQ		0.9072	1.714	10,200	NO	NO	NO
OT 3910 SA	Surface Soil	Selenium	0.488	JQ		0.9072	1.714	10,200	NO	NO	NO
OT 3911 SA	Surface Soil	Selenium			<0.469	0.9072	1.714	10,200	NO	NO	NO
OT 3912 SA	Surface Soil	Selenium	0.599	JQ		0.9072	1.714	10,200	NO	NO	NO
OT 3913 SA	Surface Soil	Selenium		JL	<0.452	0.9072	1.714	10,200	NO	NO	NO
OT 3914 SA	Surface Soil	Selenium	0.617	JL		0.9072	1.714	10,200	NO	NO	NO
OT 3915 SA	Surface Soil	Selenium	0.422	JQ		0.9072	1.714	10,200	NO	NO	NO
OT 3916 SA	Surface Soil	Selenium			<0.396	0.9072	1.714	10,200	NO	NO	NO
OT 3917 SA	Surface Soil	Selenium			<0.452	0.9072	1.714	10,200	NO	NO	NO
OT 3918 SA	Surface Soil	Selenium			<0.430	0.9072	1.714	10,200	NO	NO	NO
OT 3919 SA	Surface Soil	Selenium	0.125	JL		0.9072	1.714	10,200	NO	NO	NO
OT 3920 SA	Surface Soil	Selenium		JL	<0.410	0.9072	1.714	10,200	NO	NO	NO
OT 3921 SA	Surface Soil	Selenium	0.0895	JL		0.9072	1.714	10,200	NO	NO	NO
OT 3922 SA	Surface Soil	Selenium			<0.430	0.9072	1.714	10,200	NO	NO	NO
OT 3923 SA	Surface Soil	Selenium		JL	<0.493	0.9072	1.714	10,200	NO	NO	NO
OT 3924 SA	Surface Soil	Selenium	0.104	JL		0.9072	1.714	10,200	NO	NO	NO
OT 3925 SA	Surface Soil	Selenium			<0.460	0.9072	1.714	10,200	NO	NO	NO
OT 3926 SA	Surface Soil	Selenium	0.458	JQ		0.9072	1.714	10,200	NO	NO	NO
OT 3927 SA	Surface Soil	Selenium			<0.412	0.9072	1.714	10,200	NO	NO	NO
OT 3928 SA	Surface Soil	Selenium			<0.453	0.9072	1.714	10,200	NO	NO	NO
OT 3929 SA	Surface Soil	Selenium			<0.415	0.9072	1.714	10,200	NO	NO	NO
OT 3930 SA	Surface Soil	Selenium		JL	<0.468	0.9072	1.714	10,200	NO	NO	NO

Notes

1. J = Estimated quantitation based on QC data.
2. JB = Estimated quantitation: possibly biased high or a false positive based upon blank data
3. JH = Estimated quantitation: possibly biased high based upon QC data.
4. JL = Estimated quantitation: possibly biased low or a false negative based upon QC data
5. JQ = Estimated quantitation: detected below the PQL
6. NE = MSC not established for this analyte.

Table 4
Comparison of Sodium Concentrations in Surface Soils to Background Concentrations
Grounds Maintenance Yard

Sample Number	Sample Type	Analyte	Result	Qualifier	Detection Limit?	$UTL_{95,95}$	MSC	$UTL_{95,95}$ Exceeded?
OT 3901 SA	Surface Soil	Sodium	52.0	JB		25,800	NE	NO
OT 3902 SA	Surface Soil	Sodium	70.6			25,800	NE	NO
OT 3903 SA	Surface Soil	Sodium	87.9			25,800	NE	NO
OT 3904 SA	Surface Soil	Sodium	151			25,800	NE	NO
OT 3905 SA	Surface Soil	Sodium	349			25,800	NE	NO
OT 3906 SA	Surface Soil	Sodium	180			25,800	NE	NO
OT 3907 SA	Surface Soil	Sodium	144			25,800	NE	NO
OT 3908 SA	Surface Soil	Sodium	130	JB		25,800	NE	NO
OT 3909 SA	Surface Soil	Sodium	109	JB		25,800	NE	NO
OT 3910 SA	Surface Soil	Sodium	454			25,800	NE	NO
OT 3911 SA	Surface Soil	Sodium	400			25,800	NE	NO
OT 3912 SA	Surface Soil	Sodium	162.0	JB		25,800	NE	NO
OT 3913 SA	Surface Soil	Sodium	342			25,800	NE	NO
OT 3914 SA	Surface Soil	Sodium	146	JB		25,800	NE	NO
OT 3915 SA	Surface Soil	Sodium	134	JB		25,800	NE	NO
OT 3916 SA	Surface Soil	Sodium	107	JB		25,800	NE	NO
OT 3917 SA	Surface Soil	Sodium	550			25,800	NE	NO
OT 3918 SA	Surface Soil	Sodium	383			25,800	NE	NO
OT 3919 SA	Surface Soil	Sodium	113	JB		25,800	NE	NO
OT 3920 SA	Surface Soil	Sodium	121	JB		25,800	NE	NO
OT 3921 SA	Surface Soil	Sodium	92.4	JB		25,800	NE	NO
OT 3922 SA	Surface Soil	Sodium	216	JB		25,800	NE	NO
OT 3923 SA	Surface Soil	Sodium	81.8	JB		25,800	NE	NO
OT 3924 SA	Surface Soil	Sodium	147	JB		25,800	NE	NO
OT 3925 SA	Surface Soil	Sodium	132	JB		25,800	NE	NO
OT 3926 SA	Surface Soil	Sodium	87.5	JB		25,800	NE	NO
OT 3927 SA	Surface Soil	Sodium	65.6	JB		25,800	NE	NO
OT 3928 SA	Surface Soil	Sodium	103	JB		25,800	NE	NO
OT 3929 SA	Surface Soil	Sodium	126	JB		25,800	NE	NO
OT 3930 SA	Surface Soil	Sodium	216	JB		25,800	NE	NO

Notes:

1. J = Estimated quantitation based on QC data.
2. JB = Estimated quantitation: possibly biased high or a false positive based upon blank data.
3. JH = Estimated quantitation: possibly biased high based upon QC data.
4. JL = Estimated quantitation: possibly biased low or a false negative based upon QC data.
5. JQ = Estimated quantitation: detected below the PQL.
6. NE = MSC not established for this analyte.
7. Comparison to $UTL_{95,99}$ not possible because UTL was established as the highest value in the background dataset.

Table 4
Comparison of Vanadium Concentrations in Surface Soils to Background Concentrations
Grounds Maintenance Yard

Sample Number			Sample Type	Analyte	Result	Qualifier	Detection Limit?	$UTL_{95,95}$	$UTL_{95,99}$	MSC	$UTL_{95,95}$ Exceeded?	$UTL_{95,99}$ Exceeded?
T	3901	SA	Surface Soil	Vanadium	15.4			46.26	54.76	NE	NO	NO
T	3902	SA	Surface Soil	Vanadium	17.4			46.26	54.76	NE	NO	NO
T	3903	SA	Surface Soil	Vanadium	9.93			46.26	54.76	NE	NO	NO
T	3904	SA	Surface Soil	Vanadium	6.87			46.26	54.76	NE	NO	NO
T	3905	SA	Surface Soil	Vanadium	9.64			46.26	54.76	NE	NO	NO
T	3906	SA	Surface Soil	Vanadium	8.4			46.26	54.76	NE	NO	NO
T	3907	SA	Surface Soil	Vanadium	6.8			46.26	54.76	NE	NO	NO
T	3908	SA	Surface Soil	Vanadium	4.64			46.26	54.76	NE	NO	NO
T	3909	SA	Surface Soil	Vanadium	8.41			46.26	54.76	NE	NO	NO
T	3910	SA	Surface Soil	Vanadium	7.70			46.26	54.76	NE	NO	NO
T	3911	SA	Surface Soil	Vanadium	9.11			46.26	54.76	NE	NO	NO
T	3912	SA	Surface Soil	Vanadium	6.38			46.26	54.76	NE	NO	NO
T	3913	SA	Surface Soil	Vanadium	5.83			46.26	54.76	NE	NO	NO
T	3914	SA	Surface Soil	Vanadium	6.96			46.26	54.76	NE	NO	NO
T	3915	SA	Surface Soil	Vanadium	6.78			46.26	54.76	NE	NO	NO
T	3916	SA	Surface Soil	Vanadium	8.52			46.26	54.76	NE	NO	NO
T	3917	SA	Surface Soil	Vanadium	11.6			46.26	54.76	NE	NO	NO
T	3918	SA	Surface Soil	Vanadium	7.18			46.26	54.76	NE	NO	NO
T	3919	SA	Surface Soil	Vanadium	7.12			46.26	54.76	NE	NO	NO
T	3920	SA	Surface Soil	Vanadium	9.99			46.26	54.76	NE	NO	NO
T	3921	SA	Surface Soil	Vanadium	11.3			46.26	54.76	NE	NO	NO
T	3922	SA	Surface Soil	Vanadium	9.84			46.26	54.76	NE	NO	NO
T	3923	SA	Surface Soil	Vanadium	13.8			46.26	54.76	NE	NO	NO
T	3924	SA	Surface Soil	Vanadium	8.79			46.26	54.76	NE	NO	NO
T	3925	SA	Surface Soil	Vanadium	10.3			46.26	54.76	NE	NO	NO
T	3926	SA	Surface Soil	Vanadium	10.1			46.26	54.76	NE	NO	NO
T	3927	SA	Surface Soil	Vanadium	10.5			46.26	54.76	NE	NO	NO
T	3928	SA	Surface Soil	Vanadium	10.7			46.26	54.76	NE	NO	NO
T	3929	SA	Surface Soil	Vanadium	8.45			46.26	54.76	NE	NO	NO
T	3930	SA	Surface Soil	Vanadium	11.0			46.26	54.76	NE	NO	NO

Notes

1. J = Estimated quantitation based on QC data
2. JB = Estimated quantitation: possibly biased high or a false positive based upon blank data.
3. JH = Estimated quantitation: possibly biased high based upon QC data.
4. JL = Estimated quantitation: possibly biased low or a false negative based upon QC data
5. JQ = Estimated quantitation: detected below the PQL.
6. NE = MSC not established for this analyte

Table 4
Comparison of Zinc Concentrations in Surface Soils to Background Concentrations
Grounds Maintenance Yard

Sample Number			Sample Type	Analyte	Result	Qualifier	Detection Limit?	UTL $_{95,95}$	MSC	UTL $_{95,95}$ Exceeded?
OT	3901	SA	Surface Soil	Zinc	20.4			38.8	NE	NO
OT	3902	SA	Surface Soil	Zinc	44.2			38.8	NE	YES
OT	3903	SA	Surface Soil	Zinc	17.3			38.8	NE	NO
OT	3904	SA	Surface Soil	Zinc	78.5			38.8	NE	YES
OT	3905	SA	Surface Soil	Zinc	99.0			38.8	NE	YES
OT	3906	SA	Surface Soil	Zinc	53.2			38.8	NE	YES
OT	3907	SA	Surface Soil	Zinc	91.4			38.8	NE	YES
OT	3908	SA	Surface Soil	Zinc	75.5			38.8	NE	YES
OT	3909	SA	Surface Soil	Zinc	93.0			38.8	NE	YES
OT	3910	SA	Surface Soil	Zinc	76.0			38.8	NE	YES
OT	3911	SA	Surface Soil	Zinc	112			38.8	NE	YES
OT	3912	SA	Surface Soil	Zinc	73.6			38.8	NE	YES
OT	3913	SA	Surface Soil	Zinc	75.1			38.8	NE	YES
OT	3914	SA	Surface Soil	Zinc	81.1			38.8	NE	YES
OT	3915	SA	Surface Soil	Zinc	75.4			38.8	NE	YES
OT	3916	SA	Surface Soil	Zinc	93.0			38.8	NE	YES
OT	3917	SA	Surface Soil	Zinc	25.3			38.8	NE	YES
OT	3918	SA	Surface Soil	Zinc	26.6			38.8	NE	NO
OT	3919	SA	Surface Soil	Zinc	52.7			38.8	NE	NO
OT	3920	SA	Surface Soil	Zinc	95.2	J		38.8	NE	YES
OT	3921	SA	Surface Soil	Zinc	71.2			38.8	NE	YES
OT	3922	SA	Surface Soil	Zinc	48.9			38.8	NE	YES
OT	3923	SA	Surface Soil	Zinc	58.8			38.8	NE	YES
OT	3924	SA	Surface Soil	Zinc	105			38.8	NE	YES
OT	3925	SA	Surface Soil	Zinc	32.4	J		38.8	NE	NO
OT	3926	SA	Surface Soil	Zinc	34.6			38.8	NE	NO
OT	3927	SA	Surface Soil	Zinc	44.3			38.8	NE	YES
OT	3928	SA	Surface Soil	Zinc	87.4	J		38.8	NE	YES
OT	3929	SA	Surface Soil	Zinc	18.4			38.8	NE	NO
OT	3930	SA	Surface Soil	Zinc	18.6			38.8	NE	NO

Notes:

1. J = Estimated quantitation based on QC data.
2. JB = Estimated quantitation: possibly biased high or a false positive based upon blank data.
3. JH = Estimated quantitation: possibly biased high based upon QC data.
4. JL = Estimated quantitation: possibly biased low or a false negative based upon QC data.
5. JQ = Estimated quantitation: detected below the PQL.
6. NE = MSC not established for this analyte.
7. Comparison to UTL $_{95,99}$ not possible because UTL was established as the highest value in the background dataset.

TAB

3

Final Report
Demolition and Removal of Structures/Disposal of Transformers With PCB Oil at Grounds Maintenance Yard NAS JRB Fort Worth, TX Unified Services of Texas, Inc.

Vorgel C.

FINAL REPORT

DEMOLITION AND REMOVAL OF STRUCTURES/ DISPOSAL OF TRANSFORMERS WITH PCB OIL

Authority:

JEG Subcontract No. 05-G479-00-1001
NAS FT. WORTH JRB,
Carswell Field, Fort Worth, Texas

Report Number: 3397-006 and 3997-002

June 19, 1997

Prepared for:

Ms. Kathleen R. Bindl, Subcontract Manager
JACOBS ENGINEERING GROUP, INC.
600 Seventeenth Street, Suite 1100N
Denver, Colorado 80202
(303) 595-8855; Facsimile (303) 595-8857

Prepared by:

UNIFIED SERVICES OF TEXAS, INC.
2110 Greenbriar Drive
Southlake, Texas 76092
Metro (817) 481-9510
Fax (817) 488-1729

RESTRICTIONS ON THE USE AND DISCLOSURE OF INFORMATION AND/OR DATA

The information and/or data contained herein shall not be disclosed outside Jacobs Engineering Group, Inc. and shall not be duplicated, used, or disclosed in whole or in part for any purpose without authorization from Jacobs Engineering Group, Inc. This restriction does not limit the right to use information contained herein if it is obtained from another source without restriction. This restriction applies to all information and/or data contained herein.

TABLE OF CONTENTS

FINAL REPORT

DEMOLITION AND REMOVAL OF STRUCTURES/ DISPOSAL OF TRANSFORMERS WITH PCB OIL

Authority:

JEG Subcontract No. 05-G479-00-1001
NAS FT. WORTH JRB,
Carswell Field, Fort Worth, Texas

Report Number: 3397-006 and 3997-002

June 19, 1997

Prepared for:

Ms. Kathleen R. Bindl, Subcontract Manager
JACOBS ENGINEERING GROUP, INC.
600 Seventeenth Street, Suite 1100N
Denver, Colorado 80202
(303) 595-8855; Facsimile (303) 595-8857

Prepared by:

UNIFIED SERVICES OF TEXAS, INC.
2110 Greenbriar Drive
Southlake, Texas 76092
Metro (817) 481-9510
Fax (817) 488-1729

RESTRICTIONS ON THE USE AND DISCLOSURE OF INFORMATION AND/OR DATA

The information and/or data contained herein shall not be disclosed outside Jacobs Engineering Group, Inc. and shall not be duplicated, used, or disclosed in whole or in part for any purpose without authorization from Jacobs Engineering Group, Inc. This restriction does not limit the right to use information contained herein if it is obtained from another source without restriction. This restriction applies to all information and/or data contained herein.

TABLE OF CONTENTS

Title Page i
Table of Contents ii

Sections

I Notification to Owner 1
II Executive Summary 1
III Introduction and Purpose 2
IV Scope of Work 3
V Sampling Program 3

Appendices

A Site Vicinity Map
B Site Plan
C Laboratory Reports
D Receipts for Disposal Liquids and Hazardous Wastes
E Chronology of Events
F General Correspondence

I. NOTIFICATION TO OWNER

Unified Services of Texas, Inc. (UST) is licensed within the State of Texas, under the Texas Natural Resource Conservation Commission (TNRCC) Contractor Registration Program (CRP) and the Registered Corrective Action Specialist (RCAS) as licensee numbers 000970 and 000278, respectively. Mr. Clarence D. Hill is licensed within the State of Texas, under the TNRCC Individual License Program (ILP) as licensee number 001549, licensed to repair and install, as well as remove underground storage tank systems, "A" and "B" licenses respectively. All aspects of this project were performed under the guidance of the Petroleum Equipment Institute Recommended Practice Number 100 (PEI RP-100) and other acceptable industry practices.

As specified in Subcontract No. 05-G479-00-R-97-1001, UST demolished and removed debris of small structures and concrete pads as well as removed and disposed of 23 transformers containing Polychlorinated Biphenyl (PCB) oil at the Naval Air Station (NAS) Fort Worth Joint Reserve Base (JRB), Carswell Field, Fort Worth, Texas (see appendices A and B).

Contained within this report are copies of data collected during the field operations and other pertinent data sources. Site maps and plans are contained in Appendices A and B respectively. Laboratory reports are contained in Appendix C and receipts for disposal of liquids and hazardous wastes are contained in Appendix D. A chronology of events is included as Appendix E, and any additional general correspondence pertaining to this project is contained in Appendix F.

Five (5) copies of this report have been provided to Ms. Kathleen R. Bindl, Subcontract Manager, Jacobs Engineering Group, Inc. An original copy is also retained on file in UST's office.

II. EXECUTIVE SUMMARY

To ensure compliance with Title 40, Code of Federal Regulations, Parts 280 and 281, and Title 30, Texas Administrative Code, Part I "Environmental Quality", Subchapter 334, the Air Force Center for Environmental Excellence (AFCEE) in support of the Air Force Remedial Action Program, contracted for the demolition and removal of small structures and concrete pads as well as removal and disposal of 23 transformers with PCB oil at Naval Air Station Fort Worth Joint Reserve Base, Carswell Field, Fort Worth, Texas.

THE USE OR DISCLOSURE OF THE INFORMATION AND/OR DATA CONTAINED HEREIN IS SUBJECT TO THE RESTRICTION ON THE TITLE PAGE

III. INTRODUCTION AND PURPOSE

The purpose of this Subcontract was to obtain services for demolishing and removing debris of small structures and concrete pads as well as the removal and disposal of 23 transformers containing PCB oil in support of the Air Force Installation Restoration Program.

Unified Services of Texas, Incorporated (UST) provides this report for the purpose of documenting the field activities conducted at the site and the observations made during the project. This report provides the data and information necessary to assess the actions taken as well as any actions which may remain incomplete. The following representatives of the companies and agencies listed participated in this UST investigative and repair procedure

Responsibility	Identification
Fuel/Tank System Owner Owner ID# 04532 Facility ID #0009696	United States Air Force NAS Fort Worth JRB Carswell Field Fort Worth, Texas 76127
Contractor's Team Members	
Prime Contractor Contract #USAF/F41624-94-D-8046	Jacobs Engineering Group. Inc. Ms. Kathleen R. Bindl, Subcontract Manager 600 17th Street, Suite 1100N Denver, Colorado 80202 (303) 595-8855; Facsimile (303) 595-8857
	JE Remediation Technologies, Inc. Mr. John C. McManus, Site Manager P. O. Box 52667 Houston, Texas 77052 (817) 737-7237; Facsimile (817) 737-7217
Subcontractors	
SCN #05-G479-00-1001	Unified Services of Texas, Inc. Mr. Clarence D. Hill, President 2110 Greenbriar Drive Southlake, Texas 76092 (817) 481-9510; Facsimile (817) 488-1729
Transformer Disposal	Aptus, Inc. P.O. Box 1328 Hwy. 169 North Coffeyville, KS 67337 (316) 251-6380

THE USE OR DISCLOSURE OF THE INFORMATION AND/OR DATA CONTAINED HEREIN IS SUBJECT TO THE RESTRICTION ON THE TITLE PAGE

Transformer Recycling

Nix Electric Company
110 Sentry Drive, North
Mansfield, Texas 76063
(817) 477-3759

IV. SCOPE OF WORK

The City of Fort Worth did not require a permit for this work, nor did the Texas Natural Resource Conservation Commission (TNRCC) require a Thirty Day Construction Notification. All operations were performed in compliance with applicable State, Federal and local laws and regulations as well as in a prudent, conscientious and safe manner.

UST demolished nine (9) small structures and concrete pads located in the former Aerospace Museum area, and demolished one (1) structure and one (1) concrete pad at the Grounds Maintenance Yard. Demolition activities included removing, transporting and disposing of concrete pads and structures. The structures and concrete pads demolished at the Aerospace Museum included a wooden shed, electrical equipment box, two (2) concrete structures that appeared to be old bast shields, two (2) concrete and one (1) asphaltic concrete pad. Other material that was removed and disposed consisted of one (1) mobile fuel test system, soil piles, a rubble pile and loose railroad ties. Following the demolition and removal activities, the Aerospace Museum was restored by clean backfilling and compaction. The site was reseeded with native grass to replicate vegetation currently at the site. The Grounds Maintenance Yard was backfilled and compacted to 95%.

UST disposed of twenty-three (23) transformers of varying sizes located on a concrete pad to the northeast of the Grounds Maintenance Yard at NAS Fort Worth JRB. Following the receipt of analytical results from JEG, each transformer was labeled with the appropriate tag indicating the PCB content. Included in Appendix D are the waste disposal manifests indicating appropriate disposal of all materials removed.

IV. SAMPLING PROCEDURES AND RESULTS

UST identified and segregated three (3) transformers containing PCB oil in excess of the maximum limit of 50 ppm. These three (3) transformers were labeled "G", "H", and "10" respectively and were transported to Aptus/Rollins for incineration. The remaining twenty (20) transformers were transported to Nix Electric for recycling. Absorbent material was wind-rowed around the transformers to provide a primary spill control boundary. Each transformer was double checked for tightness prior to loading and transporting.

THE USE OR DISCLOSURE OF THE INFORMATION AND/OR DATA CONTAINED HEREIN IS SUBJECT TO THE RESTRICTION ON THE TITLE PAGE

UST's contract team, properly attired, disposed of twenty-three (23) transformers. The transformers were segregated into two (2) categories of <50ppm and >50ppm but <500ppm. Each transformer was transported to a TNRCC approved disposal/recycling facility. All subcontractor generated debris was removed and disposed of and the job site restored to satisfactory condition.

Unified Services of Texas, Inc. provides the information contained herein based on field observations and activities conducted from May 6, 1997 through May 20, 1997, as well as from any information provided and deemed to be accurate by other competent sources involved, whether directly or indirectly received. It is recommended that this report be included as a permanent part of NAS Fort Worth JRB's records and a copy be maintained on site. UST appreciates the opportunity to serve your demolition and sampling needs and looks forward to assisting you in any future requirements. If after you review the information contained herein you have questions, or if I may be of further assistance, please contact me at (817) 481-9510.

Respectfully submitted,

Chris Baker

Chris Baker
Report Writer

Reviewed by:

Clarence D. Hill

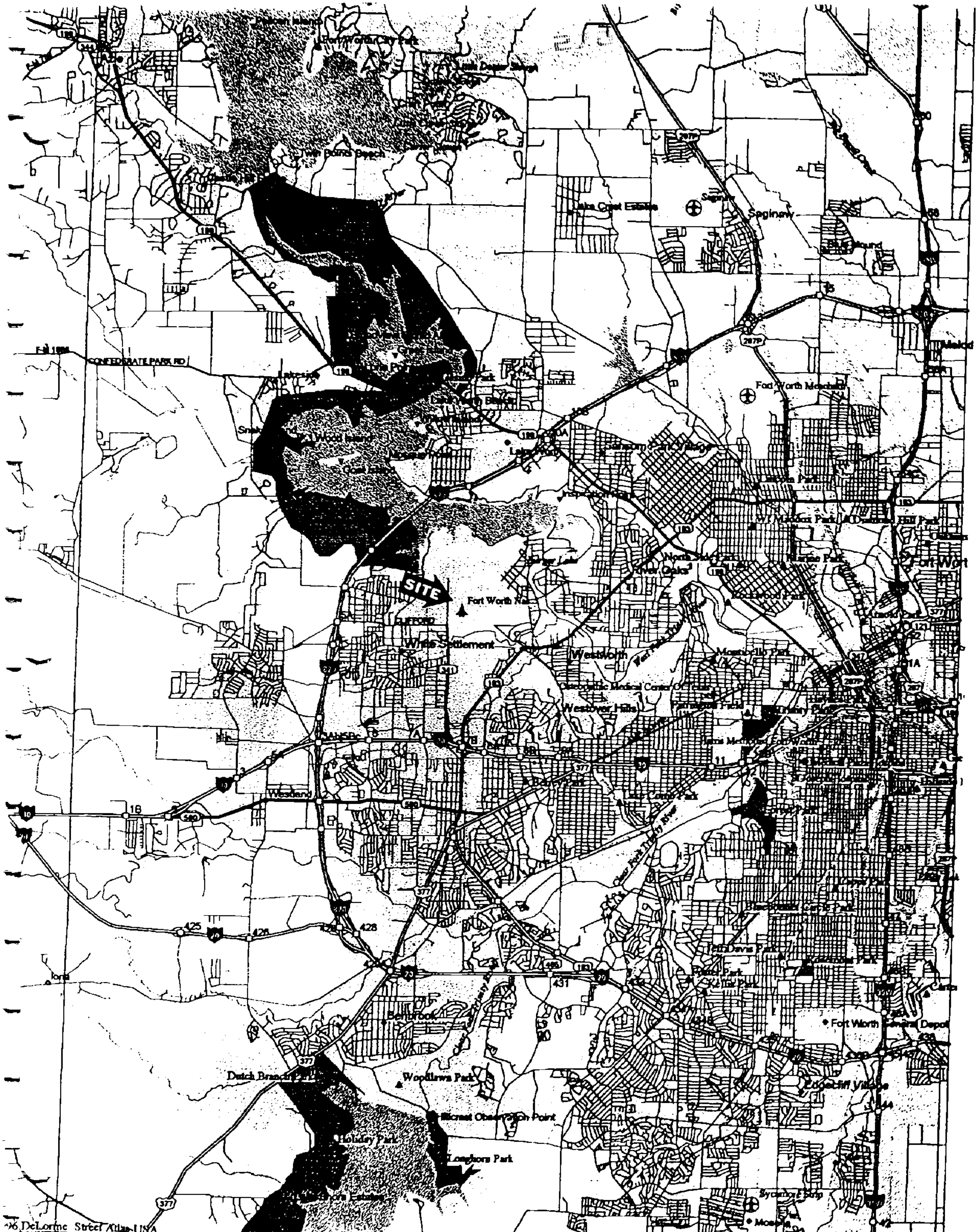
Clarence D. Hill
President

THE USE OR DISCLOSURE OF THE INFORMATION AND/OR DATA CONTAINED HEREIN IS SUBJECT TO THE RESTRICTION ON THE TITLE PAGE

APPENDIX A

SITE VICINITY MAP

THE USE OR DISCLOSURE OF THE INFORMATION AND/OR DATA CONTAINED HEREIN IS SUBJECT TO THE RESTRICTION ON THE TITLE PAGE

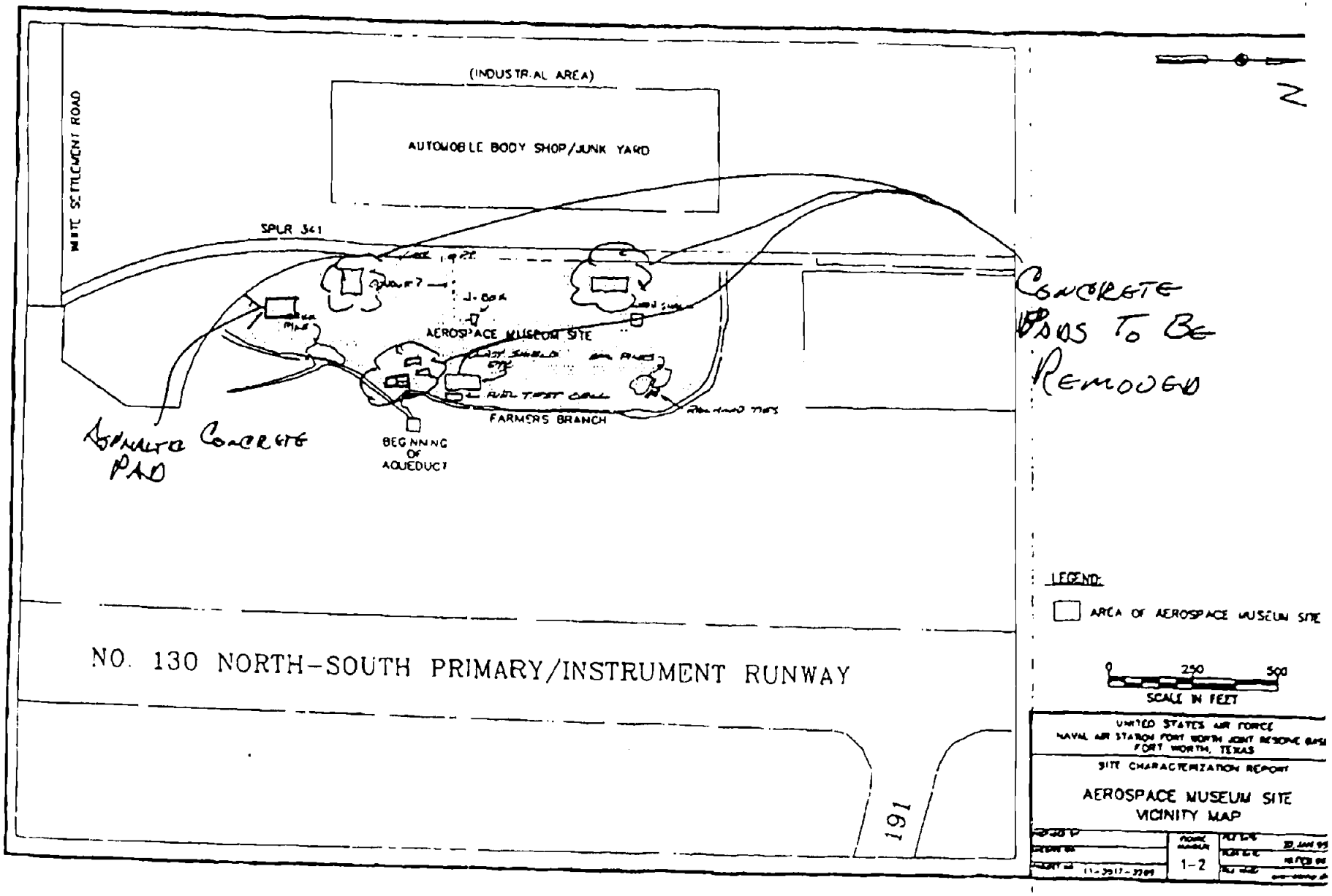


'96 DeLorme Street Atlas USA

APPENDIX B

SITE PLANS

THE USE OR DISCLOSURE OF THE INFORMATION AND/OR DATA CONTAINED HEREIN IS SUBJECT TO THE RESTRICTION ON THE TITLE PAGE


(INDUSTRIAL AREA)
AUTOMOBILE BODY SHOP/JUNK YARD
WHITE SETTLEMENT ROAD
SPUR 341
AEROSPACE MUSEUM SITE
FARMERS BRANCH
BEGINNING OF AQUEDUCT
ASPHALT CONCRETE PAD
CONCRETE PADS TO BE REMOVED
NO. 130 NORTH-SOUTH PRIMARY/INSTRUMENT RUNWAY
191
LEGEND:
AREA OF AEROSPACE MUSEUM SITE
0 250 500
SCALE IN FEET
UNITED STATES AIR FORCE
NAVAL AIR STATION FORT WORTH JOINT RESERVE BASE
FORT WORTH, TEXAS
SITE CHARACTERIZATION REPORT
AEROSPACE MUSEUM SITE
VICINITY MAP
1-2

APPENDIX C

LABORATORY REPORTS

THE USE OR DISCLOSURE OF THE INFORMATION AND/OR DATA CONTAINED HEREIN IS SUBJECT TO THE RESTRICTION ON THE TITLE PAGE

Atomus Laboratory
P.O. Box 1227
Arlington, Texas 76004-1227
(817) 274-5754 • METRO (817) 469-8353

Case # 7EA973 Page: 1 OF 1

Date : 28 APR 97 Matrix: OIL

Date received: 24 APR 97

Identification: TRANSFORMERS

PCB
METHOD: 3580A/8082
Analysis Date 28 APR 97 Analyst CA

Sample ID:	Lab #	Results	DL
A	973	<1	1
B	974	<1	1
C	975	<1	1
D	976	<1	1
E	977	<1	1
F	978	<1	1
G	979	55	1
H	980	51	1
J	981	10	1
K	982	19	1
L	983	18	1

Unit - mg/kg
DL - Detection Limit

Reviewed by _____
Chuck Ables, BCFE
Lab Director

[illegible] 30 days after reports are mailed unless prior arrangements are made in writing. A charge for will apply on samples held over 30 days. Our letters and reports are for the [illegible] use of the client to whom they are addressed. The use of our name must receive our prior written approval. Our letters and reports apply to the sample as received and/or inspected, and are not

Atomus Laboratory

P.O. Box 1227 • Arlington, Texas 76004-1227
134 Browning • Suite 102 • Arlington, Texas 76010

QUALITY ASSURANCE REPORT
MATRIX SPIKE / MATRIX SPIKE DUPLICATE

Date: 28 APR 97

Case # 7EA973 Matrix Type: OIL

PARAMETER	SAMPLE RESULT	MS RESULT	MSD RESULT	SPIKE TRUE VALUE	% REC MS	% REC MSD	% RPD	CONTROL SAMPLE REC %
PCB	bdl	93	103	100	93	103	10	N/A

bdl = Below Detection Limit

UNIT OF MEASUREMENT: ppm

All method blanks were within quality control criteria.

One spike/spike duplicate per 10 samples is performed for quality control purposes.

Note: QA Data maybe from a different sample.

APPROVED BY: _____
Chuck Ables, BCFE
Lab Director

ATOMUS LABORATORY

134 Browing Dr. • Suite 102 • Arlington, Tx 76010
Metro (817) 469-6353 • Fax (817) 265-7150

CHAIN OF CUSTODY RECORD

PROJECT NO.

PROJECT NAME

PURCHASE ORDER

SAMPLERS (Signature)

SAMPLE ID	DATE	TIME	SAMPLE LOCATION	WATER	SOIL	AIR	SLUDGE	PRODUCT	HCL	HNO_3	H_2SO_4	NaOH	ICE	UNPRESERVED	# CONTAINERS	PCB
A	4/24	1330	TRANSFORMER A					X								X
B		1340	B													
C		1345	C													
D		1350	D													
E		1355	E													
F		1405	F													
G		1410	G													
H		1420	H													
		1425	J													
K		1430	K													

REMARKS

TOTAL # CONTAINERS 10

DISPOSAL OF HAZARDOUS SAMPLES
The client agrees to:
Pay for sample disposal ___
Accept returned samples X IF

ATOMUS LABORATORY

134 Browing Dr. • Suite 102 • Arlington, Tx 76010
Metro (817) 469-6353 • Fax (817) 265-7150

CHAIN OF CUSTODY RECORD

PROJECT NO.

PROJECT NAME

PURCHASE ORDER

SAMPLERS: (Signature)

SAMPLE ID	DATE	TIME	SAMPLE LOCATION	WATER	SOIL	AIR	SLUDGE	PRODUCT	HCL	HNO_3	H_2SO_4	NaOH	ICE	UNPRESERVED	# CONTAINERS	PCB
		1440	Transformer L					X								X

Atomus Laboratory
P.O. Box 1227
Arlington, Texas 76004-1227
(817) 274-5754 • METRO (817) 469-8353

Case # 7EA1053 Page: 1 of

Date : 12 MAY 97 Matrix: DUST

Report to: UNIFIED SERVICES OF TEXAS
ATTN: DAN HILL
2110 GREENBRIAR DR.
SOUTHLAKE, TX 76092

Date received: 7 MAY 97

Identification: 3997-002

RECEIVED
MAY 13 1997

PESTICIDES - SW846 8080
Extraction Method: 3510
Analysis Date 9 MAY 97 Analyst CH

Sample ID:	1	2	3	
Lab #	1053	1054	1055	DL
Aldrin	<1.00	<1.00	<1.00	1.00
alpha-BHC	<0.500	<0.500	<0.500	0.500
beta-BHC	<0.500	<0.500	<0.500	0.500
Lindane	<1.00	<1.00	<1.00	1.00
delta-BHC	<0.500	<0.500	<0.500	0.500
Chlorodane	<12.5	<12.5	<12.5	12.5
4,4-DDD	<0.500	<0.500	<0.500	0.500
4,4-DDE	<1.00	<1.00	<1.00	1.00
4,4-DDT	<1.00	<1.00	<1.00	1.00
Dieldrin	<0.500	<0.500	<0.500	0.500
alpha-Endosulfan	<0.500	<0.500	<0.500	0.500
beta-Endosulfan	<1.00	<1.00	<1.00	1.00
Endosulfan Sulfate	<0.500	<0.500	<0.500	0.500
Endrin	<1.00	<1.00	<1.00	1.00
Endrin Aldehyde	<0.500	<0.500	<0.500	0.500
Heptachlor	<0.500	<0.500	<0.500	0.500
Heptachlor Epoxide	<0.500	<0.500	<0.500	0.500
Methoxychlor	<25.0	<25.0	<25.0	25.0
Toxaphene	<25.0	<25.0	<25.0	25.0

DL - Detection Limit
Unit of measurement - mg/kg

Reviewed by: _____
Chuck Ables, BCFE
Lab Director

Samples are discarded 30 days after reports are mailed unless prior arrangements are made in writing. A storage fee will apply on samples held over 30 days. Our letters and reports are for the exclusive use of the client to whom they are addressed. The use of our name must receive our prior written approval. Our letters and reports apply to the sample tested and/or inspected, and are not necessarily indicative of the qualities of apparently identical or similar products.

Atomus Laboratory

P.O. Box 1227 • Arlington, Texas 76004-1227
134 Browning • Suite 102 • Arlington, Texas 76010

QUALITY ASSURANCE REPORT
MATRIX SPIKE / MATRIX SPIKE DUPLICATE

Date: 12 MAY 97 Customer Name: UNIFIED SERVICES OF TEXAS

Case # 7EA1Ø53 Matrix Type: Solid

PARAMETER	SAMPLE RESULT	MS RESULT	MSD RESULT	SPIKE TRUE VALUE	% REC MS	% REC MSD	% RPD	CONTROL SAMPLE REC %
Dibutyl Chlorendate	bdl	112	112	1ØØ	112	112	Ø	11Ø

bdl = Below Detection Limit

UNIT OF MEASUREMENT: ppm

All method blanks were within quality control criteria.

One spike/spike duplicate per 1Ø samples is performed for quality control purposes.

Note: QA Data maybe from a different sample.

APPROVED BY: _____
Chuck Ables, BCFE
Lab Director

(817) 274-5754 • METRO (817) 469-8353 • FAX (817) 265-7150

UST Unified Services of Texas, Inc.
Complete Petroleum Storage Tank Services
2110 Greenbriar Drive, Southlake, TX 76092 (817) 481-9510, FAX: (817) 488-1729

CHAIN OF CUSTODY RECORD

PROJECT NO: 3997-002 TAT: ____24HR RUSH ✓ 48HR NORMAL ____5DA

SAMPLE DATE	SAMPLE TIME	SAMPLE ID	SAMPLE LOCATION	SAMPLE DEPTH	SAMPLE TYPE	# OF CNTRS	TEST FOR
5-7-97	11:58	1	NAS Maintenance	3"	Concrete dust	1	Pesticides
5-7-97	12:03	2	" "	1-1.5"	"	1	"
5-7-97	12:07	3	" "	1-1.5"	"	1	"

SAMPLED BY: Curtis Morrisey

Relinquished By: (Signature)	Date	Time	Received By: (Signature)	Date	Time
	5/7/97	1525		5/7/97	1525
Relinquished By: (Signature)	Date	Time	Received By: (Signature)	Date	Time
	5/7/97	1620		5/7/97	16:20
Relinquished By: (Signature)	Date	Time	Received By: (Signature)	Date	Time
Relinquished By: (Signature)	Date	Time	Received By: (Signature)	Date	Time
Relinquished By: (Signature)	Date	Time	Received By: (Signature)	Date	Time

Date Extracted: ____
Date Digested: ____
Date Analyzed: ____

FINAL DISPOSITION: ____

LAB REPRESENTATIVE'S SIGNATURE: ____

APPENDIX D

RECEIPTS FOR DISPOSABLE LIQUIDS AND HAZARDOUS WASTES

THE USE OR DISCLOSURE OF THE INFORMATION AND/OR DATA CONTAINED HEREIN IS SUBJECT TO THE RESTRICTION ON THE TITLE PAGE

NIX ELECTRIC CO., d.b.a.
Transformer Repair Service

ORDER TICKET 281 ORDER NO. 00021

CUSTOMER ORDER NO. _____ DATE _____

CUSTOMER: UST - United Services of Texas Inc

ADDRESS: 210 Greenbriar Dr Southlake TX 76092

	SERIAL NO.	SIZE	DESCRIPTION
1.	0178916	25	7200/12470Y - 120/240 4-2½ AC 1.8 J
2.	N547027-YAW	50	7200/12470Y - 277/480Y 2-2½ GE 2.10 9
3	3008899	100	12000 - 120/240 AC 4-2½ AC 3.1 K
4.	851014766	167	7200/12470Y - 120/240 2-2½ RTE 3.1 L
5.	61928-3185	50	7200/12470Y - 277/480Y 2-2½ Howard 2.5 7
6.	P163123-YWA	75	12470GY/7200 - 120/240 N/T GE 2.75 5
7.	N547029-YAW	50	7200/12470Y - 277/480Y 2-2½ GE 2.10 6
8.	3791880	15	7200/12470Y - 120/240 4-2½ AC 1.5 8
9.	79U2490	25	7200/12470Y - 120/240 2-2½ UT 2.1 F
10.	79U2489	25	7200/12470Y - 120/240 2-2½ UT 2.1
11.	ZW 2492	25	7200/12470Y - 120/240 2-2½ UT 2.1 E
12.	M431939YBPA	375	7200/12470Y - 120/240 2-2½ GE 2.58 C
13.	H703467468AA	75	7200/12470Y - 120/240 4-2½ GE 1.75 B
	81007147	50	7200/12470Y - 120/240 - 4-2½ RTE 2.5 A
15.	80-146-2	100	7200/12470Y - 120/240 2-2½ Greenville 3
16.	9305323	25	7200/12470Y - 120/240 4-2½ GE 4

THE CUSTOMER AS EVIDENCED BY HIS SIGNATURE BELOW AGREES TO ALL OF THE TERMS AND CONDITIONS PRINTED ON THE REVERSE SIDE.

SIGNED: Clemens D. Hill Co. Name: UST, Inc. Date: 5/7/97

720 LOOP 289 S.E. LUBBOCK, TEXAS 79404 (806) 745-4166
110 SENTRY DR. NORTH MANSFIELD, TEXAS 76063 (817) 477-3759 ◆ 8774 ANDREWS HWY. N. ODESSA, TEXAS 79765 (915) 362-0940

NIX ELECTRIC CO., d.b.a.
Transformer Repair Service

ORDER TICKET 396 282

ORDER NO. 55626

STOMER ORDER NO. _____ DATE 5-7-97

CUSTOMER: UST - UNIFIED SERVICES OF TEXAS INC

ADDRESS: 2110 GREENBRIAR DR SOUTHLAKE, TX 76093

	SERIAL NO.	SIZE	DESCRIPTION
1.	705394	100	7200/12470Y - 120/240 4-2½ CM 3.0 2
2.	80-146-1	100	7200/12470Y - 120/240 2-2½ Greenville 2.8 1
3	810230-1	75	12470 Delta - 208Y/120 3Ø Pad Sq D 4-2½ 3.4
4.	N227545YE1A	25	4.16GY/2.4 X 12.47GY/7.2KV 208Y/120 3Ø GE 2-2½ 287
5.			
6.			
7.			
8.			
9.			These units were Bought For Salvage
10.			
11.			
12.			
13.			
15.			
16.			

THE CUSTOMER AS EVIDENCED BY HIS SIGNATURE BELOW AGREES TO ALL OF THE TERMS AND CONDITIONS PRINTED ON THE REVERSE SIDE.

SIGNED: [signature] Co. Name: UST, INC Date: 5/7/97

720 LOOP 289 S.E. LUBBOCK, TEXAS 79404 (806) 745-4166
110 SENTRY DR. NORTH MANSFIELD, TEXAS 76063 (817) 477-3759 ◆ 8774 ANDREWS HWY. N. ODESSA, TEXAS 79765 (915) 362-0940

UNIFORM WASTE DATA SHEET (Exhibit B)
Universal Product Category: *PCB Transformers/Bushings*

ROLLINS ENVIRONMENTAL INC

(Rollins Use Only) Facility To Invoice: ☐ Same As "A" ☐ REI Office _____
CSR/FSR _____ Sales # _____ Stream No. _____

A. INVOICE INFORMATION
1. Company UNIFIED SERVICES OF TEXAS, INC.
2. Address 2110 GREENBRIAR DRIVE 3. City/State/Zip SOUTHLAKE, TX 76092
4. Invoice Contact C. DAN HILL 5. Phone No. (817) 481-9510

B. PICK UP LOCATION Same As Section ☐ A ☑ C
1. Company _____
2. Address _____ 3. City/State/Zip _____
4. Pick Up Contact _____ 5. Phone No. ( ) _____

C. GENERATOR AND SHIPPING INFORMATION
1. Generator USAF BASE CONVERSION AGENCY 2. US EPA ID No. TX 0571924042
3. Address 6550 WHITE SETTLEMENT RD 4. City/State/Zip FORT WORTH, TX 76114
5. Technical Contact (can answer questions about this waste stream) (SAME AS ABOVE) ALAN FLOLO
a) Phone No. (817) 731-8973 EXT 18 b) Fax No. (817) 731-8137
6. Send Waste Stream Quotation to same as Section: ☑ A ☐ B ☐ C Add'l. Copies To: _____
7. State Generator's I.D. No. [RES (TX) Only] 65004; WASTE CODE NHNI3961
8. ☑ DOT Regulated a. DOT Shipping Description: *RQ, Polychlorinated Biphenyls.* _____ 9. *UN2315, II*
(If applicable, add "mixture or solution" above)
9. ☐ Non-DOT Regulated a. Shipping Description: *Polychlorinated Biphenyls (Non-DOT Regulated) < 1 Lb. RQ*
10. ☑ Rollins Transportation or ☐ Customer Arranged TT. Special Requirements NONE

D. WASTE INFORMATION BY PRODUCT CATEGORY (PC)
1. ☐ *PCB Transformers: Contained Liquids/Rinsate For TSCA Incineration/Detoxification; Drained Carcasses For TSCA Landfill* ..... *PC 67*
a. PCB Transformer(s)/Transformer Related Components (excluding loose bushings & silicone oil-filled transformers).
Month Quarter Other
i. Quantity _____ per ☐ ☐ _____ ii. ☐ Full of Oil (< 500 ppm PCB); iii. ☐ Full of Oil (≥ 500 ppm PCB);
iv. ☐ Drained (< 500 ppm PCB); v. ☐ Drained Only (≥ 500 ppm PCB); vi. ☐ Drained & Flushed (≥ 500 ppm PCB).
Note: Transformers are *Non-Leaking*. Leaking Transformers will be containerized/drained of oils & absorbent added to the shipping container (NO FREE LIQUIDS).
b. List any Transformer dimensions (including fins) that exceed 7' x 7' x 7' & Transformer weights exceeding 14,000 lbs. each: _____
c. Disposal State Waste Code No(s). _____
Rollins Use Only
d. Stream No. _____ (Full of Oil < 500 ppm) e. Stream No. _____ (Full of Oil ≥ 500 ppm)
f. Stream No. _____ (Drained < 500 ppm) g. Stream No. _____ (Drained Only ≥ 500 ppm)
h. Stream No. _____ (Drained & Flushed ≥ 500 ppm)

D. CONTINUATION OF WASTE INFORMATION

2. ☑ *PCB Transformers: For TSCA Reclamation* *PC*63

a. PCB Transformer(s)/Transformer related components (excluding loose bushings & silicone oil-filled transformers). Contained liquids will be incinerated or chemically de-toxified and carcasses will be recycled/reclaimed.

Month Quarter Other

i. Quantity _____ per ☐ ☐ _____ ii. ☐ Full of Oil (< 500 ppm PCB).

iii. ☐ Full of Oil (≥ 500 ppm PCB). iv. ☐ Drained (< 500 ppm PCB). v. ☐ Drained Only (≥ 500 ppm PCB).

Note: Transformers are *Non-Leaking*. Leaking Transformers will be containerized/drained of oils & absorbent added to the shipping container (NO FREE LIQUIDS).

b. List any Transformer dimensions (including fins) that exceed 7' x 7' x 7' & Transformer weights exceeding 14,000 lbs. each: _____

c. Disposal State Waste Code No(s). _____

Rollins Use Only

d. Stream No. _____ (Full of Oil < 500 ppm) e. Stream No. _____ (Full of Oil ≥ 500 ppm)

f. Stream No. _____ (Drained < 500 ppm) g. Stream No. _____ (Drained Only ≥ 500 pp

3. ☐ *PCB (Pole-Mount) Transformers For TSCA Incineration: Contained Liquids & Carcasses For Incineration* *PC*6

Month Quarter Other

a. Quantity _____ per ☐ ☐ _____ b. Non-Bulk Containers (Type & Size) _____

c. PCB Concentration _____ ppm

(e.g., 50–99, 50<10,000, > 10,000, etc.)

d. Standard Pole-Mount (thin-wall) Transformers. Transformer dimensions NOT TO EXCEED 25" diameter (including fins) x 42" he & maximum weight of 300 lbs. each. *Note:* Transformers are *Non-Leaking*. Leaking Transformers will be containerized/drained of oils & absorbent added to the shipping container (NO FREE LIQUIDS).

e. Disposal State Waste Code No(s). _____

Rollins Use Only

f. Stream No. _____

4. ☐ *PCB Bushings For Incineration Or Reclamation* *PC*6

a. ☐ PCB Bushings For Incineration; Or ☐ PCB Bushings For Reclamation

Month Quarter Other

b. Quantity _____ per ☐ ☐ _____ c. Non-Bulk Containers (Type & Size) _____

d. PCB Concentration _____ ppm e. List Any Bushing Dimensions Exceeding 4' Length: _____

(e.g., 50–99, 50<10,000, > 10,000, etc.)

Note: Bushings are *Non-Leaking*. Leaking Bushings will be containerized/drained of oils & absorbent added to the shipping conta (NO FREE LIQUIDS).

f. Disposal State Waste Code No(s). _____

Rollins Use Only

g. Stream No. _____

E. GENERATOR CERTIFICATION

I hereby certify and warrant that the information supplied on this form and on any attachments or supplements represents a complete accurate identification and description by the generator company of this waste material, its constituents, and its known or suspected haz Furthermore, I warrant that this material is not a *hazardous waste* under RCRA, nor is its treatment or disposal regulated under any EP DOE program(s) other than TSCA.

Alan W. Flolo — Signature

Alan W. Flolo, Engineering Tech — Name & Title (Printed or Typed)

05/06/9; — Date

TEXAS NATURAL RESOURCE
CONSERVATION COMMISSION
P.O. Box 13087
Austin, Texas 78711-3087

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form approved. OMB No. 2050-0039, expires 09/30/95

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. T X 0 5 7 1 9 2 4 0 4 2 — Manifest Document No. P0670

2. Page 1 of 2

Information in the shaded areas is not required by Federal law

3. Generator's Name and Mailing Address
U.S.A.F. Base Conversion Agency
6550 White Settlement Road
Fort Worth, TX 76114

4. Generator's Phone (817) 731-8973

A. State Manifest Document Number 01405055

B. State Generator's ID 65004

5. Transporter 1 Company Name: Tri-State Motor Transit CO.

6. US EPA ID Number: M O D 0 9 5 0 3 8 9 9 8

C. State Transporter's ID 40355

D. Transporter's Phone 417-624-3131

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address
Aptus, Inc.
P.O. Box 1328/Hwy. 169 North
Coffeyville, KS 67337

10. US EPA ID Number: K S D 9 8 1 5 0 6 0 2 5

G. State Facility's ID 20020

H. Facility's Phone 316-251-6380

11A HM	11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	Waste No
	a. POLYCHLORINATED BIPHENYLS	003	C N	1080	K	NHN13961
	b.					
	c.					
	d.					

J. Additional Descriptions for Materials Listed Above
2 ea. transformers filled with 55 ppm PCB oil

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
Storage Dates SEE ATTACHMENT
Work Order #113893
EMERGENCY NUMBER 817 995 9909
Aptus Manifest #P0670
ER6171

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: CLARENCE D. HILL — Signature: Clarence D. Hill — Month Day Year: 05 20 97

17. Transporter 1 Acknowledgement of Receipt of Materials — Date

Printed/Typed Name: JAMES D. TAKACS — Signature: James D. Takacs — Month Day Year: 05 20 97

18. Transporter 2 Acknowledgement of Receipt of Materials — Date

Printed/Typed Name — Signature — Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19. — Date

Printed/Typed Name — Signature — Month Day Year

GENERATOR — TRANSPORTER — FACILITY

RCC-0311 (Rev. 07/13/94) White - original Pink-TSD Facility Yellow-Transporter Green Generator's first copy

PCB MANIFEST CONTINUATION SHEET

ROLLINS ENVIRONMENTAL INC.

MANIFEST DOCUMENT NO. PG 67 U
OR
STATE MANIFEST DOCUMENT NO.

PAGE 2 OF 2

(1) WASTE STREAM NUMBER	(2) GENERATOR'S UNIQUE IDENTIFYING NO. (Maximum 10 Digits)	(3) TYPE OF PCB WASTE	(4) EARLIEST DATE OF REMOVAL FROM SERVICE FOR DISPOSAL	(5) WEIGHT IN KILOGRAMS
PKS213744	H 3008896	Trans Fluid	1-1-97 ~~613 kg~~	613 kg
PKS313746	6 11520127	Trans Fluid	1-1-97	198 kg
PKS313746	10 LEAD2501	Trans Fluid	1-1-97	315 kg

▶ "Instructions and Example" on the reverse side of this page.

• White - Original • Pink - TSD Facility • Yellow - Transporter • Green - Generator

RES 50-948 10/95

396 . 267

UST Unified Services of Texas, Inc.

2110 Greenbriar Drive, Southlake, Texas 76092
(817) 481-9510; FAX: (817) 488-1729

Manifest # 3397-006-001

Disposal Center Acceptance # N/A

NON-HAZARDOUS WASTE MANIFEST

NAS FT WORTH JRB GENERATOR

GENERATOR NAME: NAS/CARSWELL SITE NAME: AIR MUSEUM

ADDRESS: ~~SPUR 341~~ 6550 WHITE SETTLEMENT RD ADDRESS: SPUR 341

PHONE NO: (817) 931-8973 x 18 PHONE NO: (SAME)

WASTE CODE: N/A RECYCLED

DESCRIPTION OF WASTE: TRANSMISSION FLUID

HIGHEST TPH: n/a HIGHEST BTEX: n/a CONTAINS METALS: YES ___ NO ✓

QUANTITY: 6 gal UNIT: GAL NUMBER OF CONTAINERS: 2

TYPE OF CONTAINER: TRUCK ___ CARTON ___ BAG ___ OTHER 5 gal cans

CERTIFICATION: I HEREBY CERTIFY THAT THE ABOVE NAMED MATERIAL (1) DOES NOT CONTAIN FREE LIQUID AS DEFINED BY 40 CFR 260.10 OR ANY APPLICABLE STATE LAW; (2) IS NOT A HAZARDOUS WASTE AS DEFINED BY 40 CFR 261 OR ANY APPLICABLE STATE LAW; (3) HAS BEEN PROPERLY DESCRIBED, CLASSIFIED AND PACKAGED; AND (4) IS IN PROPER CONDITION FOR TRANSPORTATION ACCORDING TO APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS

CLARENCE D. HILL — Clarence D. Hill — 5/9/97
GENERATOR / AGENT NAME (PRINTED) — SIGNATURE — DATE SHIPPED

TRANSPORTER

TRUCK NO: #12 PHONE NO: (817) 481-9510

TRANSPORTER: UST DRIVER'S NAME: MARK AUER JR (PRINTED)

ADDRESS: 2110 GREENBRIAR DR VEHICLE LICENSE NO: 9L 3765

CERTIFICATION: I HEREBY CERTIFY THAT THE ABOVE NAMED MATERIAL WAS PICKED UP AT THE GENERATOR SITE LISTED ABOVE.

x Mark Auer Jr — 5/9/97 11:30A
(DRIVER'S SIGNATURE) — (DATE / TIME OF LOADING)

IT IS FURTHER CERTIFIED THAT THE ABOVE NAMED MATERIAL WAS DELIVERED TO THE RECYCLING/DISPOSAL FACILITY LISTED BELOW. NO INCIDENT WAS ENCOUNTERED DURING TRANSIT.

Mark Auer Jr — 5-9-97 1309
(DRIVER'S SIGNATURE) — (DATE / TIME OF DELIVERY)

DESTINATION

FACILITY NAME: Pro Cycle Oil inc PHONE NO: 817-523-4938

ADDRESS: PO BOX 1540

CERTIFICATION: I HEREBY CERTIFY THAT THE ABOVE NAMED MATERIAL WAS ACCEPTED BY THIS FACILITY FOR RECYCLING/DISPOSAL AS APPROPRIATE, AND TO THE BEST OF MY KNOWLEDGE, THE ABOVE INFORMATION IS CORRECT AND ACCURATE.

Jerry Vincent — Jerry Vincent — 5-9-97
(AUTHORIZED FACILITY REPRESENTATIVE) — (SIGNATURE) — (DATE OF RECEIPT)

APPENDIX E

CHRONOLOGY OF EVENTS

THE USE OR DISCLOSURE OF THE INFORMATION AND/OR DATA CONTAINED HEREIN IS SUBJECT TO THE RESTRICTION ON THE TITLE PAGE

STRUCTURE DEMOLITION AND DISPOSAL OF TRANSFORMERS
CHRONOLOGY OF EVENTS

April 30, 1997

UST submitted proposals 5397-013 and 5997-004 in response to the request from Jacobs Engineering Group, Inc. (JEG) to perform demolition work and dispose of transformers with PCB oil at NAS Fort Worth JRB, Carswell Field, Fort Worth, Texas.

May 2, 1997

Conducted site visit to determine work plan.

May 6, 1997

Began demolition of building and concrete pad. Uncovered unidentifiable cable. Debris was removed from the site.

May 7, 1997

Transported 20 transformers to Nix Electric for recycling. Collected concrete samples for pesticide analysis. Finished demolition and continued to remove trash from site.

May 8, 1997

Loaded trash and dirt. Moved and leveled top soil.

May 13, 1997

Hauled off three (3) loads of concrete. Compacted soil around two (2) areas of site.

May 14, 1997

Re-buried unknown cable discovered during slab removal. Removed backfill (clay) from slab area, replaced and compacted to grade.

May 20, 1997

Loaded three (3) transformers, >50 ppm PCB, for disposal at Rollins Environmental, Inc.

THE USE OR DISCLOSURE OF THE INFORMATION AND/OR DATA CONTAINED HEREIN IS SUBJECT TO THE RESTRICTION ON THE TITLE PAGE

APPENDIX F

GENERAL CORRESPONDENCE

THE USE OR DISCLOSURE OF THE INFORMATION AND/OR DATA CONTAINED HEREIN IS SUBJECT TO THE RESTRICTION ON THE TITLE PAGE

UNIFIED SERVICES OF TEXAS, INCORPORATED
CORPORATE MEMORANDUM

DATE: April 11, 1997

TO: Kathleen R. Bindl, Subcontract Manager

FROM: Clarence D. "Dan" Hill, President Dan Hill

SUBJECT: RFP 05-G479-00-R-97-1002; Confirmation of Attendance at Site Walk

==========

1. As requested by the subject RFP dated 09 April 1997, UST will have one or more representatives in attendance at the site walk scheduled for 10:00am April 17, 1997. If the site walk will originate from a location other than the AFBCA offices, please advise me soonest of the point of departure. The name and telephone number of the AFBCA and/or JEG representative that will conduct the site walk would be greatly appreciated.

2. Thank you for the opportunity to participate in this procurement.

2110 GREENBRIAR DRIVE, SOUTHLAKE, TX 76092 (817) 481-9510

UNIFIED SERVICES OF TEXAS, INCORPORATED
CORPORATE MEMORANDUM

DATE: May 5, 1997

TO: Ernest Gonzales
NIX Electric Company, dba
Transformer Repair Service

FROM: Dan Hill Dan Hill

SUBJECT: Transport, Evaluate for Repair/Recycling & Disposal of Nineteen (19) Transformers

==========

1. Please find enclosed copies of the two (2) separate PCB analyses performed on a total of twenty-three (23) transformers located at the Power Facility Storage Area, NAS Fort Worth JRB, Texas. The analyses indicate that transformers number 10, "G" and "H" are above 50ppm and therefore will not be included in the shipment destined for your facility.

2. You are requested to be at the main gate, off highway 183 (White Settlement Road) at 9:00am Wednesday, May 7, 1997. A UST representative will meet you there to escort you onto the base and off again. A crane will be available to load your trailer.

3. Please advise me of the make, model and license number of your vehicle and trailer that will pick up the transformers. If known please include the drivers, name and Texas license number.

4. As discussed earlier today, the transformers will be transported off the base under UST manifest.

5. Should you have questions, please contact me at (817) 481-9510; facsimile (817) 488-1729.

2110 GREENBRIAR DRIVE, SOUTHLAKE, TX 76092 (817) 481-9510

TAB

4

Applicable Portions of the Draft Basewide Background Study Vol. I Jacobs Engineering Group, Inc.

United States Air Force Air Force Base Conversion Agency

DRAFT

NAS Fort Worth JRB, Texas
(Formerly Carswell AFB, Texas)

BASEWIDE BACKGROUND STUDY
VOLUME I

JANUARY 1997

By:

JACOBS ENGINEERING GROUP INC.
600 17th Street, Suite 1100N
Denver, CO 80202

EXECUTIVE SUMMARY

A basewide background study was conducted at the Naval Air Station Fort Worth Joint Reserve Base, Carswell Field, Texas (referred to as NAS Fort Worth) to establish background concentrations of inorganic constituents in various site media. Background concentrations were determined for 24 inorganic constituents in each of the following background populations:

- surface soil;
- subsurface soil;
- groundwater sampled via a low-volume sampling technique (to approximate filtered samples);
- groundwater sampled with a bailer (unfiltered samples);
- surface water; and
- sediment in the surface water drainages.

A total of 30 surface soil, 30 subsurface soil, 12 groundwater samples (one low-volume sample and one bailer sample per well), 8 surface water, and 8 stream sediment samples were collected to characterize these media for background concentrations.

The Tolerance Interval (TI) method (U.S. Environmental Protection Agency [EPA] 1989, 1992) was used to estimate upper tolerance limits (UTLs) of the distribution of each constituent in the background data population. Table ES-1 presents the results of the NAS Fort Worth Background Study. The $UTL_{95,95}$ listed in the table is the value that we can say, with 95 percent confidence, will exceed 95 percent of the background data. Any site value greater than the UTL has only a 5 percent probability of being drawn from the background data population, and thus may indicate the presence of site-related contamination.

TABLE ES-1
Summary of Background UTLs by Matrix
Naval Air Station Fort Worth

Analyte	Surface Soil (mg/kg)	Subsurface Soil (mg/kg)	Low-Stress Procedure Groundwater (mg/L)	Bailer Sampled Groundwater (mg/L)	Surface Water (mg/L)	Stream Sediment (mg/kg)
Aluminum	22035	17180	1.332	11.07	0.2716	28767
Antimony	0.56	0.712	ND at 0.002	0.0024	0.0031	0.33
Arsenic	5.855	5.533	ND at 0.0049	0.0067	ND at 0.0049	7.018
Barium	233.0	128.1	0.587	1.133	0.151	180.4
Beryllium	1.0200	0.957	0.0003	0.0019	ND at 0.0003	1.189
Calcium	167788	272000	266.3	2438	133.7	337544
Cadmium	0.5562	0.5891	ND at 0.0005	0.0016	ND at 0.0005	0.5071
Chromium	21.056	16.31	0.006	0.0136	0.0078	17.0
Cobalt	11.050	6.191	ND at 0.0089	0.01	ND at 0.0089	6.651
Copper	17.373	13.72	0.0028	0.0101	0.0101	22.18
Iron	17717	15224	0.2239	7.234	0.9208	10696
Lead	30.97	12.66	ND at 0.0016	ND at 0.0016	ND at 0.0016	104.1
Magnesium	3003	2420	37.80	68.78	9.353	2772
Manganese	849.1	351.7	0.175	10.57	0.4193	491.3
Mercury	0.14	ND at 0.035	ND at 0.0001	ND at 0.0001	0.0001	0.0360
Molybdenum	1.460	1.930	ND at 0.0144	ND at 0.0144	ND at 0.0144	9.693
Nickel	14.6	19.76	0.0204	0.0364	0.0178	19.76
Potassium	2895	1717	15.03	3.9	6.347	3227
Selenium	0.9072	0.3130	0.0077	0.0072	0.0115	0.214
Silver	0.213	0.1277	0.0002	0.0003	0.0003	0.144
Sodium	25800	53200	167.2	176.2	45.46	6.07
Thallium	63.9	65.4	ND at 0.0632	ND at 0.0632	ND at 0.0632	69.74
Vanadium	46.26	37.39	0.0123	0.0653	0.0159	32.26
Zinc	38.8	31.27	0.1180	0.0682	0.0122	101.3

Notes:

mg/kg = milligrams per kilogram
mg/L = milligrams per liter
ND = not detected
UTL = upper tolerance limit

1.0 INTRODUCTION

This report describes field activities, summarizes analytical results, and presents background concentrations calculated for the basewide background study at the Naval Air Station (NAS) Fort Worth Joint Reserve Base (JRB), Carswell Field, Texas (referred to as NAS Fort Worth). Jacobs Engineering Group Inc. (Jacobs) completed this work under Contract F41624-94-D-8046, Delivery Order 0021, issued by the Air Force Center for Environmental Excellence. The project consisted of sampling soil, groundwater, surface water, and sediment, and calculating background concentrations for select metals in each of these media.

This report is organized into six sections. Section 1.0 introduces the basewide background study, the history of NAS Fort Worth, the physical setting of the station, project objectives, the general approach, and the rationale for the selection of sampling locations and the analytical suites. Section 2.0 describes the field sampling activities. Section 3.0 provides an overview of data quality. Section 4.0 presents the data analysis and statistical calculations of background concentrations for each of the media sampled. Section 5.0 summarizes the conclusions of this study. Section 6.0 is the list of references used to prepare this report. In addition to the six sections, this report includes the following seven appendices:

- Appendix A - Preliminary Analytical Results
- Appendix B - Chain of Custody Records
- Appendix C - Soil Probe Boring Logs
- Appendix D - Monitoring Well Boring Logs, Construction Details, Groundwater Sampling Data Sheets, and Development Records
- Appendix E - Surface Water Data Sheets
- Appendix F - Statistical Calculations Support Tables
- Appendix G - Photographs

1.1 LOCATION AND HISTORY OF NAS FORT WORTH

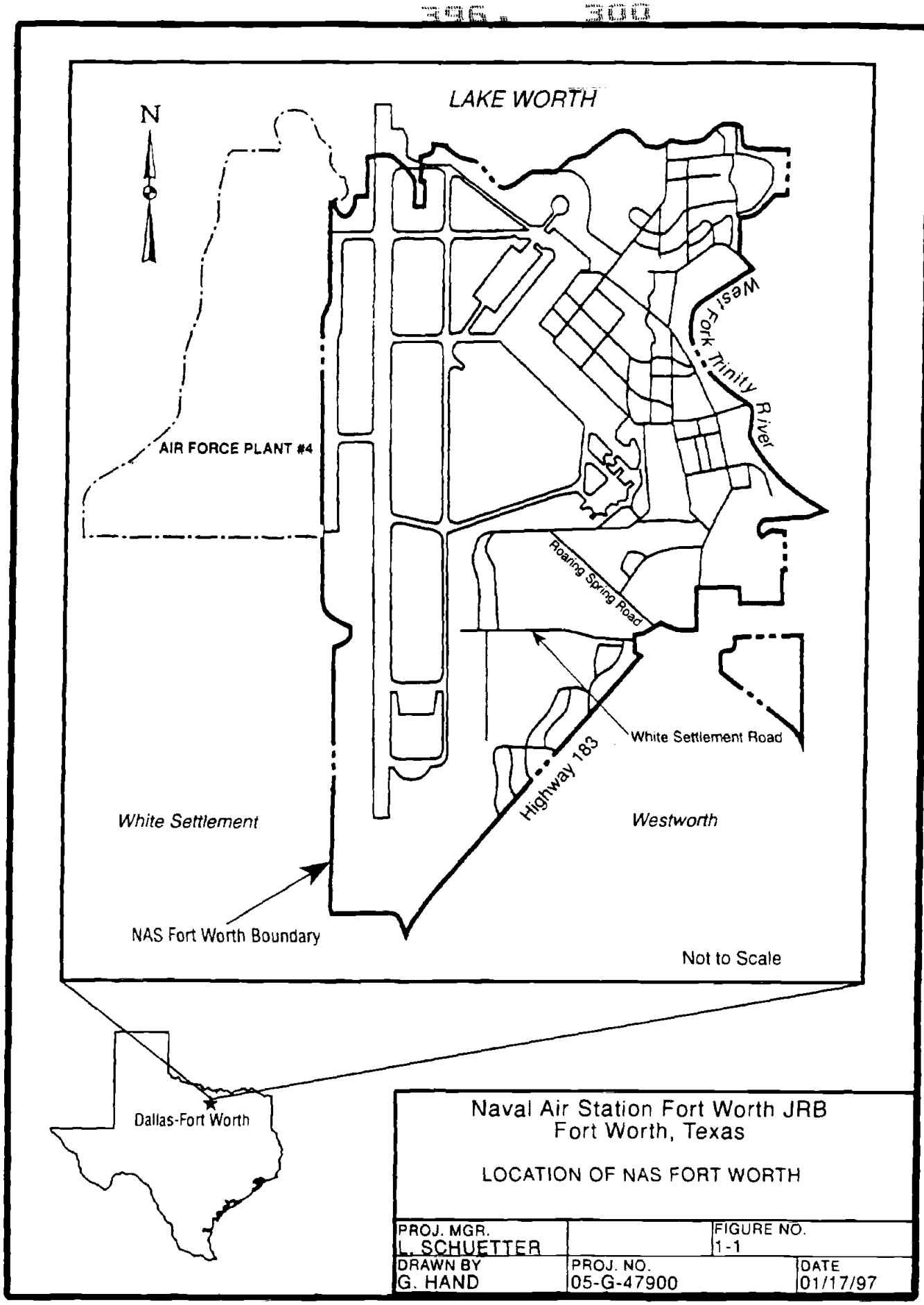
NAS Fort Worth is located in north-central Texas, 8 miles west of downtown Fort Worth (Figure 1-1). The area surrounding the station is mostly suburban, including the residential areas of the cities of Fort Worth, Westworth Village, and White Settlement. The main station totals 2,264 acres and is bordered on the north by Lake Worth, on the east by the West Fork Trinity River and Westworth Village, on the northeast and southeast by Fort Worth, on the west and southwest by White Settlement, and on the west by Air Force Plant 4 (Lockheed).

NAS Fort Worth was originally a modest dirt runway built to service the aircraft manufacturing plant now called Air Force Plant 4. The installation was established in 1942 and was referred to as the Tarrant Field Airdrome. Its mission was to provide training for B-24 bomber pilots. The Strategic Air Command assumed control of the installation in 1946. In 1948, the base was renamed Carswell Air Force Base (AFB) in honor of Fort Worth native, Major Horace S. Carswell. Carswell AFB became host base for its first B-52s and KC-135s in 1956.

Pursuant to the Base Closure and Realignment Act of 1990, Carswell AFB was selected for closure and associated property disposal during Round II Base Closure Commission deliberations. This announcement initiated the closure and disposal and reuse planning process. Drawdown activities were initiated in 1992, and all aircraft were relocated by January 1993. The base officially closed on 30 September 1993. On 1 October 1994, the U.S. Navy assumed control of Carswell AFB; the base was renamed NAS Fort Worth. The base is under the regulatory oversight of the Texas Natural Resource Commission Conservation (TNRCC) through permit HW-50289 issued in 1991.

1.2 INSTALLATION ENVIRONMENTAL SETTING

NAS Fort Worth is located in the Grand Prairie Section of the Central Lowlands Physiographic Province. The area is characterized by broad, gently to moderately



Naval Air Station Fort Worth JRB
Fort Worth, Texas

LOCATION OF NAS FORT WORTH

PROJ. MGR. L. SCHUETTER		FIGURE NO. 1-1
DRAWN BY G. HAND	PROJ. NO. 05-G-47900	DATE 01/17/97

sloping terraces of sedimentary rock mantled by a variable thickness of light brown to black loamy soil. The Grand Prairie Section is typically grass-covered with isolated stands of upland timber.

Topography at NAS Fort Worth is generally flat except in areas along Farmers Branch, West Fork of the Trinity River, and Lake Worth. Elevations at NAS Fort Worth range from approximately 590 feet above mean sea level along the shore of Lake Worth to approximately 660 feet above mean sea level in the southwest corner of the site.

In the immediate vicinity of the station are industrial, commercial, residential, and recreational areas. West of the station are industrial complexes at Air Force Plant 4 and in White Settlement and some residential and supporting commercial areas. South of the station are commercial areas at the interchange of Interstate Highway I-30 (I-30) and State Highway 183. This area includes a regional shopping mall, a discount shopping center, and a small convenience center. Both single-family and multifamily residential developments dominate the area southeast of the station and north of I-30 and the area east of the station. The area north of the station is predominantly composed of recreational and public facilities. The south shore of Lake Worth is restricted to public access because of the presence of NAS Fort Worth and Air Force Plant 4, but the lake is open for recreation. A fish hatchery, a YMCA camp, and private recreational land are along the West Fork of the Trinity River northeast of the station.

1.2.1 Demography

NAS Fort Worth is located in north-central Tarrant County. Based on the 1990 census, the population of Tarrant County (which encompasses most of the Fort Worth metropolitan area) is approximately 1.17 million; approximately 447,600 live in the City of Fort Worth. Numerous smaller communities represent the balance of the population. The communities of White Settlement, Lake Worth Village, Westworth Village, River Oaks, and Sansom Park Village all lie within a 3-mile radius of NAS

Fort Worth. Most of the land surrounding NAS Fort Worth is zoned for residential use, but also includes areas zoned for recreational, commercial, and industrial uses.

1.2.2 Geology

The following sections discuss the regional geology for NAS Fort Worth.

1.2.2.1 Regional Geology

The geology of west-central Tarrant County consists of Early Cretaceous marine sedimentary rocks underlain by undifferentiated Paleozoic rocks. Unconsolidated thin alluvial deposits of the Quaternary period overlie bedrock along major stream and river valleys.

Sediments were deposited in the area during most of the Paleozoic era. Late in the Paleozoic era the area was uplifted, and extensive erosion during the Jurassic period produced a surface upon which early Cretaceous marine sediments were deposited as part of an oscillating shoreline. These marine sediments now exist as a southeast-thickening wedge extending into the East Texas basin. From the late Cretaceous period through the Tertiary period, the sea withdrew toward the Gulf of Mexico, and the land surface was eroded and shaped by streams. During the Quaternary period, the streams deposited alluvial sediments. The older sediments are represented by terrace deposits cut by the alluvial valleys of present streams.

Major structural features in the vicinity of Tarrant County include the Mexia-Talco fault system about 80 miles to the east, the leading edge of the Ouachita overthrust about 30 miles to the east, and the south end of the axis of the Fort Worth basin, located just to the east of the site.

The generalized regional stratigraphic units in the vicinity of Tarrant County are presented in Table 1-1. The units are briefly described in the following paragraphs.

TABLE 1-1
Stratigraphic Units of Interest in the Vicinity of NAS Fort Worth

Era	System	Series	Group	Stratgraphic Units
Cenozoic	Quaternary	Holocene		Fill Material Alluvium
		Pleistocene		Fluvial Terrace Deposits
Mesozoic	Cretaceous	Comanche	Washita	Duck Creek Limestone Kiamichi Formation
			Fredericksburg	Goodland Limestone Walnut Formation
			Trinity	Paluxy Formation Glen Rose Formation Twin Mountains Formation
Paleozoic				Paleozoic Undifferentiated

The fill materials consist of clay, silt, sand, gravel, and organic material occasionally mixed with general refuse and construction debris. The alluvial deposits fill present-day stream and river valleys and consist of sand, silt, clay, and gravel. The Terrace Alluvium, consisting of gravel, sand, silt, and clay, represent older floodplain sediments and occur above and are generally cut by the present stream valleys.

The Cretaceous rocks of the Comanche Series (the Washita, Fredericksburg, and Trinity Groups) all dip gently to the east-southeast at a rate of approximately 37 feet per mile (Leggat 1957). Units of the Washita Group (the Duck Creek Limestone and Kiamichi) do not occur at the sites, but do occur to the south and east of NAS Fort Worth (McGowen et al. 1988).

The Fredericksburg Group, which consists of the Goodland Limestone and the Walnut Formation, underlie most of the area and occasionally crop out. The Goodland Limestone is composed of white, chalky, fossiliferous, dense, thinly to massively bedded limestone interbedded with gray to yellow-brown stiff clay and marl (Hargis + Associates 1989a). The formation is extensively jointed and ranges from 0 to 130 feet thick in Tarrant County. The Walnut Formation, which averages

300 feet in thickness, is a fossiliferous limestone and shell coquinite, and consists of interbedded brown sandy clay, thinly bedded fossiliferous clay, fissile clay, and iron-stained limestone (Leggat 1957).

Rocks of the Trinity Group, consisting of the Paluxy, Glen Rose, and Twin Mountains Formations, underlie NAS Fort Worth. The Paluxy Formation consists of sandstone and siltstone interbedded with sandy to silty, calcareous, waxy clay, and shale (Nordstrom 1982). The sandstone is composed of fine- to coarse-grained, well-sorted, poorly consolidated, and cross-bedded white quartz. The thickness of the Paluxy Formation in Tarrant County is approximately 140 to 190 feet (Leggat 1957). Underlying the Paluxy Formation is the Glen Rose Formation consisting of sandstone, claystone, limestone, and anhydrite. In the vicinity of the Lake Worth, the Glen Rose Formation is approximately 250 feet thick.

Underlying the Glen Rose Formation is the Twin Mountains Formation. The Twin Mountains Formation grades upward from a chert and quartz conglomerate to a fine- to coarse-grained sandstone interbedded with shale and clay, and is approximately 250 feet thick in the vicinity of Lake Worth. Undifferentiated Paleozoic deposits underlie the Twin Mountains Formation and consist of shales, sandstones, and limestones 6,000 to 7,000 feet thick.

1.2.2.2 Geology of NAS Fort Worth

The geologic units of concern at NAS Fort Worth include, in stratigraphic order, the following:

- fill materials;
- alluvium;
- terrace deposits;
- Goodland Limestone;
- Walnut Formation; and
- Paluxy Formation.

No major faults or fracture zones have been mapped near the site. The following sections describe the physical characteristics, location, and thickness of each unit found at the site.

Fill. Fill material at NAS Fort Worth consists of variable mixtures of clay, silt, sand, and gravel, sometimes mixed with general refuse, chemical sludge, and construction debris. The fill occurs in landfills, waste pits, excavated areas, and other areas where the land surface has been altered for construction of buildings, roads, or runways.

Alluvium. Terrace alluvial material deposited by the Trinity River underlies the fill material or is found at the surface and consists of heterogeneous interbedded clay, silt, and poorly to moderately sorted sand, gravel, and occasional cobbles. Individual beds are continuous only over very short distances. The clastic materials in these sediments consist primarily of limestone and shell fragments, while quartz sand grains are a minor constituent.

Vertically, the Terrace Alluvium can be divided into two general lithologies: (1) a shallower unit composed of varying amounts of clayey sand, sandy clay, and gravelly clay; and (2) a deeper sand or gravel unit, usually saturated, that immediately overlies the bedrock. The upper part of the shallower unit (from the surface to a depth of 2 to 4 feet) has been discolored to a dark gray from the accumulation of organic matter, and for the purposes of the background studies, will be considered as a separate soil horizon.

The fill and alluvial deposits are found in nearly all areas of NAS Fort Worth; the thickness of these deposits varies considerably around the site. The thickest accumulations correspond to erosional depressions in the bedrock. One of these erosional depressions, or paleochannels, extends northeast from the southern end of the Plant 4 Assembly Building to the Plant 4 East Parking Lot is approximately 60 feet thick, and is a prominent subsurface feature governing Terrace Alluvium groundwater flow under NAS Fort Worth. A secondary channel appears to extend to

the southeast under the flight line. A cross section presented in the Summary of Interim Remedial Investigation (Hargis + Associates 1989a) indicates that this channel has cut down through nearly the entire thickness of the Walnut Formation.

Coarse sand and gravel deposits occur immediately above bedrock in several areas at NAS Fort Worth. The greatest thickness of these coarse deposits is in the paleochannels where the gravels were deposited as channel lag on the scoured bedrock surface. Basal sand and gravel in the paleochannel in the Plant 4 East Parking Lot area reaches a thickness of at least 15 feet (Hargis + Associates 1989a). Basal sand and gravel in the southeastward extension of this paleochannel under the runways at NAS Fort Worth range up to at least 35 feet thick. Sand and gravel greater than 20 feet thick also occur in an area that trends eastward approximately aligned with White Settlement Road. These deposits probably coincide with the location of a former channel of what is now Farmers Branch (Radian 1990).

Goodland Limestone. The Goodland Limestone is present in the subsurface throughout Plant 4 and NAS Fort Worth, except (1) where erosion has removed it in the northwest part of Plant 4, (2) in the northern portion of NAS Fort Worth, and (3) in deeply eroded meander bends cut by former courses of the West Fork of the Trinity River beneath both Plant 4 and NAS Fort Worth. The top of the formation is highly weathered in places because it was exposed for a long period before overlying alluvium was deposited. The thickness of the formation on the site is variable, depending on the amount of erosion that has occurred. The thickest Goodland Limestone encountered near the site (just west of Plant 4 at well EPA-4) is 47 feet.

The Goodland Limestone consists of chalky white, fossiliferous, dense, thinly to massively bedded limestone interbedded with gray to yellow-brown stiff clay and marl. Extensive jointing is common in weathered portions of the formation; however, core samples from the Goodland Limestone indicate that joints are rare when

unweathered. No faults are known to occur in the Goodland Limestone in the vicinity of Plant 4 (Hargis + Associates 1989b).

Walnut Formation. The Walnut Formation underlies most of Plant 4 and NAS Fort Worth. Where erosional channels have not been cut into the top of the Walnut Formation, the thickness of the formation is fairly constant at between 25 and 35 feet. Except for the deep paleochannel cut into the Walnut Formation in the East Parking Lot, the top of the Walnut Formation shows few abrupt changes in elevation.

The Walnut Formation is mainly a coquinite that contains abundant *Gryphaea marcoui* and *Exogyra texana* shell fossils (Leggat 1957). The coquinite often has a matrix of calcareous shale and clay. Interbeds of calcareous shale and clay also occur. Black, fissile shale was encountered in several boreholes from the upper part of the formation just above the coquinite. Dense sandy limestone, silty shale, and minor pyrite also occur in the lower part of the formation.

A disconformity separates the base of the Walnut Formation from the top of the Paluxy Formation. No faults are known to occur in the Walnut Formation in the vicinity of NAS Fort Worth.

Paluxy Formation. The Paluxy Formation, commonly called the Paluxy sand, is the upper member of the Early Cretaceous Trinity Group. The Paluxy Formation underlies all of NAS Fort Worth and Plant 4, and its uppermost part crops out along the Lake Worth shoreline.

The thickness of the Paluxy Formation ranges from 133 to 175 feet in the NAS Fort Worth and Plant 4 area (Hargis + Associates 1989b). The formation predominantly consists of several thick sandstone layers (cumulatively, about 120 feet thick in this area) separated by thin, discontinuous shale and claystone layers. The lower part of the Paluxy Formation is generally coarser grained than the upper part. This intercalated sandstone and shale sequence was deposited as a shifting complex of near-shore (littoral) environments on the western margin of the East Texas

embayment. The top of the underlying Glen Rose Formation is defined as the first occurrence of a limestone unit.

Sandstones in the Paluxy Formation are porous, fine- to very fine-grained, and composed of moderately to well sorted, subangular to subrounded white quartz sand. The sandstones are poorly cemented (friable) to slightly indurated with sparry calcite cement (Caughey 1977). Traces of pyrite, iron oxides (limonite concretions), and glauconite occur in the sandstone, and these can be locally abundant. Thinner sandstone beds may contain pyrite nodules, traces of lignite, silicified wood, and carbonized plant fragments. Low-angle cross-bedding has been observed in cores from the Paluxy Formation and in outcrops along the Lake Worth shoreline northwest of Plant 4 where horizontal, fossiliferous limestone beds of the Walnut Formation truncate cross-bedded yellow-brown sandstone of the upper Paluxy Formation.

Bedding in the gray to green-gray or olive-green shales (mudrocks) and silty claystones of the Paluxy Formation may be horizontally laminated, massive, or burrowed (churned or bioturbated). The mudstones commonly contain carbonized plant fragments and thin beds of lignite.

The thicknesses of individual sandstone and shaley units in the Paluxy Formation vary across the site. In the upper part of the Paluxy Formation, differences in the individual sandy and clayey units can be subtle (i.e., silty claystone compared with very fine-grained sandstone), and facies changes occur across the site (claystone may grade into very fine-grained sandstone).

1.2.3 Hydrogeology

The hydrogeology in the vicinity of NAS Fort Worth consists of three main units:

1. a shallow (or water table) aquifer within the fill, alluvium, and weathered Goodland Limestone;
2. an aquitard composed of competent bedrock of the Goodland Limestone and Walnut Formation; and

3. the Paluxy Aquifer, which is a source of municipal water supply for the city of White Settlement.

Discussions of each of these hydrogeologic units are presented in the following sections.

Shallow Aquifer. Shallow groundwater occurs in unconsolidated fill, alluvium, and weathered Goodland Limestone, all of which overlie competent bedrock. The lithology of the shallow groundwater system consists primarily of silt and clay material, with silty sand and gravel deposits often present in paleochannels incised into bedrock. The direction of groundwater flow is generally controlled by bedrock topography of the Goodland Formation. Groundwater flow in the shallow aquifer is generally to the east toward the West Fork of the Trinity, with some localized flow to the north toward Lake Worth, and in various directions toward Farmers Branch in the southern end of NAS Fort Worth.

The shallow groundwater system is underlain by competent Goodland Limestone and Walnut Formation. These two formations form an aquitard that restricts the flow of groundwater between the shallow aquifer and the underlying Paluxy Formation. In many areas, the Goodland Limestone is located at or very near the land surface, and the shallow groundwater is essentially absent in these areas. Elsewhere, the Goodland Limestone and Walnut Formation are incised by paleochannels filled with alluvium. The Goodland Limestone is often entirely absent in these areas. Locally, for example at the Plant 4 East Parking Lot "window area," the Walnut Formation has been eroded almost completely by a paleochannel.

Groundwater recharge to the fill and alluvium is from local rainfall and infiltration from streams and drainage ditches. Extensive paved areas and buildings restrict the natural infiltration of precipitation over much of NAS Fort Worth and Plant 4. However, precipitation does infiltrate through several large grassy areas that include portions of the flight line area, the radar range, and Landfills No. 2, 3, and 4.

Additional recharge also occurs as leakage from water-supply lines, fire-fighting pipe systems, cooling-water systems, sanitary sewers, and storm sewers.

Discharge from the shallow aquifer occurs primarily as seeps to Meandering Road Creek, baseflow to Farmers Branch, and discharge to the West Fork of the Trinity River. Discharge from the shallow groundwater also occurs as vertical leakage into the Paluxy Aquifer. Most of the vertical leakage occurs in the paleochannels where considerable portions of the Goodland Limestone and Walnut Formation are absent.

Slug tests completed during the Plant 4 Remedial Investigation (RI) Preliminary Assessment (PA)/Site Investigation (SI) to obtain estimates of hydraulic conductivity in easterly flowing upper zone groundwater, averaged 0.5×10^{-4} centimeters per second (cm/sec). These slug tests were completed on 13 wells, some of which were screened in the weathered portions of the Goodland Limestone (Rust Geotech 1995).

Hydraulic conductivities determined from slug tests ranged from 4.1×10^{-4} cm/sec to 7.98×10^{-3} cm/sec, while pump tests conducted in groundwater monitoring wells LF04-02 and LF04-03 averaged 2.8×10^{-1} cm/sec (Radian 1991). This value is within the typical range for clean sand and gravel deposits (U.S. Geological Survey 1989).

Goodland Limestone and Walnut Formation Aquitard. These two formations form an aquitard that restricts the vertical flow of groundwater between the shallow aquifer system and the Paluxy Aquifer. The entire section of Walnut Formation and at least a portion of the Goodland Limestone are present throughout most of NAS Fort Worth and the Plant 4 area. In the vicinity of NAS Fort Worth and Plant 4, the maximum thickness of the aquitard is approximately 30 feet, but is considerably thinner or absent in areas where paleochannels have incised into the Goodland Limestone and Walnut Formation. In highly incised areas, such as the window area, there is a potential for groundwater flow into the Paluxy Formation.

Vertical hydraulic conductivity of the competent Walnut Formation was measured on several drilling core samples collected during the Plant 4 RI PA/SI. The logarithmic mean of the measured hydraulic conductivity values is 7.0×10^{-10} cm/sec, based on a sampling of six cores. Additionally, hydrographs for paired Terrace Alluvium and Paluxy Formation monitoring wells also indicate that there is relatively little flow from the Terrace Alluvium to the Paluxy Formation (Rust Geotech 1995).

These estimates of vertical flow velocity through the Walnut Formation suggest that as long as the Walnut Formation is present, the downward flow of groundwater is very limited. The distribution of chemical constituents in the Paluxy Formation over most of Plant 4 confirms that there is very little flow of shallow groundwater through the aquitard.

The Paluxy Aquifer. The Paluxy Aquifer is an unconfined to semiconfined sandstone aquifer that underlies the Walnut Formation aquitard. The bottom of the Paluxy Aquifer is defined as the first occurrence of limestone beneath the Paluxy Formation. Limestone is the dominant component of the Glen Rose Formation, which underlies the Paluxy Formation.

In Tarrant and Dallas Counties, the Paluxy Aquifer is widely used as a source of water for domestic, municipal, and industrial water supplies. Development of the Paluxy Aquifer began in the early 1900s, with total production in the Tarrant and Dallas County areas reaching a peak in the late 1960s (Nordstrom 1982). The decline in production since the late 1960s resulted from large declines in hydraulic head caused by heavy pumping in eastern Tarrant County and central Dallas County. The declining water levels led to the abandonment of inefficient wells (Nordstrom 1982), which were then replaced by the development of other sources, such as the Twin Mountains Aquifer. In the immediate vicinity of Plant 4, seven water supply wells for the City of White Settlement obtain water from the Paluxy Aquifer.

The Paluxy Aquifer has been characterized in previous site reports as a stratified aquifer consisting of three distinct flow systems separated by continuous aquitards composed of siltstone, claystone, and/or shale. However, in most instances individual shale and

siltstone/claystone units cannot be correlated over large distances because of the variable distribution of the units and the uncertainty associated with the lithologic logs prepared on the basis of drill cuttings. Because of these observations, the Paluxy Aquifer is regarded as a single unconfined to semiconfined flow system consisting of a largely sandstone matrix with abundant layers of interbedded shale, siltstone, and claystone.

Recharge to the Paluxy Aquifer occurs largely as infiltration of precipitation falling on the outcrop in Wise, Parker, Hood, and Tarrant Counties. Recharge also occurs as infiltration from Lake Worth and Eagle Mountain Lake, both of which lie at least partially within the boundary of the outcrop. Additional minor amounts of recharge also occur as infiltration from streams that cross the outcrop. In the immediate vicinity of Plant 4, it is evident that small amounts of recharge are also derived from leakage of upper-zone Terrace Alluvium groundwater through the window area (where the Walnut Formation has been severely eroded) and leakage of surface water through the lower reaches of Meandering Road Creek. In both of these areas, most if not all of the Walnut Formation has been eroded reducing the capacity of this aquitard to impede the vertically downward flow of upper-zone groundwater and surface water.

1.2.4 Surface Water

The primary surface-water features in the vicinity of NAS Fort Worth include Lake Worth, Farmers Branch, and the West Fork of the Trinity River. Lake Worth is located along the northern boundary of the site, Farmers Branch flows eastward near the southern end of the site discharging into the West Fork of the Trinity River, and the West Fork of the Trinity River flows southeasterly from Lake Worth and borders the site on the east. Lake Worth was created by damming the West Fork of the Trinity River. Portions of NAS Fort Worth fall within the 100-year floodplain. These areas occur along portions of the West Fork of the Trinity River, Lake Worth, Farmers Branch, and Kings Branch.

1.2.5 Climatology/Meteorology

NAS Fort Worth is located at approximately 32 degrees north latitude and 97 degrees west longitude, in north-central Texas. The climate of the sites is typified by hot summers and cool, relatively dry winters.

1.2.5.1 Precipitation

Mean annual precipitation is 31.6 inches, with the highest mean precipitation occurring in April and May (3.8 and 4.4 inches), and in September and October (3.2 and 3.6 inches). Mean monthly precipitation amounts are lowest from November through February (1.8 inches or less), and during August (1.9 inches). Most precipitation occurs as rain; snowfall accounts for appreciable amounts of precipitation only during the months of January and February.

1.2.5.2 Temperature

Historical meteorological data from NAS Fort Worth during the years 1942 through 1990 indicate the mean annual temperature is 66 degrees Fahrenheit (° F). Mean monthly temperatures range from a high of 86° F (July) to a low of 45° F (January). High and low extreme temperatures were 110 and 0° F, respectively, during the record-keeping period.

1.2.5.3 Wind

During most of the year, the predominant wind direction is from the south at a speed of 6 to 8 knots. Typically, the wind blows from the north only during December through February, at a speed of 7 to 8 knots.

1.2.6 Biological Resources

The following sections describe the biological resources at NAS Fort Worth.

1.2.6.1 Flora and Fauna

Because of the urban environmental setting, few natural terrestrial and aquatic communities exist at NAS Fort Worth. The richest ecological community in the immediate area exists in the riparian corridor along Meandering Road Creek, west of Plant 4. At NAS Fort Worth, limited terrestrial and aquatic communities exist along the shores of Lake Worth, the West Fork of the Trinity River, Kings Branch and Farmers Branch.

Aquatic species observed in the West Fork of the Trinity include catfish, sunfish, and numerous varieties of bass. Common birds observed in the area include herons, kestrels, kingfishers, seagulls, mourning doves, meadowlarks, grackles, and starlings.

1.2.6.2 Threatened and Endangered Species

The U.S. Fish and Wildlife Service (FWS) and the Texas Department of Parks and Wildlife (TDPW) have identified 12 bird, two reptile, and one sensitive plant species that are threatened and endangered species potentially occurring in Tarrant County. The two federal-listed candidate reptile species that could also inhabit Tarrant County are the Texas horned lizard, which lives on grassy hillsides, and the Texas garter snake, which inhabits prairie seeps and wet grassy swales.

However, no state- or federal-listed threatened or endangered species are known to live on NAS Fort Worth property. The closest sensitive habitat to the sites is the great blue heron rookeries to the north of NAS Fort Worth, across Lake Worth.

1.2.7 Cultural/Archaeological Resources

One historical structure listed in the National Register of Historic Places (NRHP) exists within the boundaries of NAS Fort Worth. No significant archaeological or prehistoric sites have been identified within the boundary of NAS Fort Worth. Fossils are present in outcrops at NAS Fort Worth, but have not been identified as a significant paleontological resource.

1.3 PROJECT OBJECTIVES

The objectives of the basewide background study are as follows:

- To obtain samples that are representative, to the degree possible, of background concentrations. This may be difficult in the highly urban setting of NAS Fort Worth and because NAS Fort Worth is bounded on the west by Air Force Plant 4.
- To establish background levels of metals in Terrace Alluvium groundwater, surface water, sediment, and soil.

1.4 GENERAL APPROACH AND RATIONALE

The approach and rationale for the background study at NAS Fort Worth were developed to generate chemical compound constituent populations for pertinent media. The following discusses the approach and rationale used to select media and chemical analyses.

1.4.1 Media Classification

The media selected for determining background concentrations are surface soils, subsurface soils, the Terrace Alluvium aquifer, and surface water and sediments of the Farmers Branch. The surface and subsurface soils were designated in the field as Horizons A and B, respectively, for identification purposes and do not refer to soil horizons used in the pedological classification system (U.S. Department of the Interior [DOI] 1985). Although the Paluxy aquifer lies below the base, previous investigations have not indicated any impact from past installation operations on this aquifer. Therefore, the Paluxy aquifer was not evaluated for background concentrations.

Surface soils, Horizon A, are defined as the first-encountered soil type at the ground surface to a depth of 2 feet. This soil type varies from a sandy clay to clay with varying amounts of silt and fine subrounded gravel and is dark grayish brown to dark

gray in color. This soil type is the predominant surface soil at NAS Fort Worth, and has been observed up to depths of 4 feet below ground surface. However, in some locations this soil type is not found on the surface because of erosional effects and construction activities.

Subsurface soils, Horizon B, are defined as the second encountered soil type below the organically rich surface soil. The subsurface soil is a sandy clay with varying amounts of fine subrounded limestone clasts, reddish brown to strong brown. The thickness of this unit has been found to be from 5 to 15 feet across the base. Local differences in depositional environments provide for a wide variety of soil types at the base. However, Horizon B is found to be predominant from below Horizon A to within proximity of the groundwater capillary fringe in general. Sandy soils which tend to be saturated, are found below the reddish brown to brown sandy clays. The section of unsaturated sandy soils from the bottom of the Horizon B and the groundwater is generally thin and subject to saturation; therefore, it was not included in the background evaluation.

The Terrace Alluvium aquifer is found below the clay soils in coarser-grained sands and gravels at various depths ranging from a few feet to 37 feet below the ground surface. The depth to groundwater at the base is controlled by the depth of bedrock. The Terrace Alluvium is included in the background evaluation because of the widespread occurrence of Terrace Alluvium groundwater at NAS Fort Worth and the potential for environmental impacts to the groundwater.

The Farmer Branch Creek surface water and sediments were selected for background evaluation because the Farmers Branch is the only consistent upstream source flowing onto the base. Quarterly groundwater monitoring for the Air Force Plant 4 facility has shown that volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs) are present in the Farmers Branch at the base indicating the potential for environmental impact.

1.4.2 Chemical Analyses

All media were selected for metals, volatile compound, and semivolatile compound analyses. Because many metals are naturally occurring in soils, groundwater, surface water, and sediments in various concentrations, this study is concerned with the background concentrations of these metals.

Volatile and semivolatile organic compounds were also analyzed for in all media because of the urban setting of the base. Concentrations of volatiles and semivolatiles have been detected in all media addressed in this background study. The organic analyses performed will assist in determining whether samples may have been affected by past activities at the installation. When organic compounds were detected in a sample above the detection limits and unqualified, except for estimated qualifiers, the sample results for metals were not included in the statistical determination of background concentrations.

It is possible that samples could be impacted by metals without the presence of organic compounds. If this occurred in the data set, outlier tests determined whether the result was an outlier, or whether the result could be included in the population.

Metals analyses were performed on two sets of Terrace Alluvium groundwater samples. The first set of samples was collected using low-stress techniques, which produced samples with approximately zero turbidity. The second set of groundwater samples were collected using typical purging and bailer sampling techniques. The low-turbidity sample results were used to determine background concentrations for metals for sampling efforts that may be performed in this fashion in the future. The second set of sample results were used to determine background concentrations for comparison with data collected previously using the same sampling methodology.

1.4.3 Background Study

The analytical results were used to calculate background concentrations for 24 inorganic constituents in each of six background populations. A total of 30 surface soil, 30 subsurface soil, 12 groundwater samples (one low-volume sample and one bailer sample per well), eight surface water, and eight stream sediment samples were collected to characterize these media for background concentrations. The Tolerance Interval (TI) method (U.S. Environmental Protection Agency [EPA] 1989, 1992) was used to estimate background concentrations in site media. The TI method is used to estimate the concentration of a given constituent in a given medium and is expressed as an appropriate upper tolerance limit (UTL) of the distribution of the constituent in the background data population.

Section 4.0 discusses the process by which the UTLs were developed and reports the results for each inorganic analyte by media.

(intentionally blank)

4.0 BACKGROUND CHARACTERIZATION

To assess whether site activities at NAS Fort Worth have affected the concentrations of inorganic constituents in site groundwater, surface water, sediment, and soils, it is necessary to compare the concentrations inorganic constituents in site media with their concentrations in background samples. The TI method was used to estimate reasonable background concentrations. According to the TI method (EPA 1989, 1992), the concentration of a given constituent in a given media is expressed as an appropriate UTL of the distribution of the constituent in the background data population. A UTL is generally expressed in terms of confidence and coverage levels, so that it can be said with a specified level of confidence that the UTL indicates the concentration of the constituent below which a specified proportion of the background data distribution will occur. Thus, a UTL with 95 percent confidence and 95 percent coverage ($UTL_{95,95}$) is the value that we can say, with 95 percent confidence, will exceed 95 percent of the background data. Any site value greater than the UTL has only a 5 percent probability of being drawn from the background data population, and thus may indicate the presence of site-related constituents.

UTLs (and other statistical properties) were determined for a total of 24 inorganic constituents in each of six background populations. The populations consisted of surface and subsurface soil; groundwater sampled via a low-stress technique (to approximate filtered samples), groundwater sampled with a bailer (unfiltered samples), surface water, and sediment within the surface water drainages.

A total of 30 surface soil, 30 subsurface soil, 12 groundwater samples (one low-stress and one bailer sample per well), 8 surface water, and 8 stream sediment samples were collected to characterize these media for background concentrations.

4.1 STATISTICAL PARAMETERS OF BACKGROUND DATA SETS

The following statistical parameters are to be defined for each constituent:

- Frequency of Detection – The frequency of detection is reported.
- Range – Minimum and maximum observed values are reported.
- Mean – The arithmetic mean is reported.
- Standard Deviation – The sample standard deviation is reported.
- Upper Tolerance Limit (UTL) – The UTL 95 percent confidence, 95 percent coverage value ($UTL_{95,95}$) is reported.
- Outlier Identification – Potential outlier values are identified but not removed from the data set unless rejected by the data validation process.

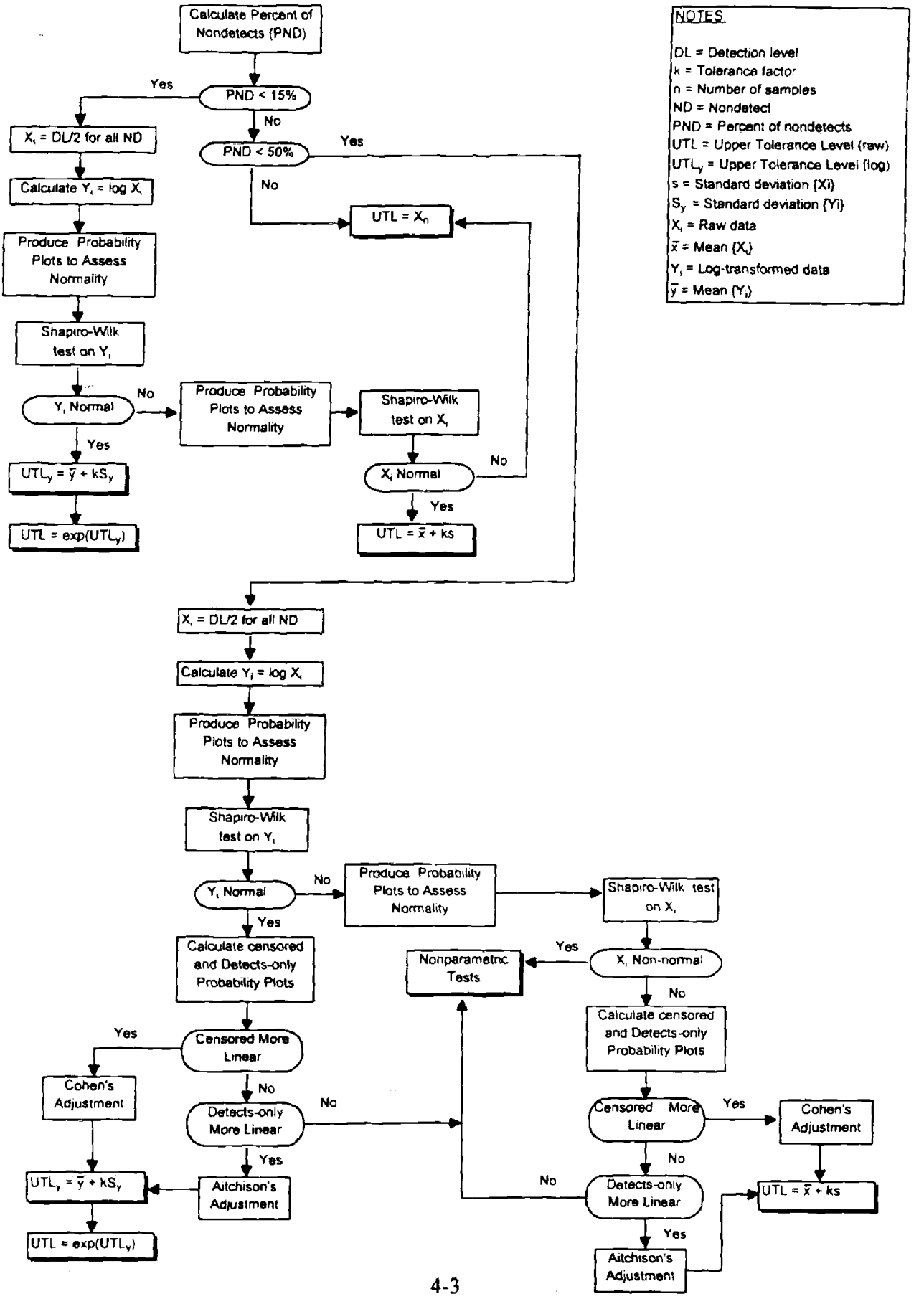
The statistical analyses applied were drawn from the following references:

- *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities: Interim Final Guidance*. (EPA 1989); and
- *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities: Addendum to Interim Final Guidance* (EPA 1992).

4.2 PROCEDURES

The data for a given constituent were analyzed according to the procedure outlined in Figure 4-1. The frequency of nondetects in the data set was calculated first. Unless the frequency of nondetects exceeded 50 percent, lognormality and normality of the data set were tested using graphical and formal calculation tests. Various statistical parameters were then calculated using formulas appropriate for the apparent distribution of the data set. In particular the $UTL_{95,95}$ was calculated as the value that we can say, with 95 percent confidence, will exceed 95 percent of the background data. If the frequency of nondetects exceeded 50 percent, or the distribution of the data set could not be demonstrated to be either normal or lognormal, then nonparametric estimates of the UTL were determined (typically the highest value in the data set). If the frequency of nondetects was between 15 and 50 percent,

FIGURE 4-1
Naval Air Station Fort Worth Background Study
Flowchart of Data Analyses



I:\CARSWELL\05G47900\WP\BKGRND\FLOWCHRT.XLS 1/21/97

appropriate adjustments to the calculated statistical parameters were used to account for the nondetects. For groundwater, a criteria of 17 percent as the minimum percentage of nondetects rather than the 15 percent recommended in the references was used based on the small sample size of 12 where each sample represents 8.33 percent of the total. This change allowed for analytes with only one or two nondetects out of 12 analyses to be handled by the simple substitution of one-half the detection limit and the subsequent calculation of a $UTL_{95,95}$.

The following sections discuss in greater detail the methods used to calculate UTLs and other statistical properties of background data sets.

4.2.1 Nondetects

Data that were reported at less than a detection level (i.e., nondetects) were treated differently depending on the frequency of nondetects. If the frequency of nondetects was less than 15 percent (17 percent for groundwater), the nondetects were replaced by one-half of the analytical method detection limit (EPA 1989, 1992), statistics were calculated, and statistical tests conducted using the data set with these replacement values. If the frequency of nondetects exceeded 50 percent, but was less than 100 percent, the nonparametric UTL was selected as the highest value in the data set (EPA 1989, 1992). In cases where the highest value was identified as a potential outlier, the second highest value was chosen as the UTL. If the frequency of nondetects was 100 percent, then the UTL was designated as the nondetect with the highest detection limit.

If the frequency of nondetects was between 15 and 50 percent, then the calculated statistics were adjusted for the presence of nondetects. Two adjustments are possible, depending on whether it appeared that the nondetects more likely represent zero values (i.e., the constituent is not present in the sample), or represent the presence of the constituent but at values less than the detection level. These adjustments are discussed further in Section 4.2.4.

4.2.2 Normality

The calculation of statistical parameters, and in particular the UTL, is affected significantly by the population distribution of the data set. Both formal and graphical statistical tests have been applied to assess normality. The general process is outlined in Figure 4-1.

To assess the population distribution of the data sets, each set was first addressed using a formal test for normality. Probability plots of the raw and log-transformed data were generated for some analytes to provide a graphical indication of whether the data distribution was normal or lognormal.

For the calculated statistical test of normality, it was first assumed that the data were lognormally distributed (EPA 1989, 1992). This assumption is based on the observation that environmental data are commonly distributed lognormally (i.e., logarithms of the observed data are distributed normally). This may be because environmental data are bounded by zero (i.e., negative constituent concentrations are not possible), so the data sets are often skewed to the right, which is characteristic of a lognormal distribution. Consequently, logarithms of the data were calculated before the tests for normality were performed.

Let x_i represent the raw data, and let $y_i = ln(x_i)$, where ln is the natural or Naperian logarithm. Let n be the statistical sample size (i.e., the number of data in the data set). If $n \leq 50$, then normality of the distribution of y_i was tested by the Shapiro-Wilk test (EPA 1989, 1992). If $n \geq 50$, then the alternate Shapiro-Francia test was applied (EPA 1992). In each case for the NAS Forth Worth AFB background groundwater data sets, the statistical sample size n was less than 50, and the Shapiro-Wilk test of normality was applied.

The Shapiro-Wilk test is described in EPA (1992). To test for normality of the data, a test statistic W is calculated as:

$$W = \left[\frac{b}{s\sqrt{n-1}} \right]^2$$

where:

$$b = \sum_{i=1}^{k} a_{n-i+1}(x_{(n-i+1)} - x_{(i)}) = \sum_{i=1}^{k} b_i$$

and x_i is the ith smallest ordered value;

a_i is a coefficient dependent on the sample size (n);

s is the standard deviation;

n is the number of samples; and

k is the greatest integer less than or equal to $\frac{n}{2}$

The null hypothesis of normality of the logs of the data was rejected if W was less than the appropriate critical value (dependent on n) (Appendix A, EPA 1992). If normality of the natural logs of the data was rejected, the test was repeated using the raw data x_i and the standard deviation s of the raw data. If the null hypothesis of normality was also rejected for the raw data, then probability plots of the raw and log-transformed data were examined to determine whether the data distribution was more nearly normal or lognormal. When a reasonable choice between normality and lognormality could still not be made, then a nonparametric test is recommended to compare site data with background data, rather than comparing site data to a background a single UTL.

4.2.3 Statistical Parameters

The following statistical parameters were calculated:

- frequency of detection;
- range;

- mean;
- standard deviation;
- UTL; and
- potential outlier statistic.

The calculation of these various parameters depends in part on whether the data set has been judged to be normally or lognormally distributed.

The frequency of detection is a simple ratio of the number of values greater than the MDL to the total number of samples in the data set. The range of the background data set for a given constituent is reported as the minimum and maximum observed values in the data set. These values do not depend on the shape of the distribution.

The mean $\bar{x}$ was calculated as the arithmetic mean of the data set

$$\bar{x} = (\Sigma_i x_i)/ n.$$

The standard deviation s was calculated as the sample standard deviation of the data set

$$s = \{[n \Sigma_i x_i^2 - (\Sigma_i x_i)^2]/[n (n - 1)]\}^{1/2}.$$

The $UTL_{95,95}$ was calculated as

$$UTL_{95,95} = \bar{x} + k s.$$

where k is the tolerance factor for a one-sided normal (or lognormal) tolerance interval with a minimum of 95 percent coverage, a 95 percent probability, and n background observations.

For distributions that were determined to be lognormal rather than normal, the UTL was calculated in the same fashion except that $\bar{x}$ was replaced by $\bar{y}$ (the mean of the

logarithms of the x_i) and s was replaced by S_y (the standard deviation of the logarithms of the x_i). The resultant value of the UTL (designated UTLy) is the UTL of the log-transformed data. The UTL for the raw data was then calculated as the exponential function of the UTLy of the log-transformed data; i.e., UTL = exp(UTLy).

4.2.4 Adjustment for Nondetects

If the frequency of nondetects for a given data set was between 15 (17 for groundwater) and 50 percent, appropriate adjustments to the calculated statistical parameters were used to account for the nondetects. Either Cohen's adjustment or Aitchison's adjustment was used, as outlined in EPA (1992) and excerpted below:

> Cohen's adjustment ... assumes that all the data (detects and nondetects) come from the same Normal or Lognormal population, but that nondetect values have been "censored" at their detection limits. This implies that the [constituent] of concern is present in nondetect samples, but the analytical equipment is not sensitive to concentrations lower than the detection limit. Aitchison's adjustment ... is constructed on the assumption that nondetect samples are free of contamination, so that all nondetects may be regarded as zero concentrations...
>
> To decide which approach is more appropriate ..., two separate Probability Plots can be constructed. In [the first] method, the combined set of detects and nondetects is ordered (with nondetects being given arbitrary but distinct ranks). ...Normal quantiles ... are then computed for the data set ... However, only the detected values and their associated Normal quantiles are actually plotted. If the shape of the Censored Probability Plot is reasonably linear, then Cohen's assumption that nondetects have been "censored" at their detection limit is probably

> acceptable ... If the Censored Probability Plot has significant bends and curves ..., one might consider Aitchison's procedure instead.
>
> To test the assumptions of Aitchison's method, a Detects-Only Probability Plot may be constructed. [N]ondetects are completely ignored and a standard Probability Plot is constructed using only the detected measurements. ... Thus, ... Normal quantiles are computed only for the ordered detected values. ... If the Detects-Only Probability Plot is reasonably linear, then the assumptions underlying Aitchison's adjustment (i.e., that "nondetects" represent zero concentrations ...) are probably reasonable.

Cohen's Adjustment. If it was determined that Cohen's adjustment was appropriate, the sample mean $\bar{x}_d$ and sample variance s_d^2 for only the data greater than the detection limit were first calculated. Then two parameters h and γ were computed as

$$h = (n - l)/n$$

and

$$\gamma = s_d^2/(\bar{x}_d - MDL)^2,$$

where l is the number of observations greater than the detection level, and MDL is the method detection limit. Based on the values of h and γ, a value λ was determined from a table in Appendix B of EPA (1989), and corrected values of the mean $\bar{x}$ and standard deviation s were calculated by

$$\bar{x} = \bar{x}_d - \lambda(\bar{x}_d - MDL)$$

and

$$s = [s_d^2 + \lambda(\bar{x}_d - MDL)^2]^{1/2}.$$

If the distribution appeared to be lognormal rather than normal, the adjustment was made using the mean and standard deviation of the logarithms of the detected values, rather than $\bar{x}_d$ and s_d^2.

Aitchison's Adjustment. If it was determined that Aitchison's adjustment is appropriate, the sample mean $\bar{x}_d$ and sample variance s_d^2 for only the data greater than the method detection limit were first calculated. Let $d = n - l$ be the number of nondetects. Then the adjusted mean $\bar{x}$ and standard deviation s are given by

$$\bar{x} = (1 - d/n)\ \bar{x}_d$$

and

$$s = \{[n - (d + 1)]\ s_d^2 /(n - 1) + [d(n - d)\ \bar{x}_d^2]/[n(n - 1)]\}^{1/2}.$$

If the distribution appeared to be lognormal rather than normal, then the adjustment was made using the mean and standard deviation of the logarithms of the detected values, rather than $\bar{x}_d$ and s_d^2.

4.2.5 Outlier Identification

The highest value (x_n) in each data set with a frequency of detection greater than 50 percent was subjected to a formal test as an outlier (EPA 1989). The mean $\bar{x}$ and standard deviation s of the entire data set were first calculated. A test statistic T_n was then calculated

$$T_n = (x_n - \bar{x})/s.$$

T_n was then compared to a critical value (dependent on n) (Appendix B, EPA 1989). If T_n was greater than the tabulated critical value, this provided evidence that x_n was a statistical outlier and not truly a member of the background data set. However, x_n was not rejected, modified, or otherwise excluded from the data set solely on this basis. Only if the data validation process or other review of the data indicated some problem

with the datum (such as a transcription error or failure to account for dilution) was any change made to the data set. The test for outliers merely identified those data that might be outliers and for which additional data review was warranted.

4.3 BACKGROUND CONCENTRATIONS

Results of the background study, including percent of samples below the detection limit, number of detects, minimum, maximum, mean, standard deviation, UTL, and outlier identification, are listed in Tables 4-1 through 4-6. Additionally, the tables identify the results of the Shapiro-Wilk test for normality, indicating the sample-size dependent critical value ($W_{(crit)}$) and the calculated test result for the log-transformed ($W_{(log)}$), and untransformed ($W_{(raw)}$) data. The following sections briefly explain the process by which background values were calculated for each media based on the Figure 4-1 flowchart for each analyte.

4.3.1 Soils

The Horizon A and Horizon B soils were evaluated separately.

4.3.1.1 Horizon A Soils

The following paragraphs briefly describe the process used to calculate each UTL. The analytes are grouped according to how the UTL was derived, based on the frequency of detection and the distribution of the data.

Calcium, Chromium, Cobalt, and Potassium. Calcium, chromium, cobalt, and potassium were detected in 30 of 30 samples. Based on the Shapiro-Wilk test, the null hypothesis of normality was accepted for the log-transformed data for each analyte (Table 4-1). The mean and standard deviation listed in Table 4-1 are for the

TABLE 4-1
Summary of Background Values for Surface Soil
Naval Air Station Fort Worth

Analyte	% Non-detects	Detects / Total	W (crit)	W (log)	W (raw)	Min	Max	Mean	Standard Deviation	$UTL_{95,95}$	Outlier?
Aluminum	0.0%	30 / 30	0.927	0.896 Reject	0.960 Accept	1790	19900	10775	5072	22035	No
Antimony	80.0%	6 / 30	-----	----- -----	----- -----	< 0.215	0.56	nc	nc	0.56	-----
Arsenic	0.0%	30 / 30	0.927	0.851 Reject	0.959 Accept	1.23	5.88	3.504	1.059	5.855	No
Barium	0.0%	30 / 30	0.927	0.810 Reject	0.281 Reject	24.9	1980	145.3	349.3	233.0	Yes
Beryllium	0.0%	30 / 30	0.927	0.808 Reject	0.911 Reject	0.164	1.02	0.6552	0.2432	1.0200	No
Calcium	0.0%	30 / 30	0.927	0.969 Accept	0.687 Reject	418	111000	20991	28270	167788	No
Cadmium	6.7%	28 / 30	0.927	0.928 Accept	0.809 Reject	0.054	0.625	0.2118	0.1119	0.5562	No
Chromium	0.0%	30 / 30	0.927	0.952 Accept	0.965 Accept	5.06	20.1	11.73	4.203	21.056	No
Cobalt	0.0%	30 / 30	0.927	0.961 Accept	0.953 Accept	1.54	10.2	4.751	1.851	11.050	No
Copper	0.0%	30 / 30	0.927	0.909 Reject	0.964 Accept	4.44	16.7	10.77	2.974	17.373	No
Iron	0.0%	30 / 30	0.927	0.879 Reject	0.946 Accept	3460	15500	10199	3386	17717	No
Lead	0.0%	30 / 30	0.927	0.927 Reject	0.750 Reject	6.08	40.5	14.59	6.628	30.97	Yes
Magnesium	0.0%	30 / 30	0.927	0.830 Reject	0.968 Accept	112	2830	1369	736	3003	No
Manganese	0.0%	30 / 30	0.927	0.923 Reject	0.624 Reject	132	1420	336.8	237.9	849.1	Yes
Mercury	93.3%	2 / 30	-----	----- -----	----- -----	< 0.031	0.14	nc	nc	0.14	-----
Molybdenum	80.0%	6 / 30	-----	----- -----	----- -----	< 0.657	1.460	nc	nc	1.460	-----
Nickel	0.0%	30 / 30	0.927	0.856 Reject	0.918 Reject	3.74	14.6	9.746	3.276	14.6	No
Potassium	0.0%	30 / 30	0.927	0.963 Accept	0.950 Accept	434	2790	1253	489.1	2895	No
Selenium	40.0%	18 / 30	0.927	0.857 Reject	0.840 Reject	0.059	0.637	0.212	0.1606	0.9072	No
Silver	3.3%	29 / 30	0.927	0.918 Reject	0.821 Reject	<0.025	0.213	0.0701	0.0352	0.213	No
Sodium	3.3%	29 / 30	0.927	0.723 Reject	0.467 Reject	<2.57	37300	3482	8804	25800	Yes
Thallium	16.7%	25 / 30	0.927	0.683 Reject	0.857 Reject	0.555	107	35.54	24.89	63.9	Yes
Vanadium	0.0%	30 / 30	0.927	0.884 Reject	0.966 Accept	5.82	48.5	23.89	10.08	46.26	No
Zinc	0.0%	30 / 30	0.927	0.819 Reject	0.488 Reject	13.3	124	29.30	18.96	38.8	Yes

Notes:

All units are in milligrams per kilogram (mg/kg).

----- = not applicable
nc = not calculated
ND = not detected
$UTL_{95,95}$ = Upper Tolerance Level (95% confidence and 95% coverage)
Outlier? = Result of test to determine if the maximum value is a potential outlier.
W (crit) = Shapiro-Wilk critical value
W (log) = calculated W using log-transformed data and result when compared to W (crit)
W (raw) = calculated W using raw data and result when compared to W (crit)

TABLE 4-2
Summary of Background Values for Subsurface Soil
Naval Air Station Fort Worth

Analyte	% Non detects	Detects / Total	W (crit)	W (log)	W (raw)	Minimum	Maximum	Mean	Standard Deviation	$UTL_{95,95}$	Outlier?
Aluminum	0.0%	30 / 30	0.927	0.960 Accept	0.955 Accept	3780	17700	9905	3277	17180	No
Antimony	80.0%	6 / 30	0.927	----- -----	----- -----	< 0.21	0.712	nc	nc	0.712	----
Arsenic	0.0%	30 / 30	0.927	0.963 Accept	0.942 Accept	1.42	5.31	3.0317	1.1266	5.533	No
Barium	0.0%	30 / 30	0.927	0.922 Reject	0.974 Accept	16.4	127	65.83	28.03	128.1	No
Beryllium	0.0%	30 / 30	0.927	0.966 Accept	0.969 Accept	0.208	1.07	0.5629	0.1776	0.957	No
Calcium	0.0%	30 / 30	0.927	0.733 Reject	0.853 Reject	751	347000	91395	76216	272000	Yes
Cadmium	33.3%	20 / 30	0.927	0.829 Reject	0.390 Reject	0.055	1.48	0.1754	0.2540	0.5891	Yes
Chromium	0.0%	30 / 30	0.927	0.937 Accept	0.847 Reject	5.77	17.90	9.494	2.766	16.31	No
Cobalt	10.0%	27 / 30	0.927	0.762 Reject	0.954 Accept	0.4395	5.5	3.181	1.356	6.191	No
Copper	0.0%	30 / 30	0.927	0.848 Reject	0.952 Accept	2.61	13.30	8.119	2.524	13.72	No
Iron	0.0%	30 / 30	0.927	0.936 Accept	0.941 Accept	3840	16900	9185	2720	15224	No
Lead	6.7%	28 / 30	0.927	0.746 Reject	0.949 Accept	0.073	14.3	5.280	3.325	12.66	No
Magnesium	0.0%	30 / 30	0.927	0.697 Reject	0.843 Reject	292	2420	1569	582.1	2420	No
Manganese	0.0%	30 / 30	0.927	0.904 Reject	0.964 Accept	28.7	317	169.6	82.03	351.7	No
Mercury	100.0%	0 / 30	0.927	----- -----	----- -----	< 0.03	< 0.035	nc	nc	ND at 0.035	----
Molybdenum	80.0%	6 / 30	0.927	----- -----	----- -----	< 0.638	1.930	nc	nc	1.930	----
Nickel	0.0%	30 / 30	0.927	0.959 Accept	0.837 Reject	4.17	22.1	9.166	3.862	19.76	No
Potassium	0.0%	30 / 30	0.927	0.909 Reject	0.977 Accept	271	1900	1000	322.8	1717	No
Selenium	80.0%	6 / 30	0.927	----- -----	----- -----	< 0.12	0.3130	nc	nc	0.3130	----
Silver	33.3%	20 / 30	0.927	0.862 Reject	0.847 Reject	<0.021	0.0928	0.0354	0.0273	0.1277	No
Sodium	10.0%	27 / 30	0.927	0.898 Reject	0.426 Reject	1.1	53200	4225	11762	53200	No
Thallium	13.3%	26 / 30	0.927	0.630 Reject	0.858 Reject	0.575	65.4	34.74	19.84	65.4	No
Vanadium	0.0%	30 / 30	0.927	0.980 Accept	0.926 Reject	9.7	37.8	20.33	6.245	37.39	No
Zinc	0.0%	30 / 30	0.927	0.851 Reject	0.963 Accept	5.9	31	18.70	5.663	31.27	No

Notes:

All units are in milligrams per kilogram (mg/kg)

----- = not applicable

nc = not calculated

ND = not detected

$UTL_{95,95}$ = Upper Tolerance Level (95% confidence and 95% coverage)

Outlier? = Result of test to determine if the maximum value is a potential outlier.

W (crit) = Shapiro-Wilk critical value

W (log) = calculated W using log-transformed data and result when compared to W (crit)

W (raw) = calculated W using raw data and result when compared to W (crit)

I:\CARSWELL\05G47900\WP\BKGRND\TBL_42 XLS

TABLE 4-3
Summary of Background Values for Low-Stress Groundwater Samples
Naval Air Station Fort Worth

Analyte	% Non detects	Detects / Total	W (crit)	W (log)	W (raw)	Minimum	Maximum	Mean	Standard Deviation	$UTL_{95,95}$	Outlier?
Aluminum	25.0%	9 / 12	0.859	0.930 Accept	0.505 Reject	0.052	0.472	0.0754	0.1910	1.332	No
Antimony	100.0%	0 / 12	0.859	----- -----	----- -----	< 0.002	< 0.002	nc	nc	ND at 0.002	-----
Arsenic	100.0%	0 / 12	0.859	----- -----	----- -----	< 0.0049	< 0.0049	nc	nc	ND at 0.0049	-----
Barium	0.0%	12 / 12	0.859	0.887 Accept	0.647 Reject	0.052	0.472	0.135	0.114	0.587	Yes
Beryllium	91.7%	1 / 12	0.859	----- -----	----- -----	< 0.0003	0.0003	nc	nc	0.0003	-----
Calcium	0.0%	12 / 12	0.859	0.855 Reject	0.905 Accept	56.5	193	141.7	45.5	266.3	No
Cadmium	100.0%	0 / 12	0.859	----- -----	----- -----	< 0.0005	< 0.0005	nc	nc	ND at 0.0005	-----
Chromium	91.7%	1 / 12	0.859	----- -----	----- -----	< 0.0053	0.0064	nc	nc	0.006	-----
Cobalt	100.0%	0 / 12	0.859	----- -----	----- -----	< 0.0089	< 0.0089	nc	nc	ND at 0.0089	-----
Copper	91.7%	1 / 12	0.859	----- -----	----- -----	< 0.0008	0.0028	nc	nc	0.0028	-----
Iron	0.0%	12 / 12	0.859	0.874 Accept	0.872 Accept	0.0049	0.072	0.0253	0.0194	0.2239	No
Lead	100.0%	0 / 12	0.859	----- -----	----- -----	< 0.0016	< 0.0016	nc	nc	ND at 0.0016	-----
Magnesium	0.0%	12 / 12	0.859	0.839 Reject	0.639 Reject	2.76	37.8	10.32	10.49	37.80	No
Manganese	0.0%	12 / 12	0.859	0.820 Reject	0.376 Reject	0.0019	2.86	0.2713	0.8177	0.175	Yes
Mercury	100.0%	0 / 12	0.859	----- -----	----- -----	< 0.0001	< 0.0001	nc	nc	ND at 0.0001	-----
Molybdenum	100.0%	0 / 12	0.859	----- -----	----- -----	< 0.0144	< 0.0144	nc	nc	ND at 0.0144	-----
Nickel	75.0%	3 / 12	0.859	----- -----	----- -----	< 0.002	0.0204	nc	nc	0.0204	-----
Potassium	33.3%	8 / 12	0.859	0.890 Accept	0.665 Reject	0.233	5.55	1.277	2.079	15.03	No
Selenium	25.0%	9 / 12	0.859	0.823 Reject	0.882 Accept	0.00055	0.0046	0.0021	0.0012	0.0077	No
Silver	91.7%	1 / 12	0.859	----- -----	----- -----	< 0.0002	0.0002	nc	nc	0.0002	-----
Sodium	0.0%	12 / 12	0.859	0.885 Accept	0.519 Reject	6.17	144	28.76	37.05	167.2	Yes
Thallium	100.0%	0 / 12	0.859	----- -----	----- -----	< 0.0632	< 0.0632	nc	nc	ND at 0.0632	-----
Vanadium	18.2%	9 / 11	0.859	0.893 Accept	0.863 Accept	< 0.0029	0.0074	0.0034	0.0018	0.0123	No
Zinc	36.4%	7 / 11	0.859	0.877 Accept	0.622 Reject	0.00195	0.0487	0.0101	0.0170	0.1180	No

Notes:

All units are in milligrams per liter (mg/L).

----- = not applicable
nc = not calculated
ND = not detected
$UTL_{95,95}$ = Upper Tolerance Level - (95% confidence and 95% coverage)
Outlier? = Result of test to determine if the maximum value is a potential outlier.

W (crit) = Shapiro-Wilk critical value
W (log) = calculated W using log-transformed data and result when compared to W (crit)
W (raw) = calculated W using raw data and result when compared to W (crit)

TABLE 4-4
Summary of Background Values for Unfiltered Groundwater Samples
Naval Air Station Fort Worth

Analyte	% Non detects	Detects / Total	W (crit)	W (log)	W (raw)	Minimum	Maximum	Mean	Standard Deviation	$UTL_{95,95}$	Outlier?
Aluminum	0.0%	12 / 12	0.859	0.950 Accept	0.779 Reject	0.0699	2.45	0.8072	0.8586	11.07	No
Antimony	91.7%	1 / 12	0.859	----- -----	----- -----	< 0.002	0.0024	nc	nc	0.0024	—
Arsenic	91.7%	1 / 12	0.859	----- -----	----- -----	< 0.0049	0.0067	nc	nc	0.0067	—
Barium	0.0%	12 / 12	0.859	0.982 Accept	0.882 Accept	0.0358	0.513	0.1931	0.1362	1.133	No
Beryllium	66.7%	4 / 12	0.859	----- -----	----- -----	< 0.0003	0.0019	nc	nc	0.0019	—
Calcium	0.0%	12 / 12	0.859	0.916 Accept	0.806 Reject	102	881	406.6	300.8	2438	No
Cadmium	66.7%	4 / 12	0.859	----- -----	----- -----	< 0.0005	0.0016	nc	nc	0.0016	—
Chromium	58.3%	5 / 12	0.859	----- -----	----- -----	< 0.0053	0.0136	nc	nc	0.0136	—
Cobalt	91.7%	1 / 12	0.859	----- -----	----- -----	< 0.0089	0.01	nc	nc	0.01	—
Copper	50.0%	6 / 12	0.859	----- -----	----- -----	< 0.0008	0.0101	nc	nc	0.0101	—
Iron	0.0%	12 / 12	0.859	0.984 Accept	0.828 Reject	0.0768	2.64	0.7838	0.7026	7.234	No
Lead	100.0%	0 / 12	0.859	----- -----	----- -----	< 0.0016	< 0.0016	nc	nc	ND at 0.0016	—
Magnesium	0.0%	12 / 12	0.859	0.905 Accept	0.735 Reject	3.79	35.6	11.91	10.65	68.78	No
Manganese	0.0%	12 / 12	0.859	0.958 Accept	0.863 Accept	0.0393	2.17	0.7055	0.6592	10.57	No
Mercury	100.0%	0 / 12	0.859	----- -----	----- -----	< 0.0001	< 0.0001	nc	nc	ND at 0.0001	—
Molybdenum	100.0%	0 / 12	0.859	----- -----	----- -----	< 0.0144	< 0.0144	nc	nc	ND at 0.0144	—
Nickel	0.0%	12 / 12	0.859	0.92 Accept	0.78 Reject	0.0022	0.0203	0.0068	0.0055	0.0364	No
Potassium	50.0%	6 / 12	0.859	----- -----	----- -----	< 0.466	3.9	nc	nc	3.9	—
Selenium	16.7%	10 / 12	0.859	0.891 Accept	0.851 Reject	< 0.0011	0.0042	0.0018	0.0009	0.0072	No
Silver	91.7%	1 / 12	0.859	----- -----	----- -----	< 0.0002	0.0003	nc	nc	0.0003	—
Sodium	0.0%	12 / 12	0.859	0.960 Accept	0.630 Reject	1.96	91.5	20.24	23.68	176.2	No
Thallium	100.0%	0 / 12	0.859	----- -----	----- -----	< 0.0632	< 0.0632	nc	nc	ND at 0.0632	—
Vanadium	9.1%	10 / 11	0.859	0.943 Accept	0.920 Accept	0.00145	0.0247	0.0093	0.0066	0.0653	No
Zinc	9.1%	10 / 11	0.859	0.964 Accept	0.874 Accept	0.00195	0.0307	0.0107	0.0082	0.0682	No

Notes:

All units are in milligrams per liter (mg/L).

----- = not applicable
nc = not calculated
ND = not detected
$UTL_{95,95}$ = Upper Tolerance Level- (95% confidence and 95% coverage)
Outlier? = Result of test to determine if the maximum value is a potential outlier.

W (crit) = Shapiro-Wilk critical value
W (log) = calculated W using log-transformed data and result when compared to W (crit)
W (raw) = calculated W using raw data and result when compared to W (crit)

TABLE 4-5
Summary of Background Statistics for Surface Water
Naval Air Station Fort Worth

Analyte	% Non-detects	Detects / Total	W (crit)	W (log)	W (raw)	Minimum	Maximum	Mean	Standard Deviation	$UTL_{95,95}$	Outlier?
Aluminum	0.0%	8 / 8	0.818	0.848 Accept	0.729 Reject	0.0509	0.178	0.0842	0.0410	0.2716	Yes
Antimony	75.0%	2 / 8	0.818	----- -----	----- -----	< 0.002	0.0031	nc	nc	0.0031	-----
Arsenic	100.0%	0 / 8	0.818	----- -----	----- -----	< 0.0049	< 0.0049	nc	nc	ND at 0.0049	-----
Barium	0.0%	8 / 8	0.818	0.957 Accept	0.928 Accept	0.0759	0.124	0.0953	0.0146	0.151	No
Beryllium	100.0%	0 / 8	0.818	----- -----	----- -----	< 0.0003	< 0.0003	nc	nc	ND at 0.0003	-----
Calcium	0.0%	8 / 8	0.818	0.908 Accept	0.879 Accept	84.1	118	96.01	10.61	133.7	No
Cadmium	87.5%	1 / 8	0.818	----- -----	----- -----	< 0.0005	0.0005	nc	nc	ND at 0.0005	-----
Chromium	62.5%	3 / 8	0.818	----- -----	----- -----	< 0.0053	0.0078	nc	nc	0.0078	-----
Cobalt	100.0%	0 / 8	0.818	----- -----	----- -----	< 0.0089	< 0.0089	nc	nc	ND at 0.0089	-----
Copper	25.0%	6 / 8	0.818	0.566 Reject	0.566 Reject	< 0.0004	0.0101	0.0077	0.0045	0.0101	No
Iron	0.0%	8 / 8	0.818	0.930 Accept	0.989 Accept	0.0221	0.223	0.1128	0.0633	0.9208	No
Lead	100.0%	0 / 8	0.818	----- -----	----- -----	< 0.0016	< 0.0016	nc	nc	ND at 0.0016	-----
Magnesium	0.0%	8 / 8	0.818	0.993 Accept	0.976 Accept	2.07	5.52	3.58	1.114	9.353	No
Manganese	0.0%	8 / 8	0.818	0.937 Accept	0.864 Accept	0.0038	0.0716	0.0251	0.0218	0.4193	No
Mercury	87.5%	1 / 8	0.818	----- -----	----- -----	< 0.0001	0.0001	nc	nc	0.0001	-----
Molybdenum	100.0%	0 / 8	0.818	----- -----	----- -----	< 0.0144	< 0.0144	nc	nc	ND at 0.0144	-----
Nickel	87.5%	1 / 8	0.818	----- -----	----- -----	<0.002	0.0178	nc	nc	0.0178	-----
Potassium	0.0%	8 / 8	0.818	0.893 Accept	0.924 Accept	2.06	3.93	3.001	0.6836	6.347	No
Selenium	25.0%	6 / 8	0.818	0.689 Reject	0.779 Reject	0.00055	0.0025	0.0018	0.0008	0.0115	No
Silver	75.0%	2 / 8	0.818	----- -----	----- -----	< 0.0002	0.0003	nc	nc	0.0003	-----
Sodium	0.0%	8 / 8	0.818	0.959 Accept	0.943 Accept	19.3	32.9	25.74	4.752	45.46	No
Thallium	100.0%	0 / 8	0.818	----- -----	----- -----	< 0.0632	< 0.0632	nc	nc	ND at 0.0632	-----
Vanadium	25.0%	6 / 8	0.818	0.882 Accept	0.941 Accept	< 0.0029	0.0058	nc	nc	0.0159	-----
Zinc	75.0%	2 / 8	0.818	----- -----	----- -----	<0.0039	0.0122	nc	nc	0.0122	No

Notes:

All units are in milligrams per liter (mg/L).

----- = not applicable
nc = not calculated
ND = not detected
$UTL_{95,95}$ = Upper Tolerance Level (95% confidence and 95% coverage)
Outlier? = Result of test to determine if the maximum value is a potential outlier
W (crit) = Shapiro-Wilk critical value
W (log) = calculated W using log-transformed data and result when compared to W (crit)
W (raw) = calculated W using raw data and result when compared to W (crit)

TABLE 4-6
Summary of Background Values for Stream Sediment Samples
Naval Air Station Fort Worth

Analyte	% Non detects	Detects / Total	W (crit)	W (log)	W (raw)	Minimum	Maximum	Mean	Standard Deviation	$UTL_{95,95}$	Outlier?
Aluminum	0.0%	8 / 8	0.818	0.892 Accept	0.924 Accept	2280	9240	5540	2679	28767	No
Antimony	87.5%	1 / 8	0.818	----- -----	----- -----	< 0.244	0.33	nc	nc	0.33	----
Arsenic	0.0%	8 / 8	0.818	0.951 Accept	0.925 Accept	2.85	5.27	3.7488	0.7848	7.018	No
Barium	0.0%	8 / 8	0.818	0.920 Accept	0.918 Accept	21.9	76.8	48.03	19.60	180.4	No
Beryllium	0.0%	8 / 8	0.818	0.912 Accept	0.912 Accept	0.194	0.557	0.3734	0.1336	1.189	No
Calcium	0.0%	8 / 8	0.818	0.877 Accept	0.928 Accept	75100	189000	139888	35825	337544	No
Cadmium	0.0%	8 / 8	0.818	0.859 Accept	0.866 Accept	0.152	0.292	0.2164	0.0588	0.5071	No
Chromium	0.0%	8 / 8	0.818	0.869 Accept	0.885 Accept	4.81	9.59	7.546	1.840	17.0	No
Cobalt	0.0%	8 / 8	0.818	0.882 Accept	0.872 Accept	1.59	3.43	2.51	0.7757	6.651	No
Copper	0.0%	8 / 8	0.818	0.961 Accept	0.953 Accept	4.28	11.7	7.428	2.627	22.18	No
Iron	0.0%	8 / 8	0.818	0.807 Reject	0.832 Accept	5030	8080	6923	1184	10696	No
Lead	0.0%	8 / 8	0.818	0.956 Accept	0.818 Reject	2.21	26.9	9.1	8.330	104.1	No
Magnesium	0.0%	8 / 8	0.818	0.912 Accept	0.938 Accept	1450	2140	1876	221.7	2772	No
Manganese	0.0%	8 / 8	0.818	0.840 Accept	0.743 Reject	143	362	198.4	71.16	491.3	Yes
Mercury	87.5%	1 / 8	0.818	----- -----	----- -----	< 0.037	0.0360	nc	nc	0.0360	----
Molybdenum	12.5%	7 / 8	0.818	0.894 Accept	0.963 Accept	0.4355	2.68	1.659	0.7692	9.693	No
Nickel	0.0%	8 / 8	0.818	0.937 Accept	0.958 Accept	5.55	12	9.0475	2.147	19.76	No
Potassium	0.0%	8 / 8	0.818	0.904 Accept	0.929 Accept	386	1300	788.4	340	3227	No
Selenium	87.5%	1 / 8	0.818	----- -----	----- -----	< 0.134	0.214	nc	nc	0.214	----
Silver	0.0%	8 / 8	0.818	0.965 Accept	0.888 Accept	0.0311	0.0929	0.0532	0.0188	0.144	No
Sodium	75.0%	2 / 8	0.818	----- -----	----- -----	< 2.44	6.07	nc	nc	6.07	----
Thallium	0.0%	8 / 8	0.818	0.912 Accept	0.936 Accept	22.2	43.4	33.41	7.443	69.74	No
Vanadium	0.0%	8 / 8	0.818	0.902 Accept	0.896 Accept	15.4	24.1	19.26	3.206	32.26	No
Zinc	0.0%	8 / 8	0.818	0.971 Accept	0.853 Accept	11.3	53.9	25.48	13.11	101.3	No

Notes:

All units are in milligrams per kilogram (mg/kg)

----- = not applicable
nc = not calculated
ND = not detected

$UTL_{95,95}$ = Upper Tolerance Level (95% confidence and 95% coverage)
Outlier? = Result of test to determine if the maximum value is a potential outlier.
W (crit) = Shapiro-Wilk critical value
W (log) = calculated W using log-transformed data and result when compared to W (crit)
W (raw) = calculated W using raw data and result when compared to W (crit)

I:\CARSWELL\05G47900\WP\BKGRND\TBL_46 XLS 1/28/97

Draft

raw data. Because the null hypothesis of log-normality was accepted, a UTLy based on the mean and standard deviation of the log-transformed data was calculated, and the UTL was calculated as exputlyUTLy). No outliers were identified based on the formal test of the log-transformed data.

Lead and Manganese. Lead and manganese were detected in 30 of 30 samples. Based on the Shapiro-Wilk test, the null hypothesis of normality was rejected for the log-transformed data for each analyte (Table 4-1). However, because the calculated W was equal to W(crit) (*W* 0.927 = W(crit) 0.927) for lead, and was very close (*W* 0.923 < W(crit) 0.927) for manganese, the data sets were considered to be lognormally distributed. The mean and standard deviation listed in Table 4-1 are for the raw data. Because the null hypothesis of log-normality was accepted, a UTLy based on the mean and standard deviation of the log-transformed data was calculated, and the UTL was calculated as exp(UTLy). The highest concentration for both lead and manganese was identified as a potential outlier based on the formal test of the log-transformed data.

Aluminum, Arsenic, Copper, Iron, Magnesium, and Vanadium. Aluminum, arsenic, copper, iron, magnesium, and vanadium were detected in 30 of 30 samples. Based on the Shapiro-Wilk test, the null hypothesis of normality was rejected for the log-transformed data but accepted for the raw data for these analytes (Table 4-1). The mean, standard deviation, and UTL listed in Table 4-1 are for the raw data. No outliers were identified based on the formal test of the log-transformed data.

Cadmium. Cadmium was detected in 28 of 30 samples. Based on the Shapiro-Wilk test, the null hypothesis of normality was accepted for the log-transformed data for cadmium (Table 4-1). The mean and standard deviation listed in Table 4-1 are for the raw data. Because the null hypothesis of log-normality was accepted, a UTLy based on the mean and standard deviation of the log-transformed data was calculated, and

the UTL was calculated as exp(UTLy). No outliers were identified based on the formal test of the log-transformed data.

Antimony, Mercury, and Molybdenum. Antimony, mercury, and molybdenum were not detected in a large percentage of samples. Antimony and molybdenum were not detected in 80 percent of the samples, and mercury was not detected in 93.3 percent of samples. For these three analytes the minimum value is a nondetect at the lowest detection limit and the maximum value is the maximum detected value. Mean and standard deviation were not calculated because data were insufficient. The UTL was established as the highest detected value. No test for outliers was performed because of the high number of nondetects.

Beryllium Nickel, and Silver. Beryllium and nickel were detected in 30 of 30 samples, and silver was detected in 29 of 30 samples. Based on the Shapiro-Wilk test, the null hypothesis of normality was rejected for both the log-transformed and the raw data (Table 4-1). The mean and standard deviation listed in Table 4-1 are for the raw data. The UTL was established as the highest detected value. No outliers were identified based on the formal test of the log-transformed data.

Barium, Sodium, and Zinc. Barium and zinc were detected in 30 of 30 samples, and sodium was detected in 29 of 30 samples. Based on the Shapiro-Wilk test, the null hypothesis of normality was rejected for both the log-transformed and the raw data (Table 4-1). The mean and standard deviation listed in Table 4-1 are for the raw data. The UTL, which would normally be established as the highest detected value in this case, was found to be a potential outlier. The second highest value was therefore established as the UTL.

Selenium. Selenium was detected in 18 of 30 samples, so the frequency of nondetects was 40 percent. Based on the Shapiro-Wilk test, the null hypothesis of normality was rejected for both the log-transformed and the raw data (Table 4-1). The mean and standard deviation listed in Table 4-1 are for the raw data. Review of the data

suggested that either the raw data or log-transformed data might be reasonably normal under Cohen's assumption that nondetects represent the presence of these analytes at levels too small to be quantified by the laboratory. Consequently, the censored and detects-only probability plots were prepared for both the raw data and log-transformed data. The most linear of the probability plots was the censored data plot for log-transformed data. Therefore, Cohen's adjustment was applied to the log-transformed data.

Based on Cohen's adjustment, estimates were calculated for the mean, $\bar{y}$, and standard deviation, sy, of the log-transformed data. The UTLy was then calculated from these values, and the UTL was calculated as UTL = exp(UTLy).

Because Cohen's adjustment was applied to the log-transformed data, we only have estimates of the mean and standard deviation of the log-transformed data. To obtain reliable estimates of the mean and standard deviation of the raw data set, estimates provided by Gilbert (1987) were applied. Thus, the mean $\bar{x}$ is estimated by

$$\bar{x} = \exp(\bar{y} + s_y^2/2),$$

and the standard deviation s is estimated by

$$s = \bar{x}\,[\exp(s_y^2) - 1]^{1/2}.$$

No outliers were identified using the formal test for outliers using the mean and standard deviation from the Cohen adjustment for log-transformed data.

<u>Thallium</u>. Thallium was detected in 25 of 30 samples. Based on the Shapiro-Wilk test, the null hypothesis of normality was rejected for both the log-transformed and raw data. Because the distribution of the data is bimodal with a potential outlier, Cohen's Adjustment results in a UTL almost 10 times greater than the highest value.

The UTL was therefore established as the second highest value. (Note: the bimodal nature of the data may be due to variability in the test method by the laboratory.)

Recommendations for Nonparametric Tests. The UTL was established as the highest or second highest value for several constituents either because the distributions were not clearly normal or lognormal, or because the percent of nondetects was between 50 and 90 percent. Although UTLs have been calculated for all such constituents, it is recommended that site-specific comparisons against UTLs for some constituents be supplemented by nonparametric tests such as the Wilcoxon rank-sum test or the Kruskal-Wallis test (Gilbert 1987; EPA 1992). Supplemental nonparametric tests are recommended for antimony, barium, beryllium, lead, manganese, molybdenum, nickel, silver, sodium, thallium, and zinc.

4.3.1.2 Horizon B Soils

Aluminum, Arsenic, Beryllium, Chromium, Iron, Nickel, and Vanadium. Aluminum, arsenic, beryllium, chromium, iron, nickel, and vanadium were detected in 30 of 30 samples. Based on the Shapiro-Wilk test, the null hypothesis of normality was accepted for the log-transformed data for all seven analytes (Table 4-2). The mean and standard deviation listed in Table 4-2 are for the raw data. Because the null hypothesis of log-normality was accepted, a UTLy based on the mean and standard deviation of the log-transformed data was calculated, and the UTL was calculated as exp(UTLy). No outliers were identified based on the formal test of the log-transformed data.

Barium, Copper, Manganese, Potassium, and Zinc. Barium, copper, manganese, potassium, and zinc were detected in 30 of 30 samples. Based on the Shapiro-Wilk test, the null hypothesis of normality was rejected for the log-transformed data but accepted for the raw data for these analytes (Table 4-2). The mean, standard deviation, and UTL listed in Table 4-2 are for the raw data. No outliers were identified based on the formal test of the log-transformed data.

Calcium. Calcium was detected in 30 of 30 samples. Based on the Shapiro-Wilk test, the null hypothesis of normality was rejected for both the log-transformed and raw

data (Table 4-2). The UTL, which would have been chosen as the highest value, was chosen as the second highest value because the highest value was identified as a potential outlier.

Cobalt and Lead. Cobalt and lead were detected in 27 and 28 of 30 samples, respectively. Based on the Shapiro-Wilk test, the null hypothesis of normality was rejected for the log-transformed data but accepted for the raw data for these analytes (Table 4-2). The mean, standard deviation, and UTL listed in Table 4-2 are for the raw data. No outliers were identified based on the formal test of the log-transformed data.

Magnesium, Sodium, and Thallium. Magnesium, sodium, and thallium were detected in 30, 27, and 26 of 30 samples, respectively. Based on the Shapiro-Wilk test, the null hypothesis of normality was rejected for both the log-transformed and the raw data (Table 4-2). The mean and standard deviation listed in Table 4-2 are for the raw data.

The UTL was established as the highest detected value. No outliers were identified based on the formal test of the log-transformed data.

Antimony, Molybdenum, and Selenium. Antimony, molybdenum, and selenium were detected in six of 30 samples, for a frequency of nondetects of 80 percent. For these three analytes the minimum value is a nondetect at the lowest detection limit and the maximum value is the maximum detected value. Mean and standard deviation were not calculated because data were insufficient. The UTL was established as the highest detected value. No test for outliers was performed because of the high number of nondetects.

Mercury. Mercury was not detected in any of the 30 background samples. Therefore, the minimum and maximum values in Table 4-2 are reported as less than the minimum and maximum detection limits, respectively. Mean and standard deviation

were not calculated for these analytes. As outlined in the flowchart (Figure 4-1), the UTL for analytes with greater than 90 percent nondetects is defined as the highest ranked value, or in this case nondetects at a given detection limit. Because none of these analytes were detected, no test for outliers was performed.

Cadmium and Silver. Cadmium and silver were detected in 20 of 30 samples for a frequency of nondetection of 33 percent. Based on the Shapiro-Wilk test, the null hypothesis of normality was rejected for both the log-transformed and the raw data (Table 4-2). The mean and standard deviation listed in Table 4-2 are for the raw data. Review of the data suggested that either the raw data or log-transformed data might be reasonably normal under Cohen's assumption that nondetects represent the presence of these analytes at levels too small to be quantified by the laboratory. Consequently, the censored and detects-only probability plots were prepared for both the raw data and log-transformed data. The most linear of the probability plots for both analytes was the censored data plot for log-transformed data. Therefore, Cohen's adjustment was applied to the log-transformed data.

Based on Cohen's adjustment, estimates were calculated for the mean, $\bar{y}$, and standard deviation, sy, of the log-transformed data. The UTLy was then calculated from these values, and the UTL was calculated as UTL = exp(UTLy).

Because Cohen's adjustment was applied to the log-transformed data, estimates of the mean and standard deviation of the log-transformed data were obtained by the Gilbert (1987) method described in Section 4.3.1.1 above.

Based on the formal test for outliers using the mean and standard deviation from the Cohen adjustment for log-transformed data, the highest cadmium concentration was identified as a potential outlier.

Recommendations for Nonparametric Tests. The UTL was established as the highest or second highest value for several constituents either because the distributions were

not clearly normal or lognormal, or because the percent of nondetects was between 50 and 90 percent. Although UTLs have been calculated for all such constituents, it is recommended that site-specific comparisons against UTLs for some constituents be supplemented by nonparametric tests such as the Wilcoxon rank-sum test or the Kruskal-Wallis test (Gilbert 1987; EPA 1992). Supplemental nonparametric tests are recommended for antimony, calcium, magnesium, molybdenum, selenium, sodium, and thallium.

4.3.2 Groundwater

Groundwater collected by the low-stress method and by the bailing technique were evaluated separately.

4.3.2.1 Metals in Groundwater Sampled by the Low-Stress Procedure

Barium, Iron, and Sodium. Barium, iron, and sodium were detected in 12 of 12 samples. Based on the Shapiro-Wilk test, the null hypothesis of normality was accepted for the log-transformed data for all three analytes (Table 4-3). The mean and standard deviation listed in Table 4-3 are for the raw data. Because the null hypothesis of log-normality was accepted, a UTLy based on the mean and standard deviation of the log-transformed data was calculated, and the UTL was calculated as exp(UTLy). The formal test for outliers of the log-transformed data indicated that the highest concentration detected for barium and sodium were potential outliers.

Calcium. Calcium also was detected in 12 of 12 samples. The Shapiro-Wilk test rejected the null hypothesis of normality for the log-transformed data but accepted the hypothesis for the raw data for these analytes (Table 4-3). The mean, standard deviation, and UTL listed in Table 4-3 are for the raw data. No outliers were identified based on the formal test of the log-transformed data.

Antimony, Arsenic, Cadmium, Cobalt, Lead, Mercury, Molybdenum, and Thallium. Antimony, arsenic, cadmium, cobalt, lead, mercury, molybdenum, and thallium were not detected in any of the background samples. Therefore, the minimum and maximum values in Table 4-3 are reported as less than the minimum and maximum detection limits, respectively. Additionally, the minimum and maximum values are the same because all of the detection limits for each analyte were the same. Mean and standard deviations were not calculated for these analytes. As outlined in the flowchart (Figure 4-1), the UTL for analytes with greater than 50 percent nondetects is defined as the highest ranked value, or in this case, nondetects at a given detection limit.

Beryllium, Chromium, Copper, Nickel, and Silver. Beryllium, chromium, copper, and silver were each detected in one of 12 samples, while nickel was detected in three of 12 samples. For these five analytes the minimum value is a nondetect at the lowest detection limit and the maximum value is the highest detected value. Mean and standard deviation were not calculated because data were insufficient. The UTL was established as the highest detected value. No test for outliers was performed because of the high number of nondetects.

Aluminum, Potassium, Selenium, and Zinc. Aluminum and selenium were detected in nine of 12 samples, and potassium and zinc were detected in eight of 12 and seven of 11 samples, respectively. One of the zinc results was rejected during the data-validation process. Review of the data suggested that either the raw data or log-transformed data might be reasonably normal under Cohen's assumption that nondetects represent the presence of these analytes at levels too small to be quantified by the laboratory. Consequently, the censored and detects-only probability plots were prepared for both the raw data and log-transformed data. The most linear of the probability plots was the censored data plot for log-transformed data. Therefore, Cohen's adjustment was applied to these data.

Based on Cohen's adjustment, estimates were calculated for the mean, $\bar{y}$, and standard deviation, sy, of the log-transformed data. The UTLy was then calculated as UTL = exp(UTLy).

Because Cohen's adjustment was applied to the log-transformed data, we only have estimates of the mean and standard deviation of the log-transformed data. To obtain reliable estimates of the mean and standard deviation of the raw data set, estimates provided by Gilbert (1987) were applied.

No outliers were identified using the formal test for outliers using the mean and standard deviation from the Cohen adjustment of log-transformed data.

Magnesium and Manganese. Magnesium and manganese were detected in 12 of 12 samples. Based on the Shapiro-Wilk test, the null hypothesis of normality was rejected for both the log-transformed and the raw data (Table 4-3). The mean and standard deviation listed in Table 4-3 are for the raw data. The UTL for magnesium was established as the highest detected value. The UTL for manganese was established as the second highest value, because the highest value was determined to be a potential outlier.

Vanadium. Vanadium was detected in nine of 11 samples. One of the vanadium analytical results was rejected during the data-validation process. Based on the Shapiro-Wilk test, the null hypothesis of normality was accepted for the log-transformed data (Table 4-3). The mean and standard deviation listed in Table 4-3 are for the raw data. Because the null hypothesis of log-normality was accepted, a UTLy based on the mean and standard deviation of the log-transformed data was calculated, and the UTL was calculated as exp(UTLy). No outliers were identified by the formal test of the log-transformed data.

Recommendations for Nonparametric Tests. The UTL was established as the highest or second highest value for several constituents either because the distributions were

not clearly normal or lognormal, or because the percent of nondetects was between 50 and 90 percent. Although UTLs have been calculated for all such constituents, it is recommended that site-specific comparisons against UTLs for some constituents be supplemented by nonparametric tests such as the Wilcoxon rank-sum test or the Kruskal-Wallis test (Gilbert 1987; EPA 1992). Supplemental nonparametric tests are recommended for magnesium, manganese, and nickel.

4.3.2.2 Total Metals in Groundwater

Aluminum, Barium, Calcium, Iron, Magnesium, Manganese, Nickel, and Sodium. Aluminum, barium, calcium, iron, magnesium, manganese, nickel, and sodium were detected in 12 of 12 samples. Based on the Shapiro-Wilk test, the null hypothesis of normality was accepted for the log-transformed data for all analytes (Table 4-4). The mean and standard deviation listed in Table 4-4 are for the raw data. Because the null hypothesis of log-normality was accepted, a UTLy was calculated using the mean and standard deviation of the log-transformed data, and the UTL was calculated as exp(UTLy). No outliers were identified by the formal test of the log-transformed data.

Selenium, Vanadium, and Zinc. Selenium was detected in 10 of 12 samples, and vanadium and zinc were detected in 10 of 11 samples. One vanadium and one zinc result was rejected during the validation process. The Shapiro-Wilk test, accepted the null hypothesis of normality for the log-transformed data for all three analytes (Table 4-4). The mean and standard deviation listed in Table 4-4 are for the raw data. Because the null hypothesis of log-normality was accepted, a UTLy was calculated using the mean and standard deviation of the log-transformed data, and the UTL was calculated as exp(UTLy). No outliers were identified based on the formal test of the log-transformed data.

Beryllium, Cadmium, Chromium, Copper, and Potassium. Beryllium and cadmium were detected in four of 12 samples, chromium was detected in five of 12 samples,

and copper and potassium were each detected in six of 12 samples. The minimum value is a nondetect at the lowest detection limit and the maximum value is the maximum detected value. The UTL was estimated as the highest detected value. No test for outliers was performed.

Antimony, Arsenic, Cobalt, and Silver. Antimony, arsenic, cobalt, and silver were detected in one of 12 samples. For these four analytes the minimum value is a nondetect at the lowest detection limit and the maximum value is the only detected value. Mean and standard deviation were not calculated because data were insufficient. The UTL was established as the highest detected value. No test for outliers was performed because of the high number of nondetects.

Lead, Mercury, Molybdenum, and Thallium. Lead, mercury, molybdenum, and thallium were not detected in any of the background samples. Therefore, the minimum and maximum values in Table 4-4 are reported as less than the minimum and maximum detection limits, respectively. Additionally, the minimum and maximum values are the same because all of the detection limits for a each analyte were the same. The UTL for these analytes is defined as the highest ranked value, or in this case nondetects at a the highest method detection limit.

Recommendations for Nonparametric Tests. The UTL was established as the highest or second highest value for several constituents either because the distributions were not clearly normal or lognormal, or because the percent of nondetects was between 50 and 90 percent. Although UTLs have been calculated for all such constituents, it is recommended that site-specific comparisons against UTLs for some constituents be supplemented by nonparametric tests such as the Wilcoxon rank-sum test or the Kruskal-Wallis test (Gilbert 1987; EPA 1992). Supplemental nonparametric tests are recommended for beryllium, cadmium, chromium, copper, and potassium.

4.3.3 Surface Water

Aluminum, Barium, Calcium, Iron, Magnesium, Manganese, Potassium, and Sodium. Aluminum, barium, calcium, iron, magnesium, manganese, potassium, and sodium were detected in eight of eight samples. Based on the Shapiro-Wilk test, the null hypothesis of normality was accepted for the log-transformed data for these analytes (Table 4-5). The mean and standard deviation listed in Table 4-5 are for the raw data. Because the null hypothesis of log-normality was accepted, a UTLy based on the mean and standard deviation of the log-transformed data was calculated, and the UTL was calculated as exp(UTLy). The highest value detected for aluminum was the only result identified as a potential outlier based on the formal test of the log-transformed data.

Copper. Copper was detected in six of eight samples. The null hypothesis of normality was rejected for both the log-transformed and raw data. The minimum value is a nondetect at the lowest detection limit and the maximum is the maximum detected concentration. The UTL was established as the highest detected value. No outliers were identified by the formal test.

Vanadium. Vanadium was detected in six of eight samples. Based on the Shapiro-Wilk test, the null hypothesis of normality was accepted for the log-transformed data for these analytes (Table 4-5). The minimum value is a nondetect at the lowest detection limit and the maximum is the maximum detected concentration. Because the null hypothesis of log-normality was accepted, a UTLy based on the mean and standard deviation of the log-transformed data was calculated, and the UTL was calculated as exp(UTLy). No outliers were identified by the formal test.

Arsenic, Beryllium, Cobalt, Lead, and Molybdenum, and Thallium. Arsenic, beryllium, cobalt, lead, molybdenum, and thallium were not detected in any of the background samples. Therefore, the minimum and maximum values in Table 4-5 are reported as less than the minimum and maximum detection limits, respectively.

Additionally, the minimum and maximum values are the same because all of the detection limits for a each analyte were the same. Mean and standard deviation were not calculated for these analytes. The UTL for these analytes is defined as the highest ranked value, or in this case nondetects at a given detection limit. No test for outliers was performed.

Antimony, Cadmium, Chromium, Mercury, Nickel, Silver, and Zinc. Cadmium, mercury, and nickel were detected in one of eight samples; antimony, silver, and zinc were detected in two of eight samples and chromium was detected in three of eight. For these seven analytes the minimum value is a nondetect at the lowest detection limit and the maximum value is the maximum detected concentration. Mean and standard deviation were not calculated because data were insufficient. The UTL was established as the highest detected value. No test for outliers was performed because of the high number of nondetects.

Recommendations for Nonparametric Tests. The UTL was established as the highest or second highest value for several constituents either because the distributions were not clearly normal or lognormal, or because the percent of nondetects was between 50 and 90 percent. Although UTLs have been calculated for all such constituents, it is recommended that site-specific comparisons against UTLs for some constituents be supplemented by nonparametric tests such as the Wilcoxon rank-sum test or the Kruskal-Wallis test (Gilbert 1987; EPA 1992). Supplemental nonparametric tests are recommended for antimony, cadmium, chromium, copper, mercury, nickel, silver, and zinc.

4.3.4 Stream Sediments

Aluminum, Arsenic, Barium, Beryllium, Calcium, Cadmium, Chromium, Cobalt, Copper, Lead, Magnesium, Manganese, Nickel, Potassium, Silver, Thallium, Vanadium, and Zinc. All of these metals were detected in eight of eight samples. Based on the Shapiro-Wilk test, the null hypothesis of normality was accepted for the

log-transformed data for these analytes (Table 4-6). The mean and standard deviation listed in Table 4-6 are for the raw data. Because the null hypothesis of log-normality was accepted, a UTLy was calculated on the mean and standard deviation of the log-transformed data, and the UTL was calculated as exp(UTLy). The highest value detected for manganese was the only result identified as a potential outlier by the formal test of the log-transformed data.

Molybdenum. Molybdenum was detected in seven of eight samples. The Shapiro-Wilk test accepted the null hypothesis of normality for the log-transformed data for these analytes (Table 4-6). The mean and standard deviation listed in Table 4-6 are for the raw data, and the UTL was estimated from the mean and standard deviation of the log-transformed data and calculated as exp(UTLy). The highest value detected for molybdenum was not identified as a potential outlier based on the formal test of the log-transformed data.

Iron. Iron was detected in eight of eight samples. Based on the Shapiro-Wilk test, the null hypothesis of normality was rejected for the log-transformed data but accepted for the raw data for these analytes (Table 4-6). The mean, standard deviation, and UTL listed in Table 4-6 are for the raw data. No outliers were identified based on the formal test of the raw data.

Mercury, Selenium, and Sodium. Mercury and selenium were detected in one of eight samples, and sodium was detected in two of eight samples. For these three analytes, the minimum value is a nondetect at the lowest detection limit and the maximum value is the maximum detected value. Mean and standard deviation were not calculated because data were insufficient. The UTL was established as the highest detected value. No test for outliers was performed because of the high number of nondetects.

Recommendations for Nonparametric Tests. The UTL was established as the highest or second highest value for several constituents either because the distributions were

not clearly normal or lognormal, or because the percent of nondetects was between 50 and 90 percent. Although UTLs have been calculated for all such constituents, it is recommended that site-specific comparisons against UTLs for some constituents be supplemented by nonparametric tests such as the Wilcoxon rank-sum test or the Kruskal-Wallis test (Gilbert 1987; EPA 1992). Supplemental nonparametric tests are recommended for antimony, mercury, selenium, and sodium.

4.4 ORGANICS IN BACKGROUND SAMPLES

Background samples were collected from locations believed to be unaffected by operations at NAS Fort Worth. However, all of the samples were collected from locations on or near the base, and are thus potentially affected by previous base operations, or by operations at Plant 4. To help verify that the background locations were in fact unaffected by previous activities, the results of analyses for organic constituents were reviewed.

Each background sample was analyzed for volatile and semivolatile organic compounds, in addition to the inorganic constituents noted previously. Only a limited number of organic constituents were detected (Table 4-7).

The following paragraphs discuss the VOCs and SVOCs detected in each sample matrix.

4.4.1 Surface Soil

Twenty-seven positive detections of organic chemicals from 21 individual samples were recorded. Of the organics detected, the phthalates and methylene chloride are common laboratory contaminants. Eight of 10 methylene chloride detections were qualified during the data validation process as nondetected because these chemicals

TABLE 4-7
Organic Analytes Detected in Background Samples
Naval Air Station Fort Worth

MATRIX	SAMPLE_ID	LOCATION	VALUE	LAB_QUAL	JEG_QUAL	UNITS	NAME	DETECT	PQUANT	DILUTION
SURFACE SOIL	BJETA508-A	BJETA508	365.0000	F		MG/KG	BENZYL BUTYL PHTHALATE	256.0000	883.0000	1.00
SURFACE SOIL	BJETA530-A	BJETA530	219.0000	F		MG/KG	BIS(2-ETHYLHEXYL) PHTHALATE	105.0000	753.0000	1.00
SURFACE SOIL	BJETA514-A	BJETA514	2860.0000			MG/KG	DI-N-BUTYL PHTHALATE	134.0000	844.0000	1.00
SURFACE SOIL	BJETA511-A	BJETA511	702.0000	F		MG/KG	DI-N-BUTYL PHTHALATE	135.0000	854.0000	1.00
SURFACE SOIL	BJETA512-A	BJETA512	389.0000	F		MG/KG	DI-N-BUTYL PHTHALATE	138.0000	871.0000	1.00
SURFACE SOIL	BJETA530-A	BJETA530	175.0000	F		MG/KG	DI-N-BUTYL PHTHALATE	119.0000	753.0000	1.00
SURFACE SOIL	BJETA534-A	BJETA534	161.0000	F		MG/KG	DI-N-BUTYL PHTHALATE	132.0000	833.0000	1.00
SURFACE SOIL	BJETA532-A	BJETA532	147.0000	F		MG/KG	FLUORANTHENE	115.0000	781.0000	1.00
SURFACE SOIL	BJETA517-ARS	BJETA517	6.6500			µG/KG	METHYLENE CHLORIDE	3.0400	6.1100	1.00
SURFACE SOIL	BJETA527-A	BJETA527	6.4900			µG/KG	METHYLENE CHLORIDE	2.6500	5.7200	1.00
SURFACE SOIL	BJETA523-A	BJETA523	6.4500		e	µG/KG	METHYLENE CHLORIDE	3.1000	6.2300	1.00
SURFACE SOIL	BJETA524-A	BJETA524	5.1500	F	e	µG/KG	METHYLENE CHLORIDE	3.1600	6.3400	1.00
SURFACE SOIL	BJETA518-A	BJETA518	3.7700	F	e	µG/KG	METHYLENE CHLORIDE	2.9300	5.8800	1.00
SURFACE SOIL	BJETA509-A	BJETA509	3.7200	F	be	µG/KG	METHYLENE CHLORIDE	3.1400	6.3000	1.00
SURFACE SOIL	BJETA522-A	BJETA522	3.6500	F	e	µG/KG	METHYLENE CHLORIDE	2.9100	5.8400	1.00
SURFACE SOIL	BJETA519-A	BJETA519	3.2100	F	e	µG/KG	METHYLENE CHLORIDE	2.7600	5.5900	1.00
SURFACE SOIL	BJETA508-A	BJETA508	3.2000	F	be	µG/KG	METHYLENE CHLORIDE	3.0900	6.2100	1.00
SURFACE SOIL	BJETA504-A	BJETA504	3.1000	F	be	µG/KG	METHYLENE CHLORIDE	3.0600	6.1400	1.00
SURFACE SOIL	BJETA508-A	BJETA508	1.6000	F		µG/KG	TOLUENE	0.5020	6.2100	1.00
SURFACE SOIL	BJETA508-A	BJETA508	1.0900	F		µG/KG	TOLUENE	0.5020	6.2100	1.00
SURFACE SOIL	BJETA506-A	BJETA506	0.9510	F		µG/KG	TOLUENE	0.5030	6.2300	1.00
SURFACE SOIL	BJETA502-A	BJETA502	0.8020	F		µG/KG	TOLUENE	0.5180	6.4100	1.00
SURFACE SOIL	BJETA503-A	BJETA503	0.7830	F		µG/KG	TOLUENE	0.4980	6.1700	1.00
SURFACE SOIL	BJETA509-A	BJETA509	0.6980	F		µG/KG	TOLUENE	0.5090	6.3000	1.00
SURFACE SOIL	BJETA506-A	BJETA506	0.6850	F		µG/KG	TOLUENE	0.5030	6.2300	1.00
SURFACE SOIL	BJETA501-A	BJETA501	0.6540	F		µG/KG	TOLUENE	0.5070	6.2700	1.00
SURFACE SOIL	BJETA510-A	BJETA510	0.6520	F		µG/KG	TOLUENE	0.4920	6.0900	1.00
SUBSURFACE SOIL	BJETA503-B	BJETA503	8.3000	F		µG/KG	ACETONE	4.7600	106.0000	1.00
SUBSURFACE SOIL	BJETA526-B	BJETA526	8.0600	F		µG/KG	ACETONE	4.9600	111.0000	1.00
SUBSURFACE SOIL	BJETA521-B	BJETA521	6.3400	F		µG/KG	ACETONE	5.0900	114.0000	1.00
SUBSURFACE SOIL	BJETA510-B	BJETA510	6.0900	F		µG/KG	ACETONE	5.1700	115.0000	1.00
SUBSURFACE SOIL	BJETA525-B	BJETA525	5.7500	F		µG/KG	ACETONE	4.9500	110.0000	1.00
SUBSURFACE SOIL	BJETA518-B	BJETA518	5.1900	F		µG/KG	ACETONE	5.0500	113.0000	1.00
SUBSURFACE SOIL	BJETA513-B	BJETA513	2170.0000			MG/KG	DI-N-BUTYL PHTHALATE	126.0000	796.0000	1.00

TABLE 4-7
Organic Analytes Detected in Background Samples
Naval Air Station Fort Worth

MATRIX	SAMPLE_ID	LOCATION	VALUE	LAB_QUAL	JEG_QUAL	UNITS	NAME	DETECT	PQUANT	DILUTION
SUBSURFACE SOIL	BJETA510-B	BJETA510	1070.0000			MG/KG	DI-N-BUTYL PHTHALATE	126.0000	796.0000	1.00
SUBSURFACE SOIL	BJETA511-B	BJETA511	427.0000	F		MG/KG	DI-N-BUTYL PHTHALATE	131.0000	624.0000	1.00
SUBSURFACE SOIL	BJETA512-B	BJETA512	381.0000	F		MG/KG	DI-N-BUTYL PHTHALATE	122.0000	772.0000	1.00
SUBSURFACE SOIL	BJETA514-B	BJETA514	338.0000	F		MG/KG	DI-N-BUTYL PHTHALATE	121.0000	766.0000	1.00
SUBSURFACE SOIL	BJETA532-B	BJETA532	130.0000	F		MG/KG	DI-N-BUTYL PHTHALATE	123.0000	779.0000	1.00
SUBSURFACE SOIL	BJETA503-B	BJETA503	3.3700	F		µG/KG	METHYL ETHYL KETONE (2-BUTANONE)	2.4000	106.0000	1.00
SUBSURFACE SOIL	BJETA525-B	BJETA525	6.0600		e	µG/KG	METHYLENE CHLORIDE	2.7500	5.5200	1.00
SUBSURFACE SOIL	BJETA526-B	BJETA526	5.9300		e	µG/KG	METHYLENE CHLORIDE	2.7600	5.5400	1.00
SUBSURFACE SOIL	BJETA523-B	BJETA523	5.6200	F	e	µG/KG	METHYLENE CHLORIDE	2.8400	5.7100	1.00
SUBSURFACE SOIL	BJETA524-B	BJETA524	5.4200	F	e	µG/KG	METHYLENE CHLORIDE	2.7900	5.6100	1.00
SUBSURFACE SOIL	BJETA522-B	BJETA522	3.6200	F	e	µG/KG	METHYLENE CHLORIDE	2.6700	5.3600	1.00
SUBSURFACE SOIL	BJETA519-B	BJETA519	3.2800	F	e	µG/KG	METHYLENE CHLORIDE	2.9100	5.8500	1.00
SUBSURFACE SOIL	BJETA518-B	BJETA518	3.1400	F	e	µG/KG	METHYLENE CHLORIDE	2.8000	5.6300	1.00
SUBSURFACE SOIL	BJETA521-B	BJETA521	2.8400	F	e	µG/KG	METHYLENE CHLORIDE	2.8300	5.6800	1.00
GROUNDWATER	LF044A-01	LF04-4A	16.8000			µG/L	BIS(2-ETHYLHEXYL) PHTHALATE	4.2000	10.0000	1.00
GROUNDWATER	WJETA531	WJETA531	5.9400	F	e	µG/L	BIS(2-ETHYLHEXYL) PHTHALATE	4.2000	10.0000	1.00
GROUNDWATER	HM127-01	HM-127	4.9600	F		µG/L	BIS(2-ETHYLHEXYL) PHTHALATE	4.2000	10.0000	1.00
GROUNDWATER	WJETA530-01	WJETA530	4.3600	F	bea	µG/L	METHYLENE CHLORIDE	0.7710	5.0000	1.00
GROUNDWATER	MWMTAC001-01	MWMTAC-001	4.3000	F	be	µG/L	METHYLENE CHLORIDE	0.7710	5.0000	1.00
GROUNDWATER	LF033D-01	LF03-3D	3.9400	F	e	µG/L	METHYLENE CHLORIDE	0.7710	5.0000	1.00
GROUNDWATER	WJETA531	WJETA531	3.6900	F	be	µG/L	METHYLENE CHLORIDE	0.7710	5.0000	1.00
GROUNDWATER	WJETA535-01	WJETA535	2.5600	F	bea	µG/L	METHYLENE CHLORIDE	0.7710	5.0000	1.00
GROUNDWATER	LF044B-01	LF04-4B	2.2600	F	be	µG/L	METHYLENE CHLORIDE	0.7710	5.0000	1.00
GROUNDWATER	USGS01T	USGS01T	1.8100	F	b	µG/L	METHYLENE CHLORIDE	0.7710	5.0000	1.00
GROUNDWATER	HM127-01	HM-127	1.7800	F	b	µG/L	METHYLENE CHLORIDE	0.7710	5.0000	1.00
GROUNDWATER	HM120-01	HM-120	1.6600	F	be	µG/L	METHYLENE CHLORIDE	0.7710	5.0000	1.00
SURFACE WATER	JEFB008-SW	JEFB008	2.9300	F		µG/L	BENZYL BUTYL PHTHALATE	2.8000	10.0000	1.00
SURFACE WATER	JEFB001-SW	JEFB001	60.1000			µG/L	DI-N-BUTYL PHTHALATE	5.4000	10.0000	1.00
SURFACE WATER	JEFB006-SW	JEFB006	38.5000			µG/L	DI-N-BUTYL PHTHALATE	5.4000	10.0000	1.00
SURFACE WATER	JEFB008-SW	JEFB008	35.3000			µG/L	DI-N-BUTYL PHTHALATE	5.4000	10.0000	1.00
SURFACE WATER	JEFB003-SW	JEFB003	3.2900	F	be	µG/L	METHYLENE CHLORIDE	0.7710	5.0000	1.00
SURFACE WATER	JEFB008-SW	JEFB008	3.0600	F	be	µG/L	METHYLENE CHLORIDE	0.7710	5.0000	1.00
SURFACE WATER	JEFB007-SW	JEFB007	2.2000	F	be	µG/L	METHYLENE CHLORIDE	0.7710	5.0000	1.00
SURFACE WATER	JEFB001-SW	JEFB001	1.8900	F	be	µG/L	METHYLENE CHLORIDE	0.7710	5.0000	1.00

TABLE 4-7
Organic Analytes Detected in Background Samples
Naval Air Station Fort Worth

MATRIX	SAMPLE_ID	LOCATION	VALUE	LAB_QUAL	JEG_QUAL	UNITS	NAME	DETECT	PQUANT	DILUTION
SEDIMENT	JEFB004-SE	JEFB004	146.0000	F		MG/KG	BENZO(B)FLUORANTHENE	144.0000	943.0000	1.00
SEDIMENT	JEFB002-SE	JEFB002	207.0000	F		MG/KG	BIS(2-ETHYLHEXYL) PHTHALATE	124.0000	884.0000	1.00
SEDIMENT	JEFB007-SE	JEFB007	179.0000	F		MG/KG	BIS(2-ETHYLHEXYL) PHTHALATE	138.0000	985.0000	1.00
SEDIMENT	JEFB003-SE	JEFB003	175.0000	F		MG/KG	BIS(2-ETHYLHEXYL) PHTHALATE	140.0000	1000.0000	1.00
SEDIMENT	JEFB005-SE	JEFB005	157.0000	F		MG/KG	BIS(2-ETHYLHEXYL) PHTHALATE	138.0000	989.0000	1.00
SEDIMENT	JEFB004-SE	JEFB004	138.0000	F		MG/KG	BIS(2-ETHYLHEXYL) PHTHALATE	132.0000	943.0000	1.00
SEDIMENT	JEFB001-SE	JEFB001	207.0000	F		MG/KG	FLUORANTHENE	126.0000	854.0000	1.00
SEDIMENT	JEFB004-SE	JEFB004	174.0000	F		MG/KG	FLUORANTHENE	139.0000	943.0000	1.00
SEDIMENT	JEFB001-SE	JEFB001	131.0000	F		MG/KG	PYRENE	117.0000	854.0000	1.00

Notes:

a = detection less than five times the ambient blank value
b = detection less than five times the trip blank value
e = detection less than five times the equipment blank value
F = detection greater than the detection limit (DETECT), but less than the practical quantitation limit (PQUANT)
Lab_qual = laboratory qualifier
JEG_qual = Jacobs qualifier

were also present in associated blank samples. Toluene was detected nine times in seven individual samples, and fluoranthene was detected in a single sample. All of the toluene and fluoranthene detections were "F" qualified by the laboratory as a value above the detection limit, but below the practical quantitation limit.

4.4.2 Subsurface Soil

Twenty-one positive detections of organic chemicals from 15 individual samples were recorded. All of the organics detected—acetone, di-n-butyl phthalate, 2-butanone, and methylene chloride—are common laboratory contaminants. All of the methylene chloride detections were qualified during the data validation process as nondetected because these chemicals were also present in associated blank samples.

4.4.3 Groundwater

Twelve positive detections of organic chemicals from 10 individual samples were recorded. Both bis(2-ethylhexyl) phthalate and methylene chloride are common laboratory contaminants. All of the methylene chloride detections and one of the bis(2-ethylhexyl) phthalate detections were qualified during the data validation process as nondetected because these chemicals were also present in associated blank samples.

4.4.4 Surface Water

Eight positive detections of organic chemicals from five individual samples were recorded. The organics detected—benzyl butyl phthalate, di-n-butyl phthalate, and methylene chloride—are common laboratory contaminants. All four of the methylene chloride detections were qualified during the data validation process as nondetected because these chemicals were also present in associated blank samples

4.4.5 Sediment

Nine positive detections of organic chemicals from six individual samples were recorded. Of the organics detected, bis(2-ethylhexyl) phthalate is a common laboratory contaminant. Benzo(b)fluoranthene and pyrene were detected once, and fluoranthene was detected twice. All of the detections were "F" qualified by the laboratory as a value above the detection limit, but below the practical quantitation limit.

(intentionally blank)

TAB

5

Applicable Portions of the Final Site Investigation/Site Characterization Technical Report for the Grounds Maintenance Yard NAS JRB Fort Worth, TX Law Environmental, Inc.

2.0 PROJECT ACTIVITIES

The following sections describe the project objectives and the activities conducted as part of the Site Investigation/Site Characterization at the Aerospace Museum Site (AMS) and the Grounds Maintenance Yard (GMY). The activities include procedures associated with the selection of sampling locations, execution of field activities, and laboratory analysis of soils collected from two sites located at the Naval Air Station Fort Worth, Joint Reserve Base, Carswell Field. Results of the chemical data evaluation are also described in this section. All work was performed in accordance with the Sampling and Analysis Plan (LAW, 1995a) and Health and Safety Plan Addendum (LAW, 1995b).

2.1 PROJECT OBJECTIVES

The objective of the soil sampling and analysis program was to conduct an initial site characterization to determine the presence or absence of contamination in surface soils resulting from previous site activities or from past operations. Previous site activities at the Aerospace Museum Site included the storage and restoration of surplus aircraft used as museum pieces. Potential contaminants include lubricants, solvents, and aircraft paint. Forty-nine surface soil samples were collected from 0 to 2 feet at locations established on a grid layout of the site, as shown on the sample location map (Figure 2-1). Sampling locations occur at approximately 100-foot intervals.

Past operations at the Grounds Maintenance Yard include storage and maintenance of groundskeeping equipment, and storage of pesticides, solvents, and fuels. Potential contaminants include lubricants, fuels, solvents, pesticides, and herbicides. Twenty-eight surface soil samples were collected from 0 to 2 feet at locations established on a grid layout of the site, as shown on the sample location map (Figure 2-2). Sample locations occur at approximately 60-foot intervals, but locations were offset to include stained areas near the two maintenance buildings and former pesticide storage building, in the area of petroleum storage tanks, and at locations where obvious soil staining was observed. Stained areas and areas of potential releases were given preference for sampling.

Soil sampling locations were placed on a base map that was provided to LAW. The sampling locations presented on each map generated for this report were not surveyed and should be considered to be approximate locations.

2.2 FIELD ACTIVITIES

The Sampling and Analysis Plan (LAW, 1995a), describes the field activities and procedures to be used during the Site Investigation/Site Characterization at the Aerospace Museum Site and the Grounds Maintenance Yard. The following activities were performed during the field event:

- Determination of sampling locations
- Collection of surface soil samples and transport to laboratory
- Decontamination of sampling equipment

Surface soil samples were collected from 0 to 2 feet using stainless steel hand augers. Chain-of-custody records were prepared for each shipping container. Samples were sent by overnight courier to Law Environmental National Laboratories, located in Pensacola, Florida.

All sampling equipment was decontaminated before use using procedures specified in the Sampling and Analysis Plan. Decontamination water was collected for disposal as described in section 2.2.3.

All field activities were performed by LAW personnel. The following sections describe the chronology and methodology of the field activities, and field Quality Assurance/Quality Control (QA/QC) procedures.

2.2.1 Chronology of Field Work

The field activities for the Aerospace Museum Site and Grounds Maintenance Yard sampling episode were performed from October 22 to October 24, 1995. Surface soil was collected from

0 to 2 feet using stainless steel hand augers following a grid layout of the site. The soil was thoroughly mixed and placed in the appropriate containers as specified in the Sampling and Analysis Plan (LAW, 1995a). The properly labeled sample containers and chain-of-custody documents were placed in a shipping container for overnight shipment to the laboratory. Completed chain-of-custody forms are provided in Appendix A. The receiving laboratory did not indicate any problems with sample receipt or the condition of samples that would affect the quality of the data. Field sampling completeness was determined to be 100 percent.

2.2.2 Field Quality Assurance/Quality Control

Quality control parameters are monitored through the assessment of data collected for the evaluation of precision, accuracy, representativeness, and completeness. Field quality control activities consisted of the following:

- Collection of field duplicate samples to evaluate sampling precision
- Decontamination of field equipment and collection of equipment blanks
- Documentation of field information and measurements in hard bound field notebooks
- Review of field documentation, chain of custody records, and other field records

Daily meetings were conducted by the site manager for the purpose of reviewing the field procedures and quality control activities with the field team. Any corrective actions necessary were discussed, documented, and implemented immediately.

2.2.3 Investigation Derived Waste Management

Investigation derived waste (IDW) consisted of wash water and rinse water from the decontamination of field equipment. The wash water was collected and discharged to the local

wastewater treatment plant. The rinse water was stored in a 3,000-gallon polyethylene tank until the end of the sampling episode. A sample from the tank was collected and analyzed for volatiles, semi-volatiles, and metals. Based on the analytical results, LAW disposed of the water through a local hazardous waste transportation and disposal contractor.

2.3 LABORATORY ANALYSIS

The Law Environmental National Laboratories in Pensacola, Florida, provided sample shipping containers, chain-of-custody documents, chemical analysis, and laboratory quality assurance/quality control (QA/QC). The laboratory analyses were performed from October 27, 1995, to December 2, 1995. The analytical methods performed by the laboratory are summarized in Table 2-1.

The following sections describe the data quality objectives, analytical methodologies, analytical quality control program, and data quality evaluation.

2.3.1 Data Quality Objectives

The following sections discuss the evaluation criteria used to review the field and laboratory results, the formulas used to calculate quality control data, and the qualifiers applied to the sample results based on data evaluation.

2.3.1.1 Review of Field Records - Field records were evaluated for the following:

- Completeness of field records
- Identification of valid samples
- Completeness of the sampling effort
- Sample handling and shipping procedures
- Effectiveness of sampling procedures in preserving sample precision and accuracy

TABLE 2-1

ANALYTICAL TEST METHODS
Naval Air Station Fort Worth Joint Reserve Base
Fort Worth, Texas

MATRIX: SOIL	METHOD[a] (soil/water)
Volatile Organics	SW 8240/8260
Semi-Volatile Organics	SW 8270
Herbicides[b]	SW 8150
Pesticides/PCBs[c]	SW 8080
Total Metals	SW 6010
Arsenic	SW 7060
Lead	SW 7421
Selenium	SW 7740
Mercury	SW 7471/7470

[a] Test Methods for Evaluation of Solid Waste, SW-846 (Third Edition)
[b] Herbicides collected at Grounds Maintenance Yard only.
[c] Pesticides collected at Grounds Maintenance Yard only.

Note: (1) If the lead concentration detected on the inductively coupled plasma (ICP) is >5 x the instrument detection limit (IDL) on the ICP, the ICP value can be used. If the lead concentration detected on the ICP is <5 x the IDL on the ICP, then the Graphite Furnace Atomic Absorption(GFAA) analysis is required.

(2) Preparation methods for soil samples are SW 3550 for semi-volatiles and pesticides/PCBs, and SW 3050 for metals (except for arsenic). Preparation methods for water samples are SW 3520 for semi-volatiles and pesticides/PCBs, SW 3005 for metals by SW 6010, and SW 3020 for lead.

Field records were assessed for completeness and to determine whether field activities were carried out as planned. Samples were evaluated to determine their representativeness through the review of field QC results.

2.3.1.2 Review of Laboratory Data - Laboratory data were evaluated for the following:

- Chain of custody forms
- Sample integrity
- Applicability of the instruments/methods used
- Holding times
- Method calibration criteria
- Method blanks
- Verification of quantitation limits
- Laboratory sample preparation records
- Quality control results
- Corrective action for out-of-control QC results
- Calculations used for analyte quantitation and reporting
- Completeness of data

Laboratory reports containing sample results and QC information were reviewed by the laboratory QA coordinator and submitted to LAW. A case narrative was included in each data report to provide an assessment of the laboratory's QA activities. The data presented in the laboratory report was generated from the laboratory's information management system (LIMS) and was reviewed by the LAW project chemist during the data evaluation process. An electronic data deliverable (EDD) was also produced by the laboratory from the LIMS and submitted to LAW. The chemical data tables presented in this report were produced from the data base developed from the laboratory EDD. Additional processing of the information contained in the data base resulted in the generation of the positive results tables presented in Section 3. Data comparison to regulatory standards was achieved through visual review of the positive analytical results. Electronic files of the positive results were generated from the data base to transfer the data onto computer aided design and drafting (CADD) drawings.

Chemical data evaluation was performed according to LAW's standard operating procedures (SOPs) which were developed following the USEPA "National Functional Guidelines for Organic Data Review" (USEPA, 1990) and "Laboratory Data Validation: Functional Guidelines for Evaluating Inorganic Analyses" (USEPA, 1988). A standard format for the documentation of the results of data evaluation is included in the SOP. This documentation is maintained in the project file at LAW.

2.3.1.3 Formulas - The following formulas were used to calculate quality control data.

Accuracy - Accuracy is defined as the degree of agreement of a measurement with an accepted reference or true value. To determine the accuracy of an analytical method, a sample spiking program was conducted. The results of sample spiking was used to calculate the percent recovery (%R). The percent recovery is defined as follows:

$$\%R = \frac{X - T}{K} \times 100$$

where:

%R = percent recovery
X = analytical result of the spiked sample
T = analytical result of the unspiked sample
K = known amount of the spike in the sample

Surrogates, matrix spike and matrix spike duplicates (MS/MSD), and internal standards were analyzed to determine accuracy. The control limits were based on the mean percent recovery plus or minus 3 standard deviations of the mean using a population of 20 or more recovery values.

Precision - Precision is the measure of mutual agreement among individual measurements of the same property, under similar conditions. Precision between duplicate measurements is best expressed in terms of relative percent difference (RPD). Precision was assessed through the use of field duplicate samples and MS/MSD samples. An RPD for each sample pair was calculated using the following equation:

$$RPD = \frac{A - B}{(A + B)/2} \times 100$$

where:

A = replicate value 1

B = replicate value 2

RPD = relative percent difference

The laboratory established control limits were based on a population of ten or more RPD values. They were calculated by determining the mean RPD plus three times the standard deviation for the upper limit and zero as the lower limit.

Completeness - Completeness is a measure of the amount of valid data obtained from a measurement system compared to the amount that was expected to be obtained under normal conditions. The result is expressed as a percentage determined by analyte, by method. For this project, a completeness goal of 90 percent was established.

$$\text{Percent completeness} = \frac{\text{Number of valid measurements}}{\text{Total number of measurements}} \times 100$$

2.3.1.4 Data Qualifiers - Data qualifiers are used to flag sample results if accuracy or precision criteria have not met the QC requirements presented in Appendix A of the Sampling and

Analysis Plan (LAW, 1995a). Data qualification flags used for this project are presented in Table 2-2. Each data point reported is graded as usable as reported, usable with qualifications, or rejected. All data determined to be usable as reported or usable with qualifications are considered valid data for the purpose of calculating the data completeness for the project.

2.3.2 Analytical Methodologies

All soil samples collected at the Aerospace Museum Site were analyzed for volatile organic compounds, semi-volatile organic compounds, and total metals. The soil samples collected at the Grounds Maintenance Yard were analyzed for volatile organic compounds, semi-volatile organic compounds, pesticides/PCBs, chlorinated herbicides, and total metals. Soil samples were analyzed by the U.S. Environmental Protection Agency (USEPA) SW-846 methodologies listed in Table 2-1.

Quantitation limits were based on the method detection limits (MDLs) established by the laboratory using the required USEPA procedure specified in 40 CFR Part 136 Appendix B. The 1995 laboratory established detection and quantitation limits are presented in Appendix A of the Sampling and Analysis Plan (LAW, 1995a). Sample results detected below the practical quantitation limit (PQL) but above the MDL were reported and the data were flagged as estimated values using the qualifier "JQ."

2.3.3 Analytical Quality Control

The quality of the chemical data is assessed through the evaluation of both field and laboratory QC data. The QC parameters that were evaluated include: sample preservation and holding time requirements, batch method blank analysis, LCS analysis, internal standard recovery, MS/MSD analysis, surrogate analysis, field duplicate analysis, trip blank analysis, and equipment blank analysis.

TABLE 2-2

DATA QUALIFICATION FLAGS
Naval Air Station Fort Worth Joint Reserve Base
Fort Worth, Texas

FLAG	POSITIVE RESULTS	NEGATIVE RESULTS
FLAGS FOR DATA WITHIN ACCEPTANCE LIMITS (Usable as Reported)		
(no flag)	{Use datum without qualification}	{Use datum without qualification}
FLAGS FOR DATA WITHIN ACTION LIMITS (Usable With Qualification)		
J	Estimated quantitation based upon QC data	Estimated quantitation based upon QC data
JB	Estimated quantitation: possible biased high or false positive based upon blank data	(Not applicable)
JH	Estimated quantitation - possibly biased high based upon QC data	(Not applicable)
JL	Estimated quantitation - possibly biased low based upon QC data	Possible false negative based upon QC data
Jd	Estimated result due to dilution	Reporting limit raised due to dilution
JQ	Estimated quantitation; result below the PQL	(Not applicable)
FLAGS FOR DATA OUTSIDE OF ACTION LIMITS (Unusable)		
R	Datum rejected based upon QC data: do not use	Datum rejected based upon QC data: do not use
MISCELLANEOUS FLAGS		
t	Tentatively identified compound; identity not confirmed with standard and quantitation estimated (applicable to GC/MS data only)	(Not applicable)

Note that if the QC results suggest contradictory flags, the following hierarchy should be used to select the appropriate flag to assign:

R	> J, JH, JL, JB, Jd
JH + JL	= J
Jd	> JH, JL
Jd	> JB (where JB is due to laboratory method blank or field blanks)
JB	> Jd (where JB is due to laboratory system blank)
JB	> J
JH or JL	> J

Quality control limits are generated annually by the laboratory based on statistical analysis of historic data. The QC limits for laboratory control samples (LCS) recovery, surrogate recovery, and matrix spike/matrix spike duplicate (MS/MSD) recovery and precision were presented in Appendix A of the Sampling and Analysis Plan (LAW, 1995a).

2.3.3.1 Sample Handling - Samples were transported to the laboratory daily by overnight express shipment. Upon receipt of the shipment, the laboratory recorded the temperature of each cooler and checked the preservation of aqueous samples. Adjustment of sample pH was performed as needed and recorded. Samples were maintained at the laboratory at a temperature of 4 degrees Celsius until analysis. Holding times for extraction and analysis were strictly adhered to following the requirements of the Sampling and Analysis Plan.

2.3.3.2 Method Blanks - Method blanks consist of organic-free or deionized water that is carried through the analytical scheme like a sample. Positive method blank results indicate the presence of contamination associated with sample preparation or analysis. For most analyses, a method blank is analyzed for each extraction or analysis batch at a frequency of 1 per 20 or fewer samples. If an analyte of interest is detected above the quantitation limit in a method blank, the corrective action consists of reprocessing and reanalyzing the entire sample batch. For the common organic contaminants such as methylene chloride, acetone, toluene, 2-butanone, and phthalates, and the inorganic contaminants, aluminum, calcium, iron, magnesium, sodium and potassium, reanalyses were performed only if contaminants exceeded three times the quantitation limit.

2.3.3.3 Laboratory Control Samples - Laboratory control samples were analyzed with every batch of 20 or fewer samples. LCS samples were prepared for each method by the addition of known concentrations of all method analytes. LCS samples were carried through the complete sample preparation and analysis procedure, and recoveries of the spiked analytes were determined and compared to QC criteria. Batch acceptance was based on the successful recovery of all analytes of interest as specified in the Sampling and Analysis Plan, and

acceptable recovery of at least 80 percent of the total analyte list for each method. Failure to meet these criteria resulted in reprocessing and reanalyzing the entire sample batch.

2.3.3.4 Internal Standards - Internal standard results were evaluated for methods SW-8240 and SW-8270 according to method requirements. Failure to meet the internal standard recovery or retention time criteria resulted in reanalysis of the affected samples.

2.3.3.5 Matrix Spikes - The MS/MSD samples were designated prior to sampling to allow for the collection of additional aliquots of the sample in the field. At the laboratory, the sample aliquots were spiked with known concentrations of the analytes of interest, and the samples were prepared and analyzed with a batch of 20 or fewer samples. The spike recoveries and the precision between duplicate spikes were calculated and evaluated compared to QC criteria. This technique allows for the assessment of any effect of the matrix on the precision and accuracy of the sample data. No corrective action was required for MS/MSD recoveries that failed QC criteria as long as the associated LCS results were within control.

2.3.3.6 Surrogates - Surrogates are known amounts of selected compounds added to all field and QC samples prior to preparation and analysis. Surrogate recoveries were evaluated for methods SW-8240, SW-8270, SW-8150, and SW-8080. The recovery of surrogates may be used to determine the effect of the matrix on the accuracy of the sample data. Surrogate recovery failure required reanalysis of the affected sample.

2.3.3.7 Field Precision - Field duplicate samples were collected from eight locations during the soil sampling activities. The results of field duplicates were used to evaluate sampling precision. A relative percent difference (RPD) was calculated from the positive results of the sample and its duplicate, and the RPD values were compared to a precision goal of 30 percent. For sample values less than five times the quantitation limit, the precision is determined by calculating the difference between the concentrations reported in the sample and its duplicate. The criteria used to evaluate this result is the concentration equivalent to two times the PQL. Sample results for

those parameters with field precision greater than the criteria of 30 percent RPD or two times the PQL, as applicable, are qualified as estimated values.

2.3.3.8 Trip Blanks - Trip blanks were shipped with each cooler containing samples collected for analysis of volatile compounds. Trip blanks were prepared by the laboratory from organic-free water, and were handled, packaged, preserved, and shipped in a manner similar to actual field samples. Trip blanks were analyzed for volatile organics to detect contamination that may have resulted from cross-contamination or ambient sources of contamination during shipment and handling.

2.3.3.9 Equipment Blanks - Equipment blanks were collected during the sampling activities to evaluate the effectiveness of equipment decontamination procedures. One equipment blank was collected each day during the sampling event. Equipment blanks were analyzed for the same parameters as those requested on environmental samples.

2.3.3.10 Completeness - Completeness measures the amount of usable data resulting from a data collection activity. Completeness for the purpose of this project was defined as the amount of sample data points actually acquired and accepted as valid, divided by the number of sample data points planned to be acquired, expressed as a percentage. Valid data is defined as all data which was not rejected as a result of data quality evaluation. A completeness goal of 90 percent was expected to be achieved for this project.

2.3.4 Data Quality Evaluation

The parameters of precision, accuracy, representativeness, completeness, and comparability are indicators of data quality (USEPA, 1987). The field QC data and laboratory QC data were evaluated to ascertain the quality of the chemical data. The QC data were compared to the criteria presented in the Sampling and Analysis Plan (LAW, 1995a). If QC problems were encountered during the performance of sampling and analysis procedures, corrective action was immediately initiated, and the problem and its resolution are reported in the following section.

If QC problems affected the data reported for a field sample and corrective action did not resolve the problem, or holding time constraints did not allow for re-extraction/reanalysis, the data for that sample has been qualified following LAW's standard operating procedures for data evaluation. The following sections present the procedures used for evaluation of the field and laboratory data, and the results of the data quality evaluation.

2.3.4.1 Laboratory Methods and Detection Limit Requirements - The laboratory followed the analytical methods presented in the Sampling and Analysis Plan. All method detection limits provided in Appendix A of the plan were met. Sample results were quantitated below the Practical Quantitation Limit (PQL) in order to meet project required detection limits. Results reported below the PQL were qualified as estimated (JQ).

2.3.4.2 Calibration - Initial calibrations and continuing calibrations were evaluated according to method-specific calibration criteria. Failure to meet calibration criteria resulted in qualification of the associated sample data. Results associated with a high relative standard deviation in the initial calibration or a high percent difference in the continuing calibration were qualified as estimated (J). Low relative response factors resulted in the qualification of associated positive results as estimated (J) and the rejection (R) of associated nondetects. All calibrations met the required criteria with the exception of the following:

Volatiles Analyses

- The relative response factor of the continuing calibration was below the minimum response criterion for 2-chloroethyl vinyl ether for several analysis batches. Associated sample results were nondetect; therefore, the sample data for this compound were rejected (R).

- Several continuing calibrations exhibited high percent differences for chloroethane, 2-chloroethyl vinyl ether, vinyl acetate, acetone, 2-hexanone, and 2-butanone. Associated samples were qualified as estimated (J).

Semi-Volatiles Analyses

- The initial calibration performed on instrument BNA-1 on November 14, 1995, resulted in a percent relative standard deviation value greater than the method criteria for 4-chloroaniline. The initial calibration performed on instrument BNA-2 on November 6, 1995, resulted in a percent relative standard deviation value greater than the method criteria for 2,4-dinitrophenol. The sample results associated with an analytical batch for which a compound failed the criteria, were qualified as estimated (J).

- Several continuing calibrations resulted in percent difference values greater than the method criteria. The following compounds were affected: hexachlorocyclopentadiene, 2,4-dinitrophenol, 4-chloroaniline, bis(2-chloroisopropyl)ether, 3,3'-dichlorobenzidine, and 4,6-dinitro-2-methylphenol, 4-nitrophenol. The sample results associated with an analytical batch for which a compound failed the criteria, were qualified as estimated (J).

Herbicides Analyses

- The initial calibration performed on November 18, 1995, resulted in Dalapon outside the method criteria on the primary and secondary columns. Associated results were qualified as estimated (J). The initial calibration performed on November 25, 1995, resulted in Dichloroprop outside the method criteria on the primary column. Associated results were qualified as estimated (J).

2.3.4.3 Method Blanks - Method blanks were analyzed to determine the effect of laboratory contamination on sample results. The reported values of constituents in samples may be attributable to blank contamination if the concentrations were less than or equal to five times the blank concentration or, for certain common laboratory contaminants, ten times the blank concentration. Sample results attributable to blank contamination were qualified as estimated (JB). Method blank results were nondetect with the exception of the following:

Metals Analyses

- ICPSB3803 contained 0.400 mg/kg of iron. Associated positive sample results less than five times the blank concentration (2.00 mg/kg) were qualified as estimated (JB). However, all associated results were greater than five times the blank concentration, and qualification was not necessary.

- ICPSB3094 contained 6.80 mg/kg of aluminum, 34.1 mg/kg of potassium, and 23.1 mg/kg of sodium. Associated positive sample results less than five times the blank concentrations (34 mg/kg for aluminum, 170 mg/kg for potassium, and 116 mg/kg for sodium) were qualified as estimated (JB). Associated aluminum and potassium results were not qualified because concentrations were greater than five times the blank value.

- ICPSB3124 contained 0.700 mg/kg of copper. No associated samples contained positive results less than five times the blank concentration; therefore no data were qualified.

- ICPWB3107 contained 0.0190 mg/L of copper and 0.251 mg/L of sodium. No associated copper samples contained positive results less than five times the blank concentration; therefore no copper data were qualified. Associated positive sodium results less than five times the blank concentration (1.255 mg/L for sodium) were qualified as estimated (JB).

- FSB3121 contained 0.122 mg/kg of lead. No associated samples contained positive results less than five times the blank concentration; therefore no data were qualified.

Pesticides/PCB Analyses

- PPSB7423, PPSB7499, PPSB7459 contained 0.00215 mg/kg, 0.00269 mg/kg, and 0.0100 mg/kg of methoxychlor, respectively. With the exception of sample FDUP-07, associated samples did not contain positive results less than five times the blank concentration. Sample FDUP-07 was qualified as estimated (JB) for methoxychlor.

2.3.4.4 Laboratory Control Sample Results - Laboratory control samples (LCSs) were used to demonstrate method accuracy. The LCS analytes which were outside of control limits resulted

in the qualification of the associated sample results as estimated, biased high (JH) for high recoveries, or biased low (JL) for low recoveries. LCS recoveries less than 10% resulted in rejection (R) of nondetect sample results. The LCS results were within control limits with the exception of the following:

Metals Analyses

- ICPSL3094 had high recovery of potassium. Associated positive sample results were qualified as estimated biased high (JH) for that compound.
- ICPSL3092 had high recovery of potassium. No associated samples contained positive results; therefore, no data were qualified.

Semi-Volatiles Analyses

- SSL7468, SSL7476, SSL7450, and SSL7480 had low recovery of bis(2-chloroisopropyl)ether. Associated sample results were qualified as estimated biased low (JL) for that compound.
- SSL7421 had low recovery of bis(2-chloroisopropyl)ether, and no recovery of hexachlorocyclopentadiene. Associated sample results were qualified as estimated biased low (JL) for bis(2-chloroisopropyl)ether. Associated positive sample results were qualified estimated biased low (JL), and associated nondetect sample results were rejected (R) for hexachlorocyclopentadiene.
- SSL7498 had low recovery of 2,4-dimethylphenol and no recovery of hexachlorocyclopentadiene. Associated sample results were qualified as estimated biased low (JL) for 2,4-dimethylphenol. Associated positive sample results were qualified estimated biased low (JL), and associated nondetect sample results were rejected (R) for hexachlorocyclopentadiene.
- SSL7444 had low recovery of 2,4-dimethylphenol and bis(2-chloroisopropyl)ether, and no recovery of hexachlorocyclopentadiene. Associated sample results for were qualified as estimated biased low (JL) for 2,4-dimethylphenol and bis(2-chloroisopropyl)ether. Associated positive sample results were qualified estimated biased low (JL), and associated nondetect sample results were rejected (R) for hexachlorocyclopentadiene.

Pesticides/PCB Analyses

- PPSL7499 had high recovery of heptachlor. There were no positive results for associated samples; therefore, no data were qualified.

Herbicides Analyses

- HERBSL7430 had low recovery for secondary column results of MCPA, and low recovery for primary column results of dicamba. Associated sample results were qualified estimated biased low (JL) for dicamba. MCPA was not detected on the primary column; therefore, data was not qualified.

- HERBSL7501 had high recovery for results of MCPA and MCPP. There were no positive results for this analyte; therefore, no data were qualified.

2.3.4.5 MS/MSD Results - MS/MSD samples were analyzed to assess method accuracy and precision. The results of the analysis of MS/MSD samples are provided in Appendix B. The sample associated with an MS/MSD pair was qualified as estimated, biased high (JH) for high recoveries, or biased low (JL) for low recoveries. If only one sample of the matrix spike pair was outside of the QC range, the other sample was evaluated for whether its recovery was above or below the median of the control range. Bias was assigned only if both spikes exhibited a trend in the same direction. When RPD values exceeded the QC criteria for precision, the sample results were qualified as estimated (J) unless the result had already been qualified "JH" or "JL" based on spike recoveries. MS/MSD results were within QC ranges with the exception of the following:

Metals Analyses

- Sample OT3913SA was analyzed as an MS/MSD sample. Antimony, molybdenum, and selenium had low MS and MSD recoveries. The associated sample result was qualified estimated biased low (JL) for these metals. Manganese and nickel had MS and/or MSD recoveries outside QC criteria; however, because the sample concentration was greater than

four times the spike amount, the results were not qualified. Cadmium had low MS recovery, and the RPD was higher than the control limit. The result was qualified as estimated (JL) for cadmium. Chromium had high MS and MSD recoveries. The result was nondetect; therefore, no qualification was necessary.

- Sample OT3840SA was analyzed as an MS/MSD sample. Antimony and arsenic had low MS and MSD recoveries. The associated sample result was qualified estimated biased low (JL) for these metals. Manganese and nickel had MS and/or MSD recoveries outside QC criteria; however, because the sample concentration was greater than four times the spike amount, the results were not qualified. Barium, cobalt, copper, and silver had RPDs higher than the control limits. The sample result was qualified as estimated (J) for these metals. Beryllium had high MS and MSD recoveries, and the RPD was higher than the control limit. The result was nondetect; therefore, no qualification was required. Cadmium, molybdenum, and selenium had low MS and MSD recoveries, and the RPD was higher than the control limit. The result was qualified as estimated biased low (JL) for these metals. Thallium and zinc had low MSD recovery, and the RPD was higher than the control limit. The result was qualified as estimated (J) for thallium and zinc. Lead had high MS and MSD recoveries, and the RPD was higher than the control limit. The result was qualified as estimated biased high (JH) for lead.

- Sample OT3830SA was analyzed as an MS/MSD sample. Antimony, molybdenum, arsenic, and selenium had low MS and low MSD recoveries. The associated sample result was qualified as estimated biased low (JL) for these metals. Cadmium had low MS and MSD recoveries, and the RPD was higher than the control limit. The sample result was qualified as estimated biased low (JL) for cadmium. Manganese had low MSD recovery, and the RPD was higher than the control limit. The sample concentration for manganese was greater than four times the spike amount; therefore, the sample results were not qualified. Lead had high MS recovery, and the RPD was greater than the control limit. The result was qualified as estimated (J) for lead.

- Sample OT3850SA was analyzed as an MS/MSD sample. Antimony, cadmium, arsenic, and selenium had low MS and low MSD recoveries. The result was qualified as estimated biased low (JL) for these metals. Molybdenum had low MS recovery; therefore, the result was qualified (JL) estimated biased low. Manganese, lead, and nickel failed MS and/or MSD recoveries, and the RPD was higher that the control limit for manganese. The sample concentration for these metals was greater than four times the spike amount; therefore, the sample results were not qualified.

- Sample OT3820SA was analyzed as an MS/MSD sample. Antimony had low MS and MSD recoveries, and the RPD was higher than the control limit. The result was qualified as estimated biased low (JL) for antimony. Cadmium, molybdenum, arsenic, and selenium had low MS and MSD recoveries. The associated sample results were qualified as estimated biased low (JL) for these metals. Manganese failed MS recovery, and the RPD was higher that the control limit. The sample concentration was greater than four times the spike amount; therefore, the sample result was not qualified. Lead had high MS and MSD recoveries, and the RPD was greater than the control limit; however, the sample concentration was greater than four times the spike amount and the sample was not qualified.

- Sample OT3815SA was analyzed as an MS/MSD sample. Antimony cadmium, copper, and selenium had low MS and/or MSD recoveries. The results were qualified as estimated biased low (JL) for antimony, cadmium, copper, and selenium. Manganese and nickel failed MS and/or MSD recoveries. The sample concentration for manganese and nickel was greater than four times the spike amount; therefore, the results were not qualified. Chromium and arsenic had low MS and/or MSD recoveries, and the RPDs were greater than 20 percent. The sample results were qualified as estimated biased low (JL) for arsenic and estimated (J) for chromium.

- Sample OT3930SA was analyzed as an MS/MSD sample. Antimony, cadmium, molybdenum, arsenic and selenium had low MS and MSD recoveries, and the RPD was greater than 20 percent for antimony. The results were qualified as estimated biased low (JL) for these metals. Manganese had low MSD recoveries, and the RPD was greater than the control limit. The sample concentration for manganese was greater than four times the spike amount; therefore, the results were not qualified. Lead had RPD results greater than the control limit; therefore, results were qualified (J) as estimated.

- Sample OT3920SA was analyzed as an MS/MSD sample. Antimony, cadmium, and selenium had low MS and MSD recoveries, and the RPD was higher than the control limit for cadmium. The result was qualified as estimated biased low (JL) for antimony, cadmium, and selenium. Zinc had low MSD recovery, and the RPD was greater than 20 percent. The associated sample result was qualified as estimated (J) for zinc. Manganese and lead failed MS and MSD recoveries, and the RPD for manganese, lead, and nickel were higher than the control limit. The sample concentrations were greater than four times the spike amount; therefore, the sample result was not qualified. Barium, chromium, and copper had high MS and/or MSD recoveries, and the RPDs were greater than 20 percent for barium and chromium. Positive results were qualified as estimated biased high (JH) for these metals.

- Sample OT3822SA was analyzed as an MS/MSD sample. Antimony, cadmium, and molybdenum, arsenic, lead, and selenium had low MS and MSD recoveries, and the RPD was higher than the control limit for antimony and lead. The result was qualified as biased low (JL) for antimony, cadmium, molybdenum, arsenic, lead, and selenium. Manganese failed MS and MSD recoveries, and the RPD for manganese was higher than the control limit. The sample concentrations were greater than four times the spike amount; therefore, the sample result was not qualified. Chromium and zinc had low MS recoveries, and the RPD was higher than the control limit. The associated sample results were qualified as estimated (J) for chromium and zinc.

Volatiles Analyses

- Sample OT3840SA was analyzed as an MS/MSD sample. Tetrachloroethene had low MS and MSD recoveries. The associated sample was qualified as estimated biased low (JL) for tetrachloroethene.

Semi-Volatiles Analyses

- Sample OT3820SA was analyzed as an MS/MSD sample. Benzo(a)pyrene had an RPD greater than QC limits. The associated sample was qualified as estimated (J) for benzo(a)pyrene.

- Sample OT3920SA was analyzed as an MS/MSD sample. 2,4-dinitrotoluene had low MS and MSD recoveries. Pentachlorophenol had low MSD recovery, and the RPD was greater than the control limit. The associated sample result was qualified as estimated biased low (JL) for 2,4-dinitrotoluene and pentachlorophenol.

- Sample OT3840SA was analyzed as an MS/MSD sample. 2,4-Dinitrotoluene had low MS and MSD recoveries, and was qualified (JL). Pyrene had high MS and MSD recoveries and was qualified (JH).

2.3.4.6 Post Digestion Spikes - Post digestion spikes were analyzed to assess the effect of the sample matrix on the measurement system. Post digestion spike results were within QC ranges with the exception of the following:

Metals Analyses

- Samples OT3827SA, OT3840SA, OT3824SA, OT3903SA, OT3821SA, OT3841SA, OT3835SA, OT3833SA, OT3846SA, OT3848SA, OT3828SA, FDUP-05, OT3829SA, OT3826SA, OT3839SA, OT3849SA, OT3837SA, OT3838SA, OT3831SA, OT3819SA, OT3801SA, OT3818SA, OT3817SA, OT3808SA, OT3804SA, OT3904SA, OT3914SA, OT3921SA, OT3924SA, OT3919SA, and OT3923SA had post digestion spike values less than 85 percent for selenium. The associated sample results were qualified as estimated biased low (JL) for selenium.

- Sample OT3826SA had a post digestion spike value less than 85 percent for arsenic. The associated sample result was qualified as estimated biased low (JL) for arsenic.

- Samples OT3903SA, OT3823SA, OT3916SA, and Purge H20 had post digestion spike values greater than 115 percent for lead. The associated positive sample results were qualified as estimated biased high (JH) for lead.

- Sample OT3851SA had post digestion spike values greater than 115 percent for selenium. The associated sample results were nondetect; therefore, no data were qualified.

- Samples OT3912SA, OT3915SA, OT3926SA, OT3925SA, and FDUP-07 had post digestion spike values greater than 115 percent for arsenic. The associated positive sample results were qualified as estimated biased high (JH) for arsenic. Sample OT3912SA was not qualified for arsenic because results were nondetect.

2.3.4.7 Holding Times and Preservation - The holding times were met for all parameters for the soil samples. The trip blank collected October 24, 1995, was analyzed twice. The laboratory ran method SW-8240 within the holding time; however, method SW-8260 was requested. When the error was recognized, the laboratory reanalyzed the trip blank using method SW-8260, eight days outside of holding time. The results of the initial analysis satisified the data requirements for trip blank analysis, therefore, only the SW-8240 results were used. Project-required quantitation limits were met based on the laboratory reporting results below the PQL.

2.3.4.8 Surrogate and Internal Standard Analysis Results - Internal and surrogate standard recoveries were used to indicate acceptable extraction and analytical performance for each sample. Corrective actions initiated by the laboratory included re-extraction/reanalysis of samples exhibiting poor surrogate recovery and internal standard failures, unless failure was due to dilution. Sample results were qualified if corrective action was unsuccessful in improving the recoveries, or holding time constraints did not allow for re-extraction/reanalysis of a sample. Surrogate failures resulted in the qualification of sample results based on the observed bias. High surrogate recoveries resulted in qualification of associated positive sample results as estimated, biased high (JH). Low surrogate recoveries resulted in qualification of all associated positive and nondetect sample results as estimated, biased low (JL). If a sample required dilution and the surrogate recoveries were affected, data qualification for surrogate failure was considered unnecessary.

Internal standard failure resulted in the qualification of associated compounds as estimated (J). Extremely low recoveries (less than ten percent) resulted in rejection (R) of assocaited compounds. All surrogate and internal standards were within control limits with the exception of the following:

Semi-Volatiles Analyses

- Surrogate recoveries for 2-fluorophenol and phenol were outside of control limits for sample OT3801SA, due to a required 10 times dilution; therefore, no results were qualified.

- Samples OT3815SA, OT3802SA, OT3806SA, OT3813SA, OT3809SA, OT3904SA, and OT3901SA had low recoveries for one or both of the internal standards chrysene-d12 and perylene-d12. Sample OT3815SA also had low recovery for the internal standard phenanthrene-d10. All samples were reanalyzed with similar results. The analytes associated with the low internal standards were qualified as estimated (J) for the above samples.

- Surrogate recoveries for 2-fluorobiphenyl, phenol-d6, nitrobenzene-d5, and 2,4,6-tribromophenol were outside of control limits for sample OT3912SA, due to a required 50 times dilution; therefore, no results were qualified.

- Surrogate recoveries for 2-fluorophenol and phenol-d6 were outside of control limits for sample OT3801SA, due to a required 10 times dilution. No results were qualified.

- Samples OT3928SA, FDUP-07, OT3920SA, OT3926SA, OT3925SA, FDUP-08, and OT3914SA had low recoveries for the internal standard chrysene-d12 and perylene-d12. All samples were reanalyzed with similar results. Only OT3928SA improved upon reanalysis with only perylene-d12 remaining below the internal standard range. The analytes associated with the low internal standards were qualified as estimated (J) for the above samples.

- Samples OT3921SA and OT3924SA had low recoveries for one or both of the internal standards chrysene-d12 and perylene-d12. The samples were reanalyzed with similar results. The analytes associated with the low internal standards were qualified as estimated (J) for the above samples.

Pesticides/PCB Analyses

- Surrogate recoveries for DBC were low on one or both columns for several OT39 samples. The TCMX surrogate recoveries reported for these samples were within control limits; therefore, no results were qualified.

2.3.4.9 Field Duplicates - Field duplicate samples were analyzed to assess sampling precision for the analytes detected. The results of the field duplicate analyses and the corresponding RPDs are presented in Table 2-3 and Table 2-4. The RPD criterion for sample results greater than five times the quantitation limit was less than 30 percent. For sample results less than five times the quantitation limit, the difference between the two results should be less than two times the PQL. Sample results exceeding these criteria were qualified as estimated (J). All results for field duplicates met the criteria with the exception of the following:

TABLE 2-3

FIELD DUPLICATE SUMMARY TABLE
AEROSPACE MUSEUM SITE
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD (UNITS)	Quantitation Limits	Sample ID / Sample Date / Depth / Notes	FDUP-01 22-OCT-95 0.0' - 2.0' Duplicate of OT3811SA		OT3811SA 22-OCT-95 0.0' - 2.0'		% RPD	DIFFERENCE	FDUP-02 22-OCT-95 0.0' - 2.0' Duplicate of OT3821SA	
Soil pH - SW9045/NONE (none)										
623-9045 pH units Soil			7.49		7.45		0.5		7.46	
PERCENT MOISTURE/D2216 (%)										
Percent Moisture			12.0		11.0		8.7		7.00	
METALS, TOTAL by ICP/SW 6010 (mg/kg)										
Aluminum	50.0		7620		8120		6.4		4040	
Antimony	25.0									
Barium	2.00		116		115		0.9		104	J
Beryllium	0.300		<2.57		0.57			2		
Calcium	10.0		140000	J	[illegible]100	J	35.2		224000	
Chromium	5.00		12.0	JQ	8.95			3.05		
Cobalt	5.00		3.07	JQ	4.64			1.57	1.21	JQ
Copper	5.00		9.39	JQ	7.00			2.39	3.03	JQ
Iron	5.00		7590		7440		2.0		4680	
Magnesium	25.0		2310		2190		5.3		2930	J
Manganese	1.00		479		457		4.7		423	
Molybdenum	5.00								1.51	JQ
Nickel	5.00		[illegible]	J	8.79	J		220.21	202	
Potassium	60.0		[illegible]540	JH	1530	JH	0.7		962	
Sodium	25.0		68.9	JB	61.3	JB		7.6	194	J
Vanadium	5.00		17.5		19.5			2	9.31	
Zinc	1.00		83.9	J	21.2	J	119.3		70.2	
ARSENIC, TOTAL by GFAA/SW 7060 (mg/kg)										
Arsenic	0.500		2.47		2.05			0.42	1.14	
LEAD, TOTAL by GFAA/SW 7421 (mg/kg)										
Lead	0.500		19.8		17.0		15.2		9.74	
SELENIUM, TOTAL by GFAA/SW 7740 (mg/kg)										
Selenium	0.500									
GC/MS for Volatile Organics - SW8240/NONE (mg/kg)										
Toluene	0.00500		0.00931		0.0115			0.00219	<0.00157	JQ
GC/MS for Semi-Volatile Organics (Capillary Column - SW8270/SW3550 (mg/kg)										
Chrysene	0.333		0.0131	JQ	<.371			0.3579		
Di-n-butylphthalate	0.333									
Fluoranthene	0.333		0.0212	JQ	0.0135	JQ		0.0077		
Phenanthrene	0.333									
Pyrene	0.333		0.0251	JQ	<.371			0.3459		
bis(2-Ethylhexyl)phthalate	0.333									

Data Qualification Flags/Notes:
J = Estimated quantitation based upon QC data
JB = Estimated quantitation possibly biased high or a false positive based upon blank data
JH = Estimated quantitation possibly biased high based upon QC data
JL = Estimated quantitation possibly biased low or a false negative based upon QC data
JQ = Estimated quantitation detected below the Practical Quantitation Limit (PQL)
R = Datum rejected based upon QC data do not use

*Note Percent RPD values greater than 30% are shown in boxes unless the sample or its duplicate is less than five times the PQL and the difference between the concentrations is less than two times the PQL
[illegible] exceeded RPD criteria Associated sample results were qualified as estimated values (J)

TABLE 2-3

FIELD DUPLICATE SUMMARY TABLE
AEROSPACE MUSEUM SITE
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD (UNITS)	Quantitation Limits	Sample ID Sample Date : Depth : Notes :	DIFFERENCE	FDUP-05 22-OCT-95 0 0' - 2 0' Duplicate of OT3848SA	OT3848SA 22-OCT-95 0 0' - 2 0'	*RPD	DIFFERENCE
Soil pH - SW9045/NONE (none)							
623-9045 pH units Soil				7.72	7.59	1 7	
PERCENT MOISTURE/D2216 (%)							
Percent Moisture				17 0	16 0	6 1	
METALS, TOTAL by ICP/SW 6010 (mg/kg)							
Aluminum	50 0			9970	10700	29 2	
Antimony	25 0		0.47	2.79 JQ	<22 7	156 2	
Barium	2 00			82 0	83 6	1.9	
Beryllium	0 300		0 97	138000	139000	0 7	
Calcium	10 0			4 10	4 00 JQ	2 5	
Chromium	5 00		2 72	13 1 JQ	17 3 JQ	27 6	
Cobalt	5 00		3 15	10900	13200	19 1	
Copper	5 00		3 16	2420	2800	14 6	
Iron	5 00			512	479	6 7	
Magnesium	5 00			1 80 JQ	2.91 JQ	47 1	
Manganese	25 0		0 66	219	242	10 0	
Molybdenum	1 00		52.87	1430	1770	21 3	
Nickel	5 00			95 0	103	8 1	
Potassium	5.00		260 1	21 4	23 3	8 5	
Sodium	60 0		2.8	218	204	6 6	
Vanadium	25 0						
Zinc	5 00						
ARSENIC, TOTAL by GFAA/SW 7060 (mg/kg)							
Arsenic	0 500		1 24	5 48 J	3 53 J	43 3	
LEAD, TOTAL by GFAA/SW 7421 (mg/kg)							
Lead	0 500			722	580	21 8	
SELENIUM, TOTAL by GFAA/SW 7740 (mg/kg)							
Selenium	0 500						
GC/MS for Volatile Organics - SW8240/NONE (mg/kg)							
Toluene	0 00500		0.00528	0 000615 JQ	0 00863	173 4	
GC/MS for Semi-Volatile Organics (Capillary Column - SW8270/SW3550 (mg/kg)							
Chrysene	0 333						
Di-n-butylphthalate	0 333						
Fluoranthene	0 333						
Phenanthrene	0 333		0 3504	0 0688 JQ	0 0396 JQ	53 9	
Pyrene	0 333			0 0266 JQ	< 392	174 6	
bis(2-Ethylhexyl)phthalate	0 333			0 0795 JQ	0 0549 JQ	36 6	
	0 333			< 397	0 136 JQ	97 9	

Data Qualification Flags/Notes:
J = Estimated quantitation based upon QC data
JB = Estimated quantitation possibly biased high or a false positive based upon blank data
JH = Estimated quantitation possibly biased high based upon QC data
JL = Estimated quantitation possibly biased low or a false negative based upon QC data
JQ = Estimated quantitation detected below the Practical Quantitation Limit (PQL)
R = Datum rejected based upon QC data do not use

*Note Percent RPD values greater than 30% are shown in boxes unless the sample or its duplicate is less than five times the PQL and the difference between the concentrations is less than two times the PQL.
[ ] Results in boxes exceeded RPD criteria Associated sample results were qualified as estimated values (J)

PREPARED/DATE John Pecore / 2 23 96
CHECKED/DATE Sue D Max / 2 23 96

3517-3209 31

TABLE 2-4

FIELD DUPLICATE SUMMARY TABLE
GROUNDS MAINTENANCE YARD
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID Sample Date Depth Notes	FDUP-06 23-OCT-95 0.0' - 2.0' Duplicate of OT3911SA	OT3911SA 23-OCT-95 0.0' - 2.0'	% RPD	DIFFERENCE
Soil pH - SW9045/NONE (none)						
623-9045 pH units Soil			7.69	7.66	0.4	
PERCENT MOISTURE/D2216 (%)						
Percent Moisture			18.0	21.0	15.4	
METALS, TOTAL by ICP/SW 6010 (mg/kg)						
Aluminum	50.0		6890	7000	1.6	
Antimony	25.0					
Barium	2.00		177	183	3.3	
Beryllium	0.300		1.81 JQ	<2.88 J		1.1
Calcium	10.0		176000	177000	0.6	
Chromium	5.00		<45.2 J	19.2 JQ		26
Cobalt	5.00		2.89 JQ	3.16 JQ		0.27
Copper	5.00		9.03 JQ	9.59 JQ		0.56
Iron	5.00		6710	6830	1.8	
Magnesium	25.0		2200	2260	2.7	
Manganese	1.00		477	493	3.3	
Molybdenum	5.00		2.17 JQ	2.30 JQ		0.13
Nickel	5.00		241	257	6.4	
Potassium	60.0		1880	1930	2.6	
Sodium	25.0		403	400	0.7	
Vanadium	5.00		9.12	9.11		0.01
Zinc	1.00		122	112	8.5	
ARSENIC, TOTAL by GFAA/SW 7060 (mg/kg)						
Arsenic	0.500		1.82	2.05		0.23
LEAD, TOTAL by GFAA/SW 7421 (mg/kg)						
Lead	0.500		17.5	20.2	14.3	
SELENIUM, TOTAL by GFAA/SW 7740 (mg/kg)						
Selenium	0.500					
Organochlorine Pesticides and PCBs - SW8080/SW3550 (mg/kg)						
4,4'-DDD	0.00333		0.00167 JQ	< .00413		0.00246
4,4'-DDE	0.00133					
4,4'-DDT	0.00333					
Chlordane	0.0166					
Methoxychlor	0.0166					
Chlorinated Herbicides - SW8150/METHOD (mg/kg)						
2,4,5-TP (Silvex)	0.00400		< .00488	0.00551		0.00063
GC/MS for Volatile Organics - SW8240/NONE (mg/kg)						
Toluene	0.00500		0.00631	0.0112		0.00063
GC/MS for Semi-Volatile Organics (Capillary Column - SW8270/SW3550 (mg/kg)						
2-Methylnaphthalene	0.333		0.159 JQ	< .419		0.00063
Acenaphthene	0.333		0.0343 JQ	< .419		0.00063
Benz(a)anthracene	0.333					
Benzo(a)pyrene	0.333					

TABLE 2-4

FIELD DUPLICATE SUMMARY TABLE
GROUNDS MAINTENANCE YARD
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID :	FDUP-06	OT3911SA	% RPD	DIFFERENCE
		Sample Date :	23-OCT-95	23-OCT-95		
		Depth :	0 0' - 2 0'	0 0' - 2 0'		
		Notes :	Duplicate of OT3911SA			
GC/MS for Semi-Volatile Organics (Capillary Column - SW8270/SW3550 (mg/kg) (Cont'd)						
Benzo(b)fluoranthene	0 333		0 0430 JQ	< 419		0 376
Chrysene	0 333		0 0723 JQ	< 419		0 3467
Di-n-butylphthalate	0 333		0.0238 JQ	< 419		0 3952
Fluoranthene	0 333		0.259 JQ	< 419		0.16
Fluorene	0 333		0.0731 JQ	< 419		0 3459
Naphthalene	0 333					
Phenanthrene	0 333					
Pyrene	0 333					

Data Qualification Flags/Notes:
J = Estimated quantation based upon QC data
JB = Estimated quantitation possibly biased high or a false positive based upon blank data
JH = Estimated quantitation possibly biased high based upon QC data
JL = Estimated quantitation possibly biased low or a false negative based upon QC data
JQ = Estimated quantitation detected below the Practical Quantitation Limit (PQL)
R = Datum rejected based upon QC data do not use

*Note Percent RPD values greater than 30% are shown in boxes unless the sample or its duplicate is less than five times the PQL and the difference between the concentrations is less than two times the PQL

[ ] Results in boxes exceeded RPD criteria Associated sample results were qualified as estimated values (J)

TABLE 2-4

FIELD DUPLICATE SUMMARY TABLE
GROUNDS MAINTENANCE YARD
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID :	FDUP08	OT3925SA	% RPD	DIFFERENCE
		Sample Date :	24-OCT-95	24-OCT-95		
		Depth :	0.0' - 2.0'	0.0' - 2.0'		
		Notes :	Duplicate of OT3925SA			
Soil pH - SW9045/NONE (none)						
623-9045 pH units Soil			7.82	7.74	1.0	
PERCENT MOISTURE/D2216 (%)						
Percent Moisture			19.0	17.0	11.1	
METALS, TOTAL by ICP/SW 6010 (mg/kg)						
Aluminum	50.0		7680	7520	2.1	
Antimony	25.0					
Barium	2.00		126	125	0.8	
Beryllium	0.300		0.521	0.535		0.014
Calcium	10.0		128000	122000	4.8	
Chromium	5.00		9.21	7.40		1.81
Cobalt	5.00		2.43 JQ	2.59 JQ		0.16
Copper	5.00		9.04	9.81		0.77
Iron	5.00		6850	6910	0.9	
Magnesium	25.0		2110	2140	1.4	
Manganese	1.00		190	220	14.6	
Molybdenum	5.00					
Nickel	5.00		6.78	7.76		0.98
Potassium	60.0		1540	1660	7.5	
Sodium	25.0		141 JB	132 JB	6.6	
Vanadium	5.00		11.0	10.3		0.7
Zinc	1.00		21.2 J	32.4 J	41.8	
ARSENIC, TOTAL by GFAA/SW 7060 (mg/kg)						
Arsenic	0.500		0.844	0.814 JH		0.03
LEAD, TOTAL by GFAA/SW 7421 (mg/kg)						
Lead	0.500		9.09	8.67	4.7	
SELENIUM, TOTAL by GFAA/SW 7740 (mg/kg)						
Selenium	0.500					
Organochlorine Pesticides and PCBs - SW8080/SW3550 (mg/kg)						
4,4'-DDD	0.00333					
4,4'-DDE	0.00133					
4,4'-DDT	0.00333					
Chlordane	0.0166					
Methoxychlor	0.0166					
Chlorinated Herbicides - SW8150/METHOD (mg/kg)						
2,4,5-TP (Silvex)	0.00400					
GC/MS for Volatile Organics - SW8240/NONE (mg/kg)						
Toluene	0.00500		< .00594 J	0.0316 JQ		0.02766
GC/MS for Semi-Volatile Organics (Capillary Column - SW8270/SW3550 (mg/kg)						
2-Methylnaphthalene	0.333					
Acenaphthene	0.333					
Benz(a)anthracene	0.333					
Benzo(a)pyrene	0.333					

TABLE 2-4

FIELD DUPLICATE SUMMARY TABLE
GROUNDS MAINTENANCE YARD
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID :	FDUP08	OT3925SA	% RPD	DIFFERENCE
		Sample Date :	24-OCT-95	24-OCT-95		
		Depth :	0 0' - 2 0'	0 0' - 2 0'		
		Notes :	Duplicate of OT3925SA			
GC/MS for Semi-Volatile Organics (Capillary Column - SW8270/SW3550 (mg/kg) (Cont'd)						
Benzo(b)fluoranthene	0 333					
Chrysene	0 333					
Di-n-butylphthalate	0 333					
Fluoranthene	0 333					
Fluorene	0 333		< 410	0 0127 JQ		0 3973
Naphthalene	0 333					
Phenanthrene	0 333					
Pyrene	0 333					

Data Qualification Flags/Notes:
J = Estimated quantation based upon QC data
JB = Estimated quantitation possibly biased high or a false positive based upon blank data
JH = Estimated quantitation possibly biased high based upon QC data
JL = Estimated quantitation possibly biased low or a false negative based upon QC data
JQ = Estimated quantitation detected below the Practical Quantitation Limit (PQL)
R = Datum rejected based upon QC data do not use

*Note Percent RPD values greater than 30% are shown in boxes unless the sample or its duplicate is less than five times the PQL and the difference between the concentrations is less than two times the PQL

☐ Results in boxes exceeded RPD criteria Associated sample results were qualified as estimated values (J)

TABLE 2-4

FIELD DUPLICATE SUMMARY TABLE
GROUNDS MAINTENANCE YARD
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID :	FDUP07	OT3928SA	% RPD	DIFFERENCE
		Sample Date :	24-OCT-95	24-OCT-95		
		Depth :	0 0' - 2 0'	0 0' - 2 0'		
		Notes :	Duplicate of OT3928SA			
Soil pH - SW9045/NONE (none)						
623-9045 pH units Soil			7 54	7 24	4 1	
PERCENT MOISTURE/D2216 (%)						
Percent Moisture			12 0	17 0	34 5	
METALS, TOTAL by ICP/SW 6010 (mg/kg)						
Aluminum	50 0		6420	7700	18 1	
Antimony	25 0		1.81 JQ	<20 5		18 69
Barium	2 00		106	119		13
Beryllium	0 300					
Calcium	10 0		127000	113000	11 7	
Chromium	5 00		14.0 JQ	26 2 JQ		12 2
Cobalt	5 00		2 64 JQ	3 03 JQ		0 39
Copper	5 00		10 7 JQ	10.7 JQ		0
Iron	5 00		6490 J	9630 J	39 0	
Magnesium	25 0		1870	2310	21 1	
Manganese	1 00		359	381	5 9	
Molybdenum	5 00		2.06 JQ	1.72 JQ		0 34
Nickel	5 00		59 3 J	116 J	64 7	
Potassium	60 0		1560	2060	27 6	
Sodium	25 0		89 5 JB	103 JB		13 5
Vanadium	5 00		10 5	10 7	1 9	
Zinc	1 00		60 0 J	87 4 J	37.2	
ARSENIC, TOTAL by GFAA/SW 7060 (mg/kg)						
Arsenic	0 500		15.4 JH	2 94 J	135 9	
LEAD, TOTAL by GFAA/SW 7421 (mg/kg)						
Lead	0 500		15.9 J	86 0 J	137 6	
SELENIUM, TOTAL by GFAA/SW 7740 (mg/kg)						
Selenium	0 500		0 410 JQ	< 453		0 043
Organochlorine Pesticides and PCBs - SW8080/SW3550 (mg/kg)						
4,4'-DDD	0 00333		< 00374 J	0 0342 J		0 03046
4,4'-DDE	0 00133		0 000986 JQ	0 143 J		0 142014
4,4'-DDT	0 00333		< 00374 J	0.176 J		0 17226
Chlordane	0 0166		0 0375 J	0 0773 J		0 0398
Methoxychlor	0 0166		0 0129 JB	0198		0 0069
Chlorinated Herbicides - SW8150/METHOD (mg/kg)						
2,4,5-TP (Silvex)	0 00400					
GC/MS for Volatile Organics - SW8240/NONE (mg/kg)						
Toluene	0 00500		0 00159 JQ	0 00668		0 00509
GC/MS for Semi-Volatile Organics (Capillary Column - SW8270/SW3550 (mg/kg)						
2-Methylnaphthalene	0 333					
Acenaphthene	0 333					
Benz(a)anthracene	0 333		< 373 J	0 0445 JQ		0 3285
Benzo(a)pyrene	0 333		< 373 J	0 0433 J		0 3297

TABLE 2-4

FIELD DUPLICATE SUMMARY TABLE
GROUNDS MAINTENANCE YARD
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID :	FDUP07	OT3928SA	% RPD	DIFFERENCE
		Sample Date :	24-OCT-95	24-OCT-95		
		Depth :	0 0' - 2.0'	0 0' - 2 0'		
		Notes :	Duplicate of OT3928SA			
GC/MS for Semi-Volatile Organics (Capillary Column - SW8270/SW3550 (mg/kg) (Cont'd)						
Benzo(b)fluoranthene	0 333		<.373 J	0 0659 J		0 3071
Chrysene	0 333		<.373 J	0.0651 JQ		0 3079
Di-n-butylphthalate	0 333		0.0257 JQ	<.397		0 3713
Fluoranthene	0 333		0.0151 JQ	0.0873 JQ		0 0722
Fluorene	0 333					
Naphthalene	0 333		<.373	0 0368 JQ		0 3362
Phenanthrene	0 333		0.0270 J	0 0961 JQ		0 0691
Pyrene	0 333					

Data Qualification Flags/Notes:
J = Estimated quantation based upon QC data
JB = Estimated quantitation possibly biased high or a false positive based upon blank data
JH = Estimated quantitation: possibly biased high based upon QC data
JL = Estimated quantitation: possibly biased low or a false negative based upon QC data
JQ = Estimated quantitation: detected below the Practical Quantitation Limit (PQL)
R = Datum rejected based upon QC data do not use

*Note Percent RPD values greater than 30% are shown in boxes unless the sample or its duplicate is less than five times the PQL and the difference between the concentrations is less than two times the PQL

[ ] Results in boxes exceeded RPD criteria Associated sample results were qualified as estimated values (J)

PREPARED/DATE: John Pecore / 2-23-96
CHECKED/DATE: Sue D. Max / 2-23-96

Metals Analyses

- Sample OT3811SA and its duplicate FDUP-01 had an RPD greater than 30 percent for calcium and zinc, and nickel failed the difference criteria. The sample and FDUP-01 were qualified "J" for these metals.

- Sample OT3821SA and its duplicate FDUP-02 had an RPD greater than 30 percent for barium and magnesium, and sodium failed the difference criteria. The sample and FDUP-02 were qualified "J" for these metals.

- Sample OT3831SA and its duplicate FDUP-03 exceeded the difference criteria for selenium. FDUP-03 was qualified "J" for this metal. Sample OT3831SA was previously qualified "JL" for selenium based on low post digestion spike recovery.

- Sample OT3942SA and its duplicate FDUP-04 had an RPD greater than 30 percent for aluminum, iron, manganese, potassium, and zinc. Beryllium and sodium failed the difference criteria. The sample and FDUP-04 were qualified "J" for these metals.

- Sample OT3848SA and its duplicate FDUP-05 had an RPD greater than 30 percent for arsenic. The sample and FDUP-05 were qualified "J" for arsenic.

- Sample OT3911SA and its duplicate FDUP-06 exceeded the difference criteria for beryllium and chromium. The sample and FDUP-06 were qualified "J" for these metals.

- Sample OT3928SA and its duplicate FDUP-07 had an RPD greater than 30 percent for arsenic, iron, nickel, zinc and lead. Chromium failed the difference criteria. The sample and FDUP-07 were qualified "J" for these metals.

- Sample OT3925SA and its duplicate FDUP-08 had an RPD greater than 30 percent for zinc. The sample and FDUP-08 were qualified "J" for zinc.

Percent Moisture

- Sample OT3842SA and its duplicate FDUP-04 had an RPD greater than 30 percent for percent moisture. The sample and FDUP-04 were qualified "J" for percent moisture.

Volatiles Analyses

- Sample OT3925SA and its duplicate FDUP-08 failed difference criteria for toluene. The sample and FDUP-08 were qualified "J" for this constituent.

Pesticides/PCB Analyses

- Sample OT3928SA and its duplicate FDUP-07 failed difference criteria for 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, and chlordane. The sample and FDUP-07 were qualified "J" for these constituents.

2.3.4.10 Field Blanks - Trip blanks were analyzed to assess sample contamination that may have occurred during shipping. Equipment blanks and ambient blanks were analyzed to assess sample contamination that may have occurred during sample collection. Table 2-5 presents the results of equipment blanks and ambient blanks. Table 2-6 presents the results of the trip blanks associated with two shipments of samples to be analyzed for volatile organics. Associated positive sample results may be attributable to blank contamination if the concentrations were less than or equal to five times the blank concentration or, for certain common laboratory contaminants, ten times the blank contamination. Sample results attributable to blank contamination were qualified as estimated (JB). Field blank results were nondetect with the exception of the following:

Metals Analyses - Equipment Blanks

- Equipment blank, EQB-1 collected on 10/22/95, contained 0.135 mg/L of aluminum, 0.250 mg/L of calcium, and 0.014 mg/L of zinc. All associated sample results for these metals were greater than five times blank concentrations; therefore, no results were qualified.

- Equipment blank, EQB-2 collected on 10/23/95, contained 0.120 mg/L of aluminum, 0.203 mg/L of calcium, and 0.013 mg/L of zinc. All associated sample results for these metals were greater than five times the blank concentration; therefore, no results were qualified.

TABLE 2-5

EQUIPMENT AND AMBIENT BLANK TABLE
AEROSPACE MUSEUM SITE AND GROUND MAINTENANCE YARD
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD (UNITS)	Quantitation Limits	Sample ID Sample Date Depth Notes	AMBL-1 23-OCT-95 0.0' - 0.0'	AMBL-2 24-OCT-95 0.0' - 0.0'	EQB-1 22-OCT-95 0.0' - 0.0'	EQB-2 23-OCT-95 0.0' - 0.0'	EQB-3 24-OCT-95 0.0' - 0.0'
METALS, TOTAL by ICP/SW 6010 (mg/L)							
Aluminum	0.500		-	-	0.135 JQ	0.120 JQ	0.0640 JQ
Antimony	0.250		-	-	<0.250	<0.250	<0.250
Barium	0.0200		-	-	<0.0200	<0.0200	<0.0200
Beryllium	0.00300		-	-	<0.00300	<0.00300	<0.00300
Cadmium	0.0100		-	-	<0.0100	<0.0100	<0.0100
Calcium	0.100		-	-	0.250	0.203	0.386
Chromium	0.0500		-	-	<0.0500	<0.0500	<0.0500
Cobalt	0.0500		-	-	<0.0500	<0.0500	<0.0500
Copper	0.0500		-	-	<0.0500	<0.0500	<0.0500
Iron	0.0500		-	-	<0.0500	<0.0500	<0.0500
Magnesium	0.250		-	-	<0.250	<0.250	<0.250
Manganese	0.0100		-	-	<0.0100	<0.0100	<0.0100
Molybdenum	0.0500		-	-	<0.0500	<0.0500	<0.0500
Nickel	0.0500		-	-	<0.0500	<0.0500	<0.0500
Potassium	0.600		-	-	<0.600	<0.600	<0.600
Silver	0.0500		-	-	<0.0500	<0.0500	<0.0500
Sodium	0.250		-	-	<0.250	<0.250	0.568 JB
Thallium	0.250		-	-	<0.250	<0.250	<0.250
Vanadium	0.0500		-	-	<0.0500	<0.0500	<0.0500
Zinc	0.0100		-	-	0.0140	0.0130	0.00600 JQ
ARSENIC, TOTAL BY GFAA/SW 7060 (mg/L)							
Arsenic	0.0500		-	-	<0.00500	<0.00500	<0.00500
LEAD, TOTAL BY GFAA/SW3005M/7421 (mg/L)							
Lead	0.00500		-	-	<0.00500	<0.00500	<0.00500
MERCURY, TOTAL BY CVAA/SW 7470 (mg/L)							
Mercury	0.000500		-	-	<0.000500	<0.000500	<0.000500
SELENIUM, TOTAL BY GFAA/SW 7740/METHOD (mg/L)							
Selenium	0.00500		-	-	<0.00500	<0.00500	<0.00500
THALLIUM, TOTAL BY GFAA/SW3020/7841 (mg/L)							
Thallium	0.00200		-	-	<0.00200	<0.00200	
ORGANOCHLORINE PESTICIDES AND PCBs - SW8080/SW8020 (µg/L)							
4,4'-DDD	0.100		-	-	-	<0.102	<0.110
4,4'-DDE	0.0400		-	-	-	<0.0408	<0.0440
4,4'-DDT	0.100		-	-	-	<0.102	<0.110
AR1016	1.00		-	-	-	<1.02	<1.10
AR1221	1.00		-	-	-	<1.02	<1.10
AR1232	1.00		-	-	-	<1.02	<1.10
AR1242	1.00		-	-	-	<1.02	<1.10
AR1248	1.00		-	-	-	<1.02	<1.10
AR1254	1.00		-	-	-	<1.02	<1.10
AR1260	1.00		-	-	-	<1.02	1.10
Aldrin	0.0400		-	-	-	<0.0408	<0.0440
Chlordane	0.500		-	-	-	<0.510	<0.550
Dieldrin	0.0200		-	-	-	<0.0204	<0.0220
Endosulfan I	0.0500		-	-	-	<0.0510	<0.0550
Endosulfan II	0.0400		-	-	-	<0.0408	<0.0440
Endosulfan sulfate	0.100		-	-	-	<0.102	<0.110
Endrin	0.0600		-	-	-	<0.0612	0.0600

TABLE 2-5

EQUIPMENT AND AMBIENT BLANK TABLE
AEROSPACE MUSEUM SITE AND GROUND MAINTENANCE YARD
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD (UNITS)	Quantitation Limits	Sample ID Sample Date Depth Notes	AMBL-1 23-OCT-95 0.0' - 0.0'	AMBL-2 24-OCT-95 0.0' - 0.0'	EQB-1 22-OCT-95 0.0' - 0.0'	EQB-2 23-OCT-95 0.0' - 0.0'	EQB-3 24-OCT-95 0.0' - 0.0'
ORGANOCHLORINE PESTICIDES AND PCBs - SW8080/SW3520 (µg/L) cont'd.							
Endrin aldehyde	0.100		-	-	-	<0.102	<0.110
Heptachlor	0.0300		-	-	-	<0.0306	<0.0330
Heptachlor epoxide	0.0500		-	-	-	<0.0510	<0.0550
Methoxychlor	0.500		-	-	-	<0.510	<0.550
Toxaphene	2.00		-	-	-	<2.04	<2.20
alpha-BHC	0.0300		-	-	-	<0.0306	<0.0330
beta-BHC	0.0500		-	-	-	<0.0510	<0.0550
delta-BHC	0.0500		-	-	-	<0.0510	<0.0550
gamma-BHC (Lindane)	0.0400		-	-	-	<0.0408	<0.0440
% Surrogate Recovery (Control Limit)							
sur-Dibutylchlorendate %R 33-186	-		-	-	-	90.0	92.7
CHLORINATED HERBICIDES - SW8150/METHOD (µg/L)							
2,4,5-T	0.200		-	-	-	<0.210	<0.228
2,4,5-TP (Silvex)	0.200		-	-	-	<0.210	<0.228
2,4-D	2.00		-	-	-	<2.10	<2.28
2,4-DB	3.00		-	-	-	<3.15	<3.42	
Dalapon	7.00		-	-	-	<7.35	<7.98
Dicamba	0.200		-	-	-	<0.210	<0.228
Dichloroprop	2.00		-	-	-	<2.10	<2.28
Dinoseb	0.700		-	-	-	<0.735	<0.798
MCPA	150		-	-	-	<158	<171
MCPP	150		-	-	-	<158	<171
% Surrogate Recovery (Control Limit)							
sur-DCAA %R 28-124	-		-	-	-	45.1	41.8
VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8240/NONE (µg/L)							
1,1,1-Trichloroethane	5.00		-	<5.00	-	-	<5.00
1,1,2,2-Tetrachloroethane	5.00		-	<5.00	-	-	<5.00
1,1,2-Trichloroethane	5.00		-	<5.00	-	-	<5.00
1,1-Dichloroethane	5.00		-	<5.00	-	-	<5.00
1,1-Dichloroethene	5.00		-	<5.00	-	-	<5.00
1,2-Dichloroethane	5.00		-	<5.00	-	-	<5.00
1,2-Dichloropropane	5.00		-	<5.00	-	-	<5.00
2-Butanone (MEK)	10.0		-	<10.0	-	-	<10.0
2-Chloroethyl vinyl ether	10.0		-	<10.0	-	-	<10.0
2-Hexanone	10.0		-	<10.0	-	-	<10.0
4-Methyl-2-pentanone	10.0		-	<10.0	-	-	<10.0
Acetone	10.0		-	<10.0	-	-	<10.0
Benzene	5.00		-	<5.00	-	-	<5.00
Bromodichloromethane	5.00		-	<5.00	-	-	<5.00
Bromoform	5.00		-	<5.00	-	-	<5.00
Bromomethane	10.0		-	<10.0	-	-	<10.0
Carbon disulfide	5.00		-	<5.00	-	-	<5.00
Carbon tetrachloride	5.00		-	<5.00	-	-	<5.00
Chlorobenzene	5.00		-	<5.00	-	-	<5.00
Chloroethane	10.0		-	<10.0	-	-	<10.0
Chloroform	5.00		-	<5.00	-	-	<5.00
Chloromethane	10.0		-	<10.0	-	-	<10.0
Dibromochloromethane	5.00		-	<5.00	-	-	<5.00
Ethylbenzene	5.00		-	<5.00	-	-	<5.00
Methylene chloride	5.00		-	<5.00	-	-	<5.00

3517-3209.31

TABLE 2-5

EQUIPMENT AND AMBIENT BLANK TABLE
AEROSPACE MUSEUM SITE AND GROUND MAINTENANCE YARD
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD (UNITS)	Quantitation Limits	Sample ID / Sample Date / Depth / Notes	AMBL-1 23-OCT-95 0.0' - 0.0'	AMBL-2 24-OCT-95 0.0' - 0.0'	EQB-1 22-OCT-95 0.0' - 0.0'	EQB-2 23-OCT-95 0.0' - 0.0'	EQB-3 24-OCT-95 0.0' - 0.0'
VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8240/NONE (ug/L) cont'd.							
Styrene	5.00		-	<5.00	-	-	<5.00
Tetrachloroethene	5.00		-	<5.00	-	-	<5.00
Toluene	5.00		-	<5.00	-	-	<5.00
Trichloroethene	5.00		-	<5.00	-	-	<5.00
Vinyl acetate	10.0		-	<10.0	-	-	<10.0
Vinyl chloride	10.0		-	<10.0	-	-	<10.0
Xylenes (total)	5.00		-	<5.00	-	-	<5.00
cis-1,2-Dichloroethene	5.00		-	<5.00	-	-	<5.00
cis-1,3-Dichloropropene	5.00		-	<5.00	-	-	<5.00
trans-1,2-Dichloroethene	5.00		-	<5.00	-	-	<5.00
trans-1,3-Dichloropropene	5.00		-	<5.00	-	-	<5.00
% Surrogate Recovery (Control Limit)							
sur-1,2-Dichloroethane-d4 %R 76-114			-	96.0	-	-	103.0
sur-Bromofluorobenzene %R 86-115			-	98.0	-	-	98.0
sur-Toluene-d8 %R 88-110			-	101.0	-	-	101.0
VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8260/NONE (ug/L)							
1,1,1-Trichloroethane	0.500		<0.500	-	<0.500	<0.500	-
1,1,2,2-Tetrachloroethane	0.500		<0.500	-	<0.500	<0.500	-
1,1,2-Trichloroethane	1.00		<1.00	-	<1.00	<1.00	-
1,1-Dichloroethane	0.500		<0.500	-	<0.500	<0.500	-
1,1-Dichloroethene	0.500		<0.500	-	<0.500	<0.500	-
1,2-Dichloroethane	1.00		<1.00	-	<1.00	<1.00	-
1,2-Dichloropropane	0.500		<0.500	-	<0.500	<0.500	-
2-Butanone	5.00		<5.00	-	<5.00	<5.00	-
2-Chloroethyl vinyl ether	5.00		<5.00	-	<5.00	<5.00	-
2-Hexanone	5.00		<5.00	-	<5.00	<5.00	-
4-Methyl-2-pentanone	5.00		<5.00	-	<5.00	<5.00	-
Acetone	5.00		<5.00	-	<5.00	<5.00	-
Benzene	0.500		<0.500	-	<0.500	<0.500	-
Bromodichloromethane	0.500		<0.500	-	<0.500	<0.500	-
Bromoform	1.00		<1.00	-	<1.00	<1.00	-
Bromomethane	2.00		<2.00	-	<2.00	<2.00	-
Carbon disulfide	1.00		<1.00	-	<1.00	<1.00	-
Carbon tetrachloride	0.500		<0.500	-	<0.500	<0.500	-
Chlorobenzene	0.500		<0.500	-	<0.500	<0.500	-
Chloroethane	2.00		<2.00	-	<2.00	<2.00	-
Chloroform	0.500		0.570	-	0.549	0.517	-
Chloromethane	2.00		<2.00	-	<2.00	<2.00	-
Dibromochloromethane	0.500		<0.500	-	<0.500	<0.500	-
Ethylbenzene	0.500		<0.500	-	<0.500	<0.500	-
Methylene chloride	2.00		<2.00	-	<2.00	<2.00	
Styrene	0.500		<0.500	-	<0.500	<0.500	
Tetrachloroethene	0.500		<0.500	-	<0.500	<0.500	
Toluene	0.500		<0.500	-	<0.500	<0.500	
Trichloroethene	0.500		<0.500	-	<0.500	<0.500	
Vinyl acetate	5.00		<5.00	-	<5.00	<5.00	
Vinyl chloride	2.00		<2.00	-	<2.00	<2.00	
Xylenes (total)	1.00		<1.00	-	<1.00	<1.00	
cis-1,2-Dichloroethene	0.500		<0.500	-	<0.500	<0.500	
cis-1,3-Dichloropropene	0.500		<0.500	-	<0.500	<0.500	
trans-1,2-Dichloroethene	0.500		<0.500	-	<0.500	<0.500	
trans-1,3-Dichloropr[illegible]	0.500		<0.500	-	<0.500	<0.500	

TABLE 2-5

EQUIPMENT AND AMBIENT BLANK TABLE
AEROSPACE MUSEUM SITE AND GROUND MAINTENANCE YARD
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD (UNITS)	Quantitation Limits	Sample ID: / Sample Date: / Depth: / Notes:	AMBL-1 23-OCT-95 0.0'-0.0'	AMBL-2 24-OCT-95 0.0'-0.0'	EQB-1 22-OCT-95 0.0'-0.0'	EQB-2 23-OCT-95 0.0'-0.0'	EQB-3 24-OCT-95 0.0'-0.0'
% Surrogate Recovery (Control Limit)							
sur-1,2-Dichloroethane-d4 %R 76-114			96.0	-	94.0	94.0	-
sur-Bromofluorobenzene %R 86-115			97.0	-	96.0	95.0	-
sur-Toluene-d8 %R 88-110			99.0	-	100.0	99.0	-
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8270/SW3520 (ug/L)							
1,2,4-Trichlorobenzene	10.0		-	-	<10.0	<10.9	<11.8
1,2-Dichlorobenzene	10.0		-	-	<10.0	<10.9	<11.8
1,3-Dichlorobenzene	10.0		-	-	<10.0	<10.9	<11.8
1,4-Dichlorobenzene	10.0		-	-	<10.0	<10.9	<11.8
2,4,5-Trichlorophenol	20.0		-	-	<20.0	<21.7	<23.5
2,4,6-Trichlorophenol	10.0		-	-	<10.0	<10.9	<11.8
2,4-Dichlorophenol	10.0		-	-	<10.0	<10.9	<11.8
2,4-Dimethylphenol	10.0		-	-	<10.0	<10.9	<11.8 JL
2,4-Dinitrophenol	50.0		-	-	<50.0	<54.4	<58.8
2,4-Dinitrotoluene	10.0		-	-	<10.0	<10.9	<11.8
2,6-Dinitrotoluene	10.0		-	-	<10.0	<10.9	<11.8
2-Chloronaphthalene	10.0		-	-	<10.0	<10.9	<11.8
2-Chlorophenol	10.0		-	-	<10.0	<10.9	<11.8
2-Methylnaphthalene	10.0		-	-	<10.0	<10.9	<11.8
2-Methylphenol	10.0		-	-	<10.0	<10.9	<11.8
2-Nitroaniline	50.0		-	-	<50.0	<54.4	<58.8
2-Nitrophenol	10.0		-	-	<10.0	<10.9	<11.8
3,3'-Dichlorobenzidine	20.0		-	-	<20.0	<21.7	<23.5
3-Nitroaniline	50.0		-	-	<50.0	<54.4	<58.8
4,6-Dinitro-2-methylphenol	50.0		-	-	<50.0	<54.4	<58.8
4-Bromophenyl phenyl ether	10.0		-	-	<10.0	<10.9	<11.8
4-Chloro-3-methylphenol	10.0		-	-	<10.0	<10.9	<11.8
4-Chloroaniline	20.0		-	-	<20.0 J	<21.7 J	<23.5 J
4-Chlorophenyl phenyl ether	10.0		-	-	<10.0	<10.9	<11.8
4-Methylphenol	10.0		-	-	<10.0	<10.9	<11.8
4-Nitroaniline	50.0		-	-	<50.0	<54.4	<58.8
4-Nitrophenol	50.0		-	-	<50.0	<54.4	<58.8
Acenaphthene	10.0		-	-	<10.0	<10.9	<11.8
Acenaphthylene	10.0		-	-	<10.0	<10.9	<11.8
Anthracene	10.0		-	-	<10.0	<10.9	<11.8
Benz(a)anthracene	10.0		-	-	<10.0	<10.9	<11.8
Benzo(a)pyrene	10.0		-	-	<10.0	<10.9	<11.8
Benzo(b)fluoranthene	10.0		-	-	<10.0	<10.9	<11.8
Benzo(g,h,i)perylene	10.0		-	-	<10.0	<10.9	<11.8
Benzo(k)fluoranthene	10.0		-	-	<10.0	<10.9	<11.8
Benzoic acid	50.0		-	-	<50.0	<54.4	<58.8
Benzyl alcohol	20.0		-	-	<20.0	<21.7	<23.5
Butyl benzyl phthalate	10.0		-	-	<10.0	<10.9	<11.8
Chrysene	10.0		-	-	<10.0	<10.9	<11.8
Di-n-butylphthalate	10.0		-	-	<10.0	<10.9	<11.8
Di-n-octylphthalate	10.0		-	-	<10.0	<10.9	<11.8
Dibenz(a,h)anthracene	10.0		-	-	<10.0	<10.9	<11.8
Dibenzofuran	10.0		-	-	<10.0	<10.9	<11.8
Diethylphthalate	10.0		-	-	<10.0	<10.9	<11.8
Dimethylphthalate	10.0		-	-	<10.0	<10.9	<11.8
Fluoranthene	10.0		-	-	<10.0	<10.9	<11.8
Fluorene	10.0		-	-	<10.0	<10.9	<11.8
Hexachlorobenzene	10.0		-	-	<10.0	<10.9	<11.8
Hexachlorobutadiene	10.0		-	-	<10.0	<10.9	<11.8

TABLE 2-5

EQUIPMENT AND AMBIENT BLANK TABLE
AEROSPACE MUSEUM SITE AND GROUND MAINTENANCE YARD
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD (UNITS)	Quantitation Limits	Sample ID / Sample Date / Depth / Notes	AMBL-1 23-OCT-95 0.0' - 0.0'	AMBL-2 24-OCT-95 0.0' - 0.0'	EQB-1 22-OCT-95 0.0' - 0.0'	EQB-2 23-OCT-95 0.0' - 0.0'	EQB-3 24-OCT-95 0.0' - 0.0'
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8270/SW3520 (µg/L) cont'd.							
Hexachlorocyclopentadiene	10.0		-	-	<10.0 R	<10.9 R	<11.8 R
Hexachloroethane	10.0		-	-	<10.0	<10.9	<11.8
Indeno(1,2,3-cd)pyrene	10.0		-	-	<10.0	<10.9	<11.8
Isophorone	10.0		-	-	<10.0	<10.9	<11.8
Naphthalene	10.0		-	-	<10.0	<10.9	<11.8
Nitrobenzene	10.0		-	-	<10.0	<10.9	<11.8
Pentachlorophenol	30.0		-	-	<30.0	<32.6	<35.3
Phenanthrene	10.0		-	-	<10.0	<10.9	<11.8
Phenol	10.0		-	-	<10.0	<10.9	<11.8
Pyrene	10.0		-	-	<10.0	<10.9	<11.8
bis(2-Chloroethoxy)methane	10.0		-	-	<10.0	<10.9	<11.8
bis(2-Chloroethyl)ether	10.0		-	-	<10.0	<10.9	<11.8
bis(2-Chloroisopropyl)ether	10.0		-	-	<10.0	<10.9	<11.8
bis(2-Ethylhexyl)phthalate	10.0		-	-	<10.0 JL	<10.9 JL	<11.8 JL
n-Nitrosodipropylamine	10.0		-	-	<10.0	<10.9	<11.8
n-Nitrosodiphenylamine	10.0		-	-	<10.0	<10.9	<11.8
% Surrogate Recovery (Control Limit)							
sur-2,4,6-Tribromophenol %R 10-123			-	-	55.0	66.9	61.4
sur-2-Fluorobiphenyl %R 43-116			-	-	64.0	74.8	70.8
sur-2-Fluorophenol %R 21-100			-	-	58.0	63.2	67.0
sur-Nitrobenzene-d5 %R 35-114			-	-	65.0	72.8	74.7
sur-Phenol-d6 %R 10-94			-	-	61.0	69.9	71.0
sur-Terphenyl-d14 %R 38-141			-	-	65.0	68.8	78.7

Data Qualification Flags/Notes:
J = Estimated quantation based upon QC data
JB = Estimated quantitation possibly biased high or a false positive based upon blank data
JH = Estimated quantitation possibly biased high based upon QC data
JL = Estimated quantitation possibly biased low or a false negative based upon QC data
JQ = Estimated quantitation detected below the Practical Quantitation Limit (PQL)
R = Datum rejected based upon QC data do not use

☐ Results in boxes are reported above PQL

PREPARED/DATE John Pecore / 2-23-96
CHECKED/DATE Sue D. Max / 2-23-96

TABLE 2-6

TRIP BLANK TABLE
AEROSPACE MUSEUM SITE AND GROUND MAINTENANCE YARD
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD (UNITS)	Quantitation Limits	Sample ID :	TB-102395	TB-102495
		Sample Date :	23-OCT-95	24-OCT-95
		Depth :	0.0' - 0.0'	0.0' - 0.0'
		Notes :		
VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8240/NONE (ug/L)				
1,1,1-Trichloroethane	5.00		-	<5.00
1,1,2,2-Tetrachloroethane	5.00		-	<5.00
1,1,2-Trichloroethane	5.00		-	<5.00
1,1-Dichloroethane	5.00		-	<5.00
1,1-Dichloroethene	5.00		-	<5.00
1,2-Dichloroethane	5.00		-	<5.00
1,2-Dichloropropane	5.00		-	<5.00
2-Butanone (MEK)	10.0		-	<10.0
2-Chloroethyl vinyl ether	10.0		-	<10.0
2-Hexanone	10.0		-	<10.0
4-Methyl-2-pentanone	10.0		-	<10.0
Acetone	10.0		-	<10.0
Benzene	5.00		-	<5.00
Bromodichloromethane	5.00		-	<5.00
Bromoform	5.00		-	<5.00
Bromomethane	10.0		-	<10.0
Carbon disulfide	5.00		-	<5.00
Carbon tetrachloride	5.00		-	<5.00
Chlorobenzene	5.00		-	<5.00
Chloroethane	10.0		-	<10.0
Chloroform	5.00		-	<5.00
Chloromethane	10.0		-	<10.0
Dibromochloromethane	5.00		-	<5.00
Ethylbenzene	5.00		-	<5.00
Methylene chloride	5.00		-	<5.00
Styrene	5.00		-	<5.00
Tetrachloroethene	5.00		-	<5.00
Toluene	5.00		-	<5.00
Trichloroethene	5.00		-	<5.00
Vinyl acetate	10.0		-	<10.0
Vinyl chloride	10.0		-	<10.0
Xylenes (total)	5.00		-	<5.00
cis-1,2-Dichloroethene	5.00		-	<5.00
cis-1,3-Dichloropropene	5.00		-	<5.00
trans-1,2-Dichloroethene	5.00		-	<5.00
trans-1,3-Dichloropropene	5.00		-	<5.00
% Surrogate Recovery (Control Limit)				
sur-1,2-Dichloroethane-d4 %R 76-114			-	105.0
sur-Bromofluorobenzene %R 86-115			-	97.0
sur-Toluene-d8 %R 88-110			-	101.0
VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8260/NONE (ug/L)				
1,1,1-Trichloroethane	0.500		<0.500	-
1,1,2,2-Tetrachloroethane	0.500		<0.500	-
1,1,2-Trichloroethane	1.00		<1.00	-
1,1-Dichloroethane	0.500		<0.500	-
1,1-Dichloroethene	0.500		<0.500	-
1,2-Dichloroethane	1.00		<1.00	-
1,2-Dichloropropane	0.500		<0.500	-
2-Butanone	5.00		<5.00	-

TABLE 2-6

TRIP BLANK TABLE
AEROSPACE MUSEUM SITE AND GROUND MAINTENANCE YARD
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD (UNITS)	Quantitation Limits	Sample ID Sample Date Depth Notes	TB-102395 23-OCT-95 0.0' - 0.0'	TB-102495 24-OCT-95 0.0' - 0.0'
VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8260/NONE (µg/L) cont'd.				
2-Chloroethyl vinyl ether	5.00		<5.00	-
2-Hexanone	5.00		<5.00	-
4-Methyl-2-pentanone	5.00		<5.00	-
Acetone	5.00		<5.00	-
Benzene	0.500		<0.500	-
Bromodichloromethane	0.500		<0.500	-
Bromoform	1.00		<1.00	-
Bromomethane	2.00		<2.00	-
Carbon disulfide	1.00		<1.00	-
Carbon tetrachloride	0.500		<0.500	-
Chlorobenzene	0.500		<0.500	-
Chloroethane	2.00		<2.00	-
Chloroform	0.500		<0.500	-
Chloromethane	2.00		<2.00	-
Dibromochloromethane	0.500		<0.500	-
Ethylbenzene	0.500		<0.500	-
Methylene chloride	2.00		<2.00	-
Styrene	0.500		<0.500	-
Tetrachloroethene	0.500		<0.500	-
Toluene	0.500		<0.500	-
Trichloroethene	0.500		<0.500	-
Vinyl acetate	5.00		<5.00	-
Vinyl chloride	2.00		<2.00	-
Xylenes (total)	1.00		<1.00	-
cis-1,2-Dichloroethene	0.500		<0.500	-
cis-1,3-Dichloropropene	0.500		<0.500	-
trans-1,2-Dichloroethene	0.500		<0.500	-
trans-1,3-Dichloropropene	0.500		<0.500	-
% Surrogate Recovery (Control Limit)				
sur-1,2-Dichloroethane-d4 %R 76-114			91.0	-
sur-Bromofluorobenzene %R 86-115			95.0	-
sur-Toluene-d8 %R 88-110			100.0	-

Data Qualification Flags/Notes:
J = Estimated quantitation based upon QC data
JB = Estimated quantitation possibly biased high or a false positive based upon blank data
JH = Estimated quantitation possibly biased high based upon QC data
JL = Estimated quantitation possibly biased low or a false negative based upon QC data
JQ = Estimated quantitation detected below the Practical Quantitation Limit
R = Datum rejected based upon QC data do not use

PREPARED/DATE John Pecore / 2-23-96
CHECKED/DATE Sue D. Max / 2-23-96

- Equipment blank, EQB-3 collected on 10/24/95, contained 0.064 mg/L of aluminum, 0.386 mg/L of calcium, 0.568 mg/L of sodium, and 0.006 mg/L of zinc. Associated sample results for aluminum, calcium, and zinc were greater than five times the blank concentration; therefore, no results were qualified. All associated positive sample results less than five times the blank concentration for sodium (284 mg/kg) were qualified (JB) based on blank contamination.

Volatiles Analyses - Equipment Blanks

- Equipment blanks, EQB-1 and EQB-2, contained chloroform at concentrations of 0.549 μg/L and 0.517 μg/L, respectively. All associated sample results for chloroform were nondetect; therefore, no results were qualified.

Volatiles Analyses - Ambient Blank

- Ambient blank, AMBL-1 collected on 10/23/95, contained 0.570 μg/L of chloroform. All associated sample results for chloroform were nondetect; therefore, no results were qualified.

2.3.4.11 Interferences - The results for chlordane reported in samples OT3909SA and OT3916SA were rejected (R) due to interferences resulting from the detection of Aroclors in these samples.

2.3.4.12 Completeness - Field completeness is defined as the number of field samples collected divided by the number of field samples planned. Field completeness was 100 percent for the sampling event because all samples were collected as planned.

The overall completeness of sampling and analysis activities is defined as the amount of acceptable data actually acquired divided by the total sample data planned. This calculation combines the field completeness and the analytical completeness. The overall completeness for the sampling event was 100 percent for all analytes with the exception of:

- 2-chloroethyl vinyl ether completeness was 96 percent for the GMY and 71 percent for the AMS as a result of rejected data due to failure to meet calibration criteria.

- Hexachlorocyclopentadiene completeness was 86 percent for GMY based on spike recovery failure in the laboratory control spike.

- Chlordane completeness was 93 percent for the GMY.

All analytical parameters met the 90 percent completeness goal for this project except 2-chloroethyl vinyl ether at the AMS and hexachlorocyclopentadiene at the GMY.

3.0 ANALYTICAL RESULTS

The following sections present a summary of the analytical chemistry results of soil samples collected at the Aerospace Museum Site and the Grounds Maintenance Yard at the Naval Air Station Fort Worth, Joint Reserve Base, Carswell Field. The analytical data summary tables are presented in Appendix C. The positive analytical results for each site are presented in tables and figures in the following sections, along with a discussion of the constituents detected at the two sites.

3.1 AEROSPACE MUSEUM SITE

The following section discusses the chemical constituents detected in soil samples collected from the Aerospace Museum Site. Forty-nine soil samples, two background samples, and five field duplicate samples were collected. The positive analytical results are presented in Table 3-1. This table also indicates which results were reported at concentrations exceeding the TNRCC Medium Specific Concentration (MSC) value for organic constituents, or the maximum background concentration and MSC value, for metal constituents. Constituents for which MSC criteria apply are also depicted on the associated figures to aid in the interpretation of the data.

3.1.1 Background Levels

Site-specific background levels of metals are based on the results from samples collected from two background locations adjacent to the site, OT3850SA, located south of the site, and OT3851SA, located north of the site (Figure 2-1). Sample data were compared to the maximum values obtained from the background samples. The secondary background sample was used when the maximum background concentrations were greater than the concentrations reported at the site. This occurred for three metals, lead, nickel and zinc. Lead appeared elevated in both background samples, indicating that the background locations may not be representative of background conditions.

TABLE 3-1

POSITIVE ANALYTICAL RESULTS
Aerospace Museum Site
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD (UNITS)	MSC	Sample ID: Sample Date: Depth: Notes	OT3801SA 22-OCT-95 0.0' - 2.0'	OT3802SA 22-OCT-95 0.0' - 2.0'	OT3803SA 22-OCT-95 0.0' - 2.0'	OT3804SA 22-OCT-95 0.0' - 2.0'
SOIL pH - SW9045/NONE (none)						
623-9045 pH units Soil	-		7.84	7.73	7.37	7.74
PERCENT SOLID - D2216 /NONE (percent)						
623-D2216 Moisture	-		6.00	4.00	[illegible]	21.0
METALS, TOTAL BY ICP/SW6010/SW3050 (mg/kg)						
Aluminum	NA		4190	2640	12900	7950
Antimony	0.6		2.08 JQ	1.72 JQ	<20.6	2.44 JQ
Barium	200		80.0	89.9	129	122
Beryllium	0.4		<2.40	<2.[illegible]	0.908	0.584
Cadmium	0.5		<0.800	[illegible]749	<0.825	<0.974
Calcium	NA		173000	209000	62700	77400
Chromium	10		40.8	7.49 JQ	12.0	9.25
Cobalt	NA		2.08 JQ	1.42 JQ	5.36	5.55
Copper	NA		24.8 JQ	6.74 JQ	8.66	8.28
Iron	NA		65[illegible]	3690	11400	11600
Magnesium	NA		1960	2090	2300	1740
Manganese	NA		370	389	574	526
Molybdenum	NA		1.52 JQ	<3.74	1.98 JQ	2.34
Nickel	10		214	198	11.0	10.4
Potassium	NA		966	614 JH	1880 JH	1450
Silver	51.1		3.36 JQ	<3.74	<4.12	<4.87
Sodium	NA		81.8	58.3 JB	155	94.4
Vanadium	NA		11.8	7.86	28.1	20.6
Zinc	NA		127	70.3	29.6	35.7
ARSENIC, TOTAL BY GFAA/SW 7060 (mg/kg)						
Arsenic	3.27		1.87	1.07	1.73	2.78
LEAD, TOTAL BY GFAA/SW 7421 (mg/kg)						
Lead	1.5		227	12.6	26.6	33.0
SELENIUM, TOTAL BY GFAA/SW 7740/METHOD (mg/kg)						
Selenium	5.0		<0.409 JL	<0.347	<0.456	0.0940 JL
VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8240/NONE (mg/kg)						
Methylene chloride	0.5		<0.00528	<0.00572	<0.00604	0.00628 JQ
Toluene	100		0.00375 JQ	0.0178	<0.00604	<0.00643
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8270/SW3550 (mg/kg)						
Acenaphthene	613		1.40 JQ	<0.347	<0.399	<0.417
Anthracene	3070		2.24 JQ	<0.347	<0.399	<0.417
Benz(a)anthracene	NA		3.60	0.0395 J	<0.399	<0.417
Benzo(a)pyrene	NA		2.37 JQ	<0.347 J	<0.399	<0.417
Benzo(b)fluoranthene	NA		4.81	0.0322 J	<0.399	<0.417
Benzo(g,h,i)perylene	NA		<3.51	<0.347 J	<0.399	<0.417
Benzo(k)fluoranthene	NA		<3.51	<0.347 J	<0.399	<0.417
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8270/SW3550 (mg/kg) cont'd.						
Butyl benzyl phthalate	NA		<3.51	<0.347 J	<0.399	<0.417
Chrysene	NA		3.32 JQ	0.0458 J	<0.399	<0.417
Di-n-butylphthalate	1020		<3.51	<0.347	<0.399	0.0266 JQ

- Sodium results exceeded the maximum background concentration of 135 mg/kg at 13 of 49 sample locations. The maximum concentration reported was 426 mg/kg at OT3840SA, located on the southeast edge of the site.

- Vanadium results exceeded the maximum background concentration of 14.5 mg/kg at 39 of 49 sample locations. The maximum concentration reported was 28.5 mg/kg at OT3829SA, located on the east edge of the site.

- Zinc results exceeded the maximum background concentration of 110 mg/kg at 2 of 49 sample locations. Results exceeded the secondary background concentration of 43.1 mg/kg at 22 of 49 locations. The maximum concentration reported was 204 mg/kg at OT3848SA, located on the southwest edge of the site.

3.2 GROUNDS MAINTENANCE YARD

The following section discusses the chemical constituents detected in soil samples collected from the Grounds Maintenance Yard. Twenty-eight soil samples, two background samples, and three field duplicate samples were collected. The positive analytical results are presented in Table 3-2. This table also indicates which results were reported at concentrations exceeding the TNRCC MSC value for organic constituents, or the maximum background concentration and MSC value, for metal constituents. Constituents for which MSC criteria apply are also depicted on the associated figures to aid in the interpretation of the data.

3.2.1 Background Levels

Site-specific background levels of metals were determined from samples collected from two background locations adjacent to the site, OT3901SA, located to the south, and OT3902SA, located to the north (Figure 2-2). Sample data were compared to the maximum values obtained from the background samples. The secondary background sample was used when the maximum background concentrations were greater than the concentrations reported at the site. This occurred for four metals, beryllium, iron, nickel, and potassium. Both background samples

TABLE 3-2

POSITIVE ANALYTICAL RESULTS
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD (UNITS)	MSC	Sample ID	OT39013A	OT39023A	OT39033A	OT39043A	OT39053A
		Sample Date	23-OCT-95	23-OCT-95	23-OCT-95	23-OCT-95	23-OCT-95
		Depth	0 0' - 2 0'	0 0' - 2 0'	0 0' - 2 0'	0 0' - 2 0'	0 0' - 2 0'
		Notes	Background Sample	Background Sample			
SOIL pH - SW9045/NONE (none)							
623-9045 pH units Soil	-		7.49	7 81	7 65	7 66	7 72
PERCENT SOLID - D2216 /NONE (percent)							
623-D2216 Moisture	-		13.0	16 0	20 0	17 0	16 0
METALS, TOTAL BY ICP/SW6010/SW3050 (mg/kg)							
Aluminum	NA		7850	9440	7090	4370	4300
Antimony	0 6		<19 8	<21 0	<23 0	<22 3	<22 7
Barium	200		95.3	122	121	170	118
Beryllium	0 4		0.634	<2.51	0.551	<2 68	<2.73
Calcium	NA		19000	106000	108000	234000	204000
Chromium	10		9 28	<41.9	2 85 JQ	14.3 JQ	32.7
Cobalt	NA		3 57 JQ	2 77 JQ	3 22 JQ	2 14 JQ	2.27 JQ
Copper	NA		9.04	5.87 JQ	8 91	8 03 JQ	19 1
Iron	NA		10800	7090	6680	4200	5410
Magnesium	NA		1790	2370	2390	2250	1420
Manganese	NA		333	334	315	384	340
Molybdenum	NA		1 43 JQ	1.59 JQ	<4.60	<4.46	1.91 JQ
Nickel	10		8 72	114	7.35	235	242
Potassium	NA		2170 JH	1480	1500	1100 JH	1010
Sodium	NA		52 0 JB	70 6	87.9	151	349
Vanadium	NA		15 4	17 4	9.93	6.87	9.64
Zinc	NA		20 4	44 2	17.3	78 5	99 0
ARSENIC, TOTAL BY GFAA/SW 7060 (mg/kg)							
Arsenic	3.27		2 23	1 82	1 95	1 47	1 61
LEAD, TOTAL BY GFAA/SW 7421 (mg/kg)							
Lead	1 5		12 4	10 1	15.5 JH	5 87	71.9
SELENIUM, TOTAL BY GFAA/SW 7740/METHOD (mg/kg)							
Selenium	5 0		<0.426 JL	<2 16	<2.35 JL	<2 18 JL	<0 454
ORGANOCHLORINE PESTICIDES AND PCBs - SW8080/SW3550 (mg/kg)							
4,4'-DDD	0.119		<0 00382	<0.00400	<0 00412	<0 00413	<0 00400
4,4'-DDE	0.0841		<0 00153	<0.00160	<0.00165	<0.00165	<0 00160
AR1254	0 05		<0 0382	<0 0400	<0 0412	<0 0413	<0 0400
Chlordane	0 2		<0 0191	<0 0200	<0 0206	<0.0206	<0 0200
Dieldrin	0 00179		<0 000764	<0 000800	<0 000824	0 000873	<0 000800
Methoxychlor	4 00		<0 0191	<0 0200	<0.0206	<0 0206	<0 0200
CHLORINATED HERBICIDES - SW8150/METHOD (mg/kg)							
2,4,5-TP (Silvex)	5 00		<0 00460	<0 00454	<0 00482	<0 00498	<0 00482
MCPP	NA		<3 45	<3 40	<3 62	<3 74	4 05
VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8240/NONE (mg/kg)							
Acetone	1020		<0 0118	<0.0117 J	<0 0124 J	<0 0121	<0 0119 J
Carbon disulfide	23 4		<0 00591	<0 00586	<0 00619	<0 00604	<0 00596
Methylene chloride	0 5		<0 00591	<0 00586	<0 00619	<0 00604	<0 00596
Toluene	100		0 00503 JQ	<0 00586	0 0140	<0 00604	0 0165

TABLE 3-2

POSITIVE ANALYTICAL RESULTS
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD (UNITS)	MSC	Sample ID Sample Date Depth Notes	OT3901SA 23-OCT-95 0.0' - 2.0' Background Sample	OT3902SA 23-OCT-95 0.0' - 2.0' Background Sample	OT3903SA 23-OCT-95 0.0' - 2.0'	OT3904SA 23-OCT-95 0.0' - 2.0'	OT3905SA 23-OCT-95 0.0' - 2.0'
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8270/SW3550 (mg/kg)							
2-Methylnaphthalene	NA		<0.380	<0.391	<0.412	<0.400	<0.393
Acenaphthene	613		<0.380	<0.391	<0.412	<0.400	0.164 JQ
Anthracene	3070		<0.380	<0.391	<0.412	<0.400	0.572
Benz(a)anthracene	NA		<0.380	<0.391	<0.412	<0.400	3.98
Benzo(a)pyrene	NA		<0.380 J	<0.391	<0.412	<0.400 J	4.58
Benzo(b)fluoranthene	NA		<0.380 J	<0.391	<0.412	<0.400 J	6.11
Benzo(g,h,i)perylene	NA		<0.380 J	<0.391	<0.412	<0.400 J	3.48
Benzo(k)fluoranthene	NA		<0.380 J	<0.391	<0.412	<0.400 J	2.11
Chrysene	NA		<0.380	<0.391	<0.412	<0.400 J	3.51
Di-n-butylphthalate	1020		0.0276 JQ	<0.391	<0.412	<0.400	0.0688 JQ
Dibenz(a,h)anthracene	NA		<0.380 J	<0.391	<0.412	<0.400 J	0.931
Fluoranthene	409		<0.380	<0.391	<0.412	<0.400	4.83
Fluorene	409		<0.380	<0.391	<0.412	<0.400	0.117 JQ
Indeno(1,2,3-cd)pyrene	NA		<0.380 J	<0.391	<0.412	<0.400 J	3.01
Naphthalene	409		<0.380	<0.391	<0.412	<0.400	<0.393
Phenanthrene	NA		<0.380	<0.391	<0.412	<0.400	2.26
Pyrene	310		<0.380	<0.391	<0.412	<0.400 J	6.29
bis(2-Ethylhexyl)phthalate	2.04		<0.380	<0.391	<0.412	<0.400 J	2.35
Total PAHs			ND	ND	ND	ND	41.01

Data Qualification Flags/Notes:
MSC = Medium-Specific Concentration
NA = Not available
ND = Not Detected
PAH = Polynuclear Aromatic Hydrocarbon
J = Estimated quantation based upon QC data
JB = Estimated quantitation possibly biased high or a false positive based upon blank data
JH = Estimated quantitation possibly biased high based upon QC data
JL = Estimated quantitation possibly biased low or a false negative based upon QC data
JQ = Estimated quantitation detected below the Practical Quantitation Limit
R = Datum rejected based upon QC data do not use
[ ] Results in boxes exceed MSC value (organics) and background concentration and MSC value (metals)

TABLE 3-2

POSITIVE ANALYTICAL RESULTS
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD (UNITS)	MSC	Sample ID / Sample Date / Depth / Notes	OT3906SA 23-OCT-95 0.0' - 2.0'	OT3907SA 23-OCT-95 0.0' - 2.0'	OT3908SA 24-OCT-95 0.0' - 2.0'	OT3909SA 24-OCT-95 0.0' - 2.0'	OT3910SA 23-OCT-95 0.0' - 2.0'	OT3911SA 23-OCT-95 0.0' - 2.0'
SOIL pH - SW9045/NONE (none)								
623-9045 pH units Soil	-		7.61	7.59	7.90	7.67	7.77	7.66
PERCENT SOLID - D2216 /NONE (percent)								
623-D2216 Moisture	-		23.0	20.0	18.0	17.0	16.0	21.0
METALS, TOTAL BY ICP/SW6010/SW3050 (mg/kg)								
Aluminum	NA		5140	4060	4580	5260	3880	7000
Antimony	0.6		<23.9	<22.6	<22.8	2.25 JQ	<22.4	<24.0
Barium	200		179	142	152	150	166	183
Beryllium	0.4		<2.86	<2.72	<2.73	<2.60	<2.68	<2.88 J
Calcium	NA		296000	214000 JQ	269000	220000	281000	177000
Chromium	10		<47.8	10.8 JQ	<45.5	21.7 JQ	<44.8	19.2 JQ
Cobalt	NA		1.15 JQ	1.54 JQ	1.36 JQ	2.17 JQ	2.42 JQ	3.16 JQ
Copper	NA		24.8 JQ	9.06	7.28 JQ	4.34 JQ	4.48 JQ	9.59 JQ
Iron	NA		4550	4210	3750	5470	4580	6830
Magnesium	NA		1770	1450	1420	1860	2080	2260
Manganese	NA		271	332	271	379	447	493
Molybdenum	NA		1.43 JQ	<4.53	<4.55	<4.34	1.52 JQ	2.30 JQ
Nickel	10		153	239	243	231	238	257
Potassium	NA		869	1370 JH	831	995	792	1930
Sodium	NA		180	144	130 JB	109 JB	454	400
Vanadium	NA		8.40	6.80	4.64	8.41	7.70	9.11
Zinc	NA		53.2	91.4	75.5	93.0	76.0	112
ARSENIC, TOTAL BY GFAA/SW 7060 (mg/kg)								
Arsenic	3.27		0.801	169	0.456	2.11	1.87	2.05
LEAD, TOTAL BY GFAA/SW 7421 (mg/kg)								
Lead	1.5		10.1	44.6	5.92	25.6	6.59	20.2
SELENIUM, TOTAL BY GFAA/SW 7740/METHOD (mg/kg)								
Selenium	5.0		0.310 JQ	<2.33	0.478 JQ	0.562 JQ	0.488 JQ	<0.469
ORGANOCHLORINE PESTICIDES AND PCBs - SW8080/SW3550 (mg/kg)								
4,4'-DDD	0.119		<0.00405	<0.00414	<0.00403	<0.00397	<0.00405	<0.00413
4,4'-DDE	0.0841		<0.00162	<0.00166	<0.00161	0.00792	<0.00162	<0.00165
AR1254	0.05		<0.0405	<0.0414	<0.0403	0.161	<0.0405	<0.0413
Chlordane	0.2		<0.0202	0.0652	<0.0202	<0.0198 R	<0.0202	<0.0206
Dieldrin	0.00179		<0.000810	<0.000828	<0.000806	<0.000794	0.000827	<0.000826
Methoxychlor	4.00		<0.0202	<0.0207	<0.0202	<0.0198	<0.0202	<0.0206
CHLORINATED HERBICIDES - SW8150/METHOD (mg/kg)								
2,4,5-TP (Silvex)	5.00		<0.00494	<0.00500	<0.00488	<0.00482	<0.00486	0.00551
MCPP	NA		<3.70	<3.75	<3.66	<3.62	<3.64	<3.72
VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8240/NONE (mg/kg)								
Acetone	1020		<0.0121 J	<0.0125	<0.0121	<0.0123	<0.0120 J	<0.0123 J
Carbon disulfide	23.4		<0.00606	<0.00624	0.000610 JQ	<0.00617	<0.00602	<0.00614
Methylene chloride	0.5		0.00410	<0.00624	<0.00606	<0.00617	<0.00602	<0.00614
Toluene	100		0.000727	<0.00624	0.00501 JQ	0.00546 JQ	0.00570 JQ	0.0112

TABLE 3-2

POSITIVE ANALYTICAL RESULTS
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD (UNITS)	MSC	Sample ID:	OT3906SA	OT3907SA	OT3908SA	OT3909SA	OT3910SA	OT3911SA
		Sample Date:	23-OCT-95	23-OCT-95	24-OCT-95	24-OCT-95	23-OCT-95	23-OCT-95
		Depth:	0.0' - 2.0'	0.0' - 2.0'	0.0' - 2.0'	0.0' - 2.0'	0.0' - 2.0'	0.0' - 2.0'
		Notes:						
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8270/SW3550 (mg/kg)								
2-Methylnaphthalene	NA		<0.431	<0.413	<0.406	<0.397	<0.392	<0.419
Acenaphthene	613		<0.431	0.0259 JQ	<0.406	<0.397	<0.392	<0.419
Anthracene	3070		<0.431	0.0834 JQ	<0.406	<0.397	<0.392	<0.419
Benz(a)anthracene	NA		<0.431	0.516	<0.406	0.244 JQ	<0.392	<0.419
Benzo(a)pyrene	NA		<0.431	0.667	<0.406	0.242 JQ	<0.392	<0.419
Benzo(b)fluoranthene	NA		<0.431	0.668	<0.406	0.488	<0.392	<0.419
Benzo(g,h,i)perylene	NA		<0.431	0.414	<0.406	0.142 JQ	<0.392	<0.419
Benzo(k)fluoranthene	NA		<0.431	0.513	<0.406	<0.397	<0.392	<0.419
Chrysene	NA		<0.431	0.666	<0.406	0.344 JQ	<0.392	<0.419
Di-n-butylphthalate	1020		<0.431	<0.413	<0.406	<0.397	<0.392	<0.419
Dibenz(a,h)anthracene	NA		<0.431	0.0541 JQ	<0.406	0.0381 JQ	<0.392	<0.419
Fluoranthene	409		<0.431	0.772	<0.406	0.243 JQ	<0.392	<0.419
Fluorene	409		<0.431	<0.413	<0.406	<0.397	<0.392	<0.419
Indeno(1,2,3-cd)pyrene	NA		<0.431	0.362 JQ	<0.406	0.113 JQ	<0.392	<0.419
Naphthalene	409		<0.431	<0.413	<0.406	0.0153 JQ	<0.392	<0.419
Phenanthrene	NA		<0.431	0.276 JQ	<0.406	0.0405 JQ	<0.392	<0.419
Pyrene	310		<0.431	0.801	<0.406	0.293 JQ	<0.392	<0.419
bis(2-Ethylhexyl)phthalate	2.04		<0.431	<0.413	<0.406	<0.397	<0.392	<0.419
Total PAHs			ND	5.017	ND	2.203	ND	ND

Data Qualification Flags/Notes:
MSC = Medium-Specific Concentration
NA = Not available
ND = Not Detected
PAH = Polynuclear Aromatic Hydrocarbon
J = Estimated quantation based upon QC data
JB = Estimated quantitation possibly biased high or a false positive based upon blank data
JH = Estimated quantitation possibly biased high based upon QC data
JL = Estimated quantitation possibly biased low or a false negative based upon QC data
JQ = Estimated quantitation: detected below the Practical Quantitation Limit
R = Datum rejected based upon QC data do not use
[ ] Results in boxes exceed MSC value (organics) and background concentration and MSC value (metals)

TABLE 3-2

POSITIVE ANALYTICAL RESULTS
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD (UNITS)	MSC	Sample ID:	FDUP-06	OT3912SA	OT3913SA	OT3914SA	OT3915SA
		Sample Date:	23-OCT-95	24-OCT-95	23-OCT-95	24-OCT-95	24-OCT-95
		Depth:	0.0' - 2.0'	0.0' - 2.0'	0.0' - 2.0'	0.0' - 2.0'	0.0' - 2.0'
		Notes:	Duplicate of OT3911SA				
SOIL pH - SW9045/NONE (none)							
623-9045 pH units Soil	-		7.69	7.31	7.70	7.65	7.70
PERCENT SOLID - D2216 /NONE (percent)							
623-D2216 Moisture	-		18.0	19.0	18.0	19.0	17.0
METALS, TOTAL BY ICP/SW6010/SW3050 (mg/kg)							
Aluminum	NA		6890	4620	5790	6280	5950
Antimony	0.6		<22.6	<20.7	<22.1 JL	2.97 JQ	<22.3
Barium	200		177	172	182	167	161
Beryllium	0.4		1.81 JQ	<2.49	<2.65	<2.78	<2.68
Calcium	NA		176000	219000	232000	196000	197000
Chromium	10		<45.2 J	9.95 JQ	<44.2	<46.4	8.03 JQ
Cobalt	NA		2.89 JQ	2.57 JQ	2.03 JQ	2.51 JQ	1.78 JQ
Copper	NA		9.03 JQ	7.46 JQ	8.84 JQ	12.1 JQ	8.03 JQ
Iron	NA		6710	4090	4390	5300	5160
Magnesium	NA		2200	1930	2100	2000	1830
Manganese	NA		477	418	406	332	302
Molybdenum	NA		2.17 JQ	<4.14	1.86 JL	<4.64	<4.46
Nickel	10		241	222	236	249	240
Potassium	NA		1880	977	1120	1390	991
Sodium	NA		403	162 JB	342	146 JB	134 JB
Vanadium	NA		9.12	6.38	5.83	6.96	6.78
Zinc	NA		122	73.6	75.1	81.1	75.4
ARSENIC, TOTAL BY GFAA/SW 7060 (mg/kg)							
Arsenic	3.27		1.82	<0.460	0.926	0.989	0.760 JH
LEAD, TOTAL BY GFAA/SW 7421 (mg/kg)							
Lead	1.5		17.5	10.1	6.66	8.48	9.19
SELENIUM, TOTAL BY GFAA/SW 7740/METHOD (mg/kg)							
Selenium	5.0		<0.462	0.599 JQ	<0.452 JL	0.617 JL	0.422 JQ
ORGANOCHLORINE PESTICIDES AND PCBs - SW8080/SW3550 (mg/kg)							
4,4'-DDD	0.119		0.00167 JQ	<0.00407	<0.00427	<0.00408	<0.00402
4,4'-DDE	0.0841		<0.00161	0.00128 JQ	<0.00171	0.000749 JQ	0.00104 JQ
AR1254	0.05		<0.0403	<0.0407	<0.0427	<0.0408	<0.0402
Chlordane	0.2		<0.0202	0.0127 JQ	<0.0214	<0.0204	<0.0201
Dieldrin	0.00179		<0.000806	<0.000814	<0.000854	<0.000816	<0.000804
Methoxychlor	4.00		<0.0202	<0.0204	<0.0214	<0.0204	<0.0201
CHLORINATED HERBICIDES - SW8150/METHOD (mg/kg)							
2,4,5-TP (Silvex)	5.00		<0.00488	<0.00492	<0.00508	<0.00490	<0.00478
MCPP	NA		<3.66	<3.69	<3.81	<3.68	<3.58
VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8240/NONE (mg/kg)							
Acetone	1020		<0.0122 J	0.0403	<0.0124 J	<0.0123	<0.0120
Carbon disulfide	23.4		<0.00610	<0.00604	<0.00621	<0.00616	<0.00601
Methylene chloride	0.5		<0.00610	<0.00604	<0.00621	<0.00616	<0.00601
Toluene	100		0.00631	0.00244 JQ	0.0125 JQ	0.00376 JQ	0.00304 JQ

TABLE 3-2

POSITIVE ANALYTICAL RESULTS
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD (UNITS)	MSC	Sample ID	FDUP-06	OT3912SA	OT3913SA	OT3914SA	OT3915SA
		Sample Date	23-OCT-95	24-OCT-95	23-OCT-95	24-OCT-95	24-OCT-95
		Depth	0 0' - 2 0'	0 0' - 2 0'	0 0' - 2 0'	0 0' - 2 0'	0 0' - 2 0'
		Notes	Duplicate of OT3911SA				
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8270/SW3550 (mg/kg)							
2-Methylnaphthalene	NA		0.159 JQ	12 2 JQ	<0 402	<0 407	<0 395
Acenaphthene	613		0.0343 JQ	<20 4	<0 402	<0 407	<0 395
Anthracene	3070		<0 406	<20 4	<0 402	<0 407	<0 395
Benz(a)anthracene	NA		<0 406	<20 4	<0 402	<0 407 J	<0 395
Benzo(a)pyrene	NA		<0 406	<20 4	<0 402	<0 407 J	<0 395
Benzo(b)fluoranthene	NA		<0 406	<20 4	<0 402	<0 407 J	<0 395
Benzo(g,h,i)perylene	NA		<0 406	<20 4	<0 402	<0 407 J	<0 395
Benzo(k)fluoranthene	NA		<0 406	<20 4	<0 402	<0 407 J	<0 395
Chrysene	NA		<0 406	<20 4	<0 402	<0 407 J	<0 395
Di-n-butylphthalate	1020		<0 406	<20 4	<0 402	<0 407	<0 395
Dibenz(a,h)anthracene	NA		<0 406	<20 4	<0 402	<0 407 J	<0 395
Fluoranthene	409		0 0430 JQ	<20 4	<0 402	<0 407	<0 395
Fluorene	409		0.0723 JQ	2.53 JQ	<0 402	<0 407	<0 395
Indeno(1,2,3-cd)pyrene	NA		<0 406	<20 4	<0 402	<0 407 J	<0 395
Naphthalene	409		0.0238 JQ	3 27 JQ	<0 402	<0 407	<0 395
Phenanthrene	NA		0.259 JQ	5.00 JQ	<0 402	<0 407	<0 395
Pyrene	310		0.0731 JQ	<20 4	<0 402	<0 407 J	<0 395
bis(2-Ethylhexyl)phthalate	2 04		<0 406	<20.4	<0.402	<0.407	<0 395
Total PAHs			0.6645	23	ND	ND	ND

Data Qualification Flags/Notes:
MSC = Medium-Specific Concentration
NA = Not available
ND = Not Detected
PAH = Polynuclear Aromatic Hydrocarbon
J = Estimated quantation based upon QC data
JB = Estimated quantitation possibly biased high or a false positive based upon blank data
JH = Estimated quantitation possibly biased high based upon QC data
JL = Estimated quantitation possibly biased low or a false negative based upon QC data
JQ = Estimated quantitation. detected below the Practical Quantitation Limit
R = Datum rejected based upon QC data. do not use
☐ Results in boxes exceed MSC value (organics) and background concentration and MSC value (metals)

TABLE 3-2

POSITIVE ANALYTICAL RESULTS
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD (UNITS)	MSC	Sample ID Sample Date Depth Notes	OT3916SA 24-OCT-95 0.0' - 2.0'	OT3917SA 23-OCT-95 0.0' - 2.0'	OT3918SA 23-OCT-95 0.0' - 2.0'	OT3919SA 24-OCT-95 0.0' - 2.0'	OT3920SA 24-OCT-95 0.0' - 2.0'	OT3921SA 24-OCT-95 0.0' - 2.0'
SOIL pH - SW9045/NONE (none)								
623-9045 pH units Soil	-		7.83	7.67	7.78	7.60	7.50	7.52
PERCENT SOLID - D2216 /NONE (percent)								
623-D2216 Moisture	-		13.0	18.0	14.0	13.0	16.0	12.0
METALS, TOTAL BY ICP/SW6010/SW3050 (mg/kg)								
Aluminum	NA		5890	7810	6730	3540	4530	4810
Antimony	0.6		3.06 JQ	<22.9	<21.4	<19.6	<21.7 JL	2.24 JQ
Barium	200		120	125	130	141	112 JH	82.9
Beryllium	0.4		<2.48	0.458	0.428	<2.35	<2.61	<2.49
Calcium	NA		197000	111000	139000	234000	165000	157000
Chromium	10		13.2 JQ	7.06	6.16	7.04 JQ	7.82 JH	<41.4
Cobalt	NA		2.48 JQ	3.94 JQ	2.48 JQ	1.09 JQ	2.69 JQ	1.74 JQ
Copper	NA		9.92 JQ	9.35	8.21	21.9	3.48 JH	8.29 JQ
Iron	NA		6240	7730	6570	4920	5240	5280
Magnesium	NA		2080	2160	2140	2150	1670	1770
Manganese	NA		321	313	313	310	328	273
Molybdenum	NA		<4.14	2.02	2.31 JQ	1.25 JQ	<4.34	1.41 JQ
Nickel	10		222	6.60	6.58	126	233	134
Potassium	NA		1120	1840	1740	738	1170	984
Sodium	NA		107 JB	550	383	113 JB	121 JB	92.4 JB
Vanadium	NA		8.52	11.6	7.18	7.12	9.99	11.3
Zinc	NA		93.0	25.3	26.6	52.7	95.2 J	71.2
ARSENIC, TOTAL BY GFAA/SW 7060 (mg/kg)								
Arsenic	3.27		1.49	1.40	2.13	1.33	1.39	14.2
LEAD, TOTAL BY GFAA/SW 7421 (mg/kg)								
Lead	1.5		20.3 JH	7.96	14.9	11.3	46.7	14.6
SELENIUM, TOTAL BY GFAA/SW 7740/METHOD (mg/kg)								
Selenium	5.0		<0.396	<0.452	<0.430	0.125 JL	<0.410 JL	0.0895 JL
ORGANOCHLORINE PESTICIDES AND PCBs - SW8080/SW3550 (mg/kg)								
4,4'-DDD	0.119		<0.00379	<0.00415	<0.00386	<0.00380	0.0124	<0.00376
4,4'-DDE	0.0841		0.0116	<0.00166	0.00165	<0.00152	0.0430	0.000653 JQ
4,4'-DDT	0.0841		<0.00379	<0.00415	<0.00386	<0.00380	0.0134	<0.00376
AR1254	0.05		0.181	<0.0415	<0.0386	<0.0380	<0.0394	<0.0376
Chlordane	0.2		<0.0190 R	<0.0208	<0.0193	0.00982 JQ	0.110	0.0584
Dieldrin	0.00179		<0.000758	<0.000830	<0.000772	<0.000760	<0.000788	<0.000752
Heptachlor epoxide	0.020		<0.00190	<0.00208	<0.00193	<0.00190	0.00175 JQ	<0.00188
Methoxychlor	4.00		<0.0190	<0.0208	<0.0193	<0.0190	<0.0197	<0.0188
CHLORINATED HERBICIDES - SW8150/METHOD (mg/kg)								
2,4,5-TP (Silvex)	5		<0.00460	0.00510	<0.00464	<0.00460	<0.00472	<0.00450
VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8240/NONE (mg/kg)								
2-Butanone (MEK)	511		<0.0126	0.0266 J	<0.0121 J	<0.0121	0.0193	<0.0122
Acetone	1020		<0.0126	0.107 J	<0.0121 J	<0.0121	0.0771	0.0122
Methylene chloride	0.5		<0.00630	<0.00607	<0.00603	0.00289 JQ	<0.00600	0.0231
Tetrachloroethene	0.5		<0.00630	<0.00607	0.000440 JQ	<0.00603	<0.00600	[illegible]

TABLE 3-2

POSITIVE ANALYTICAL RESULTS
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD (UNITS)	MSC	Sample ID Sample Date Depth Notes	OT3916SA 24-OCT-95 0.0' - 2.0'	OT3917SA 23-OCT-95 0.0' - 2.0'	OT3918SA 23-OCT-95 0.0' - 2.0'	OT3919SA 24-OCT-95 0.0' - 2.0'	OT3920SA 24-OCT-95 0.0' - 2.0'	OT3921SA 24-OCT-95 0.0' - 2.0'
Toluene	100		0.00382 JQ	0.00562 JQ	0.00469 JQ	0.00136 JQ	0.00344 JQ	<0.00610
Xylenes (total)	1000		<0.00630	0.00296 JQ	<0.00603	<0.00603	<0.00600	<0.00610
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8270/SW3550 (mg/kg)								
2-Methylnaphthalene	NA		<0.383	<0.404	<0.382	<0.382	0.139 JQ	<0.377
Benz(a)anthracene	NA		<0.383	<0.404	<0.382	<0.382	<0.395 J	<0.377 J
Benzo(a)pyrene	NA		0.0274 JQ	<0.404	<0.382	<0.382	0.0419 J	<0.377 J
Benzo(b)fluoranthene	NA		0.0697 JQ	<0.404	<0.382	<0.382	0.0335 J	<0.377 J
Butyl benzyl phthalate	NA		2.60	<0.404	<0.382	<0.382	<0.395 J	<0.377 J
Chrysene	NA		0.0490 JQ	<0.404	<0.382	<0.382	0.0389 J	<0.377 J
Di-n-butylphthalate	NA		0.0282 JQ	<0.404	<0.382	<0.382	<0.395	<0.377
Dimethylphthalate	1020		6.13	<0.404	<0.382	<0.382	<0.395	<0.377
Fluoranthene	NA		0.0598 JQ	<0.404	<0.382	<0.382	0.0486 JQ	0.0224 JQ
Fluorene	409		<0.383	<0.404	<0.382	<0.382	<0.395	<0.377
Naphthalene	409		<0.383	<0.404	<0.382	<0.382	0.0774 JQ	<0.377
Phenanthrene	409		<0.383	<0.404	<0.382	<0.382	0.0423 JQ	<0.377
Pyrene	NA		0.0600 JQ	<0.404	<0.382	<0.382	0.0889 J	0.0708 J
bis(2-Ethylhexyl)phthalate	310		0.0170 JQ	<0.404	0.494	<0.382	<0.395 J	<0.377
Total PAHs	2.04		0.2659	ND	ND	ND	0.5105	0.0932

Data Qualification Flags/Notes:
MSC = Medium-Specific Concentration
NA = Not available
J = Estimated quantation based upon QC data
JB = Estimated quantitation possibly biased high or a false positive based upon blank data
JH = Estimated quantitation possibly biased high based upon QC data
JL = Estimated quantitation possibly biased low or a false negative based upon QC data
JQ = Estimated quantitation detected below the Practical Quantitation Limit
R = Datum rejected based upon QC data do not use
[ ] Results in boxes exceed MSC value (organics) and background concentration and MSC value (metals)

TABLE 3-2

POSITIVE ANALYTICAL RESULTS
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD (UNITS)	MSC	Sample ID / Sample Date / Depth / Notes	OT3922SA 24-OCT-95 0.0' - 2.0'	OT3923SA 24-OCT-95 0.0' - 2.0'	OT3924SA 24-OCT-95 0.0' - 2.0'	OT3925SA 24-OCT-95 0.0' - 2.0'	FDUP08 24-OCT-95 0.0' - 2.0' Duplicate of OT3925SA
SOIL pH - SW9045/NONE (none)							
623-9045 pH units Soil	-		7.54	7.56	7.61	7.74	7.82
PERCENT SOLID - D2216 /NONE (percent)							
623-D2216 Moisture	-		18.0	22.0	17.0	17.0	19.0
METALS, TOTAL BY ICP/SW6010/SW3050 (mg/kg)							
Aluminum	NA		10800	9060	5530	7520	7680
Antimony	0.6		3.17 JQ	<23.9	2.68 JQ	<22.3	<21.7
Barium	200		133	133	100	125	126
Beryllium	0.4		<2.44	<2.87	<2.51	0.535	0.521
Calcium	NA		119000	120000	193000	122000	128000
Chromium	10		14.6 JQ	<47.8	13.4 JQ	7.40	9.21
Cobalt	NA		2.60 JQ	1.24 JQ	1.59 JQ	2.59 JQ	2.43 JQ
Copper	NA		10.6 JQ	16.3 JQ	21.8 JQ	9.81	9.04
Iron	NA		7920	8570	4620	6910	6850
Magnesium	NA		2630	2210	2480	2140	2110
Manganese	NA		222	163	372	220	190
Molybdenum	NA		<4.06	1.53 JQ	<4.18	<4.46	<4.34
Nickel	10		114	155	135	7.76	6.78
Potassium	NA		1970	1860	1130	1660	1540
Sodium	NA		216 JB	81.8 JB	147 JB	132 JB	141 JB
Vanadium	NA		9.84	13.8	8.79	10.3	11.0
Zinc	NA		48.9	58.8	105	32.4 J	21.2 J
ARSENIC, TOTAL BY GFAA/SW 7060 (mg/kg)							
Arsenic	3.27		3.08	0.566	1.27	0.814 JH	0.844
LEAD, TOTAL BY GFAA/SW 7421 (mg/kg)							
Lead	1.5		9.11	33.1	14.0	8.67	9.09
SELENIUM, TOTAL BY GFAA/SW 7740/METHOD (mg/kg)							
Selenium	5.0		<0.430	<0.493 JL	0.104 JL	<0.460	<0.432
ORGANOCHLORINE PESTICIDES AND PCBs - SW8080/SW3550 (mg/kg)							
4,4'-DDD	0.119		<0.00400	<0.00426	<0.00400	<0.00397	<0.00408
4,4'-DDE	0.0841		<0.00160	<0.00170	<0.00160	<0.00159	<0.00163
4,4'-DDT	0.0841		<0.00400	<0.00426	<0.00400	<0.00397	<0.00408
AR1254	0.05		<0.0400	<0.0426	<0.0400	<0.0397	<0.0408
Chlordane	0.2		<0.0200	<0.0213	0.0104 JQ	<0.0198	<0.0204
Dieldrin	0.00179		<0.000800	<0.000852	<0.000800	<0.000794	<0.000816
Heptachlor epoxide	0.020		<0.00200	<0.00213	<0.00200	<0.00198	<0.00204
Methoxychlor	4.00		<0.0200	<0.0213	<0.0200	<0.0198	<0.0204
CHLORINATED HERBICIDES - SW8150/METHOD (mg/kg)							
2,4,5-TP (Silvex)	5		<0.00488	<0.00508	<0.00480	<0.00480	<0.00494
VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8240/NONE (mg/kg)							
2-Butanone (MEK)	511		<0.0121	<0.0127	<0.0125	<0.0120	<0.0119
Acetone	1020		<0.0121	<0.0127	<0.0125	<0.0120	<0.0119
Methylene chloride	0.5		<0.00606	0.00312 JQ	0.00319 JQ	<0.00600	<0.00594
Tetrachloroethene	0.5		<0.00606	<0.00635	<0.00625	<0.00600	<0.00594

TABLE 3-2

POSITIVE ANALYTICAL RESULTS
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD (UNITS)	MSC	Sample ID Sample Date Depth Notes	OT3922SA 24-OCT-95 0.0' - 2.0'	OT3923SA 24-OCT-95 0.0' - 2.0'	OT3924SA 24-OCT-95 0.0' - 2.0'	OT3925SA 24-OCT-95 0.0' - 2.0'	FDUP08 24-OCT-95 0.0' - 2.0' Duplicate of OT3925SA
Toluene	100		0.00770	<0.00635	0.000692 JQ	0.0336 JQ	<0.00594 J
Xylenes (total)	1000		<0.00606	<0.00635	<0.00625	<0.00600	<0.00594
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8270/SW3550 (mg/kg)							
2-Methylnaphthalene	NA		<0.400	<0.423	<0.400	<0.399	<0.410
Benz(a)anthracene	NA		<0.400	<0.423	<0.400	<0.399 J	<0.410 J
Benzo(a)pyrene	NA		<0.400	<0.423	0.0296 J	<0.399 J	<0.410 J
Benzo(b)fluoranthene	NA		<0.400	<0.423	0.0860 J	<0.399 J	<0.410 J
Butyl benzyl phthalate	NA		<0.400	<0.423	<0.400	<0.399 J	<0.410 J
Chrysene	NA		<0.400	<0.423	<0.400	<0.399 J	<0.410 J
Di-n-butylphthalate	1020		<0.400	<0.423	<0.400	<0.399	<0.410
Dimethylphthalate	NA		<0.400	<0.423	<0.400	<0.399	<0.410
Fluoranthene	409		<0.400	<0.423	<0.400	0.0127 JQ	<0.410
Fluorene	409		<0.400	<0.423	<0.400	<0.399	<0.410
Naphthalene	409		<0.400	<0.423	<0.400	<0.399	<0.410
Phenanthrene	NA		<0.400	<0.423	<0.400	<0.399	<0.410
Pyrene	310		<0.400	<0.423	<0.400	<0.399 J	<0.410 J
bis(2-Ethylhexyl)phthalate	2.04		<0.400	<0.423	<0.400	<0.399 J	<0.410 J
Total PAHs			ND	ND	0.1156	0.0127	ND

Data Qualification Flags/Notes:
MSC = Medium-Specific Concentration
NA = Not available
J = Estimated quantation based upon QC data
JB = Estimated quantitation possibly biased high or a false positive based upon blank data
JH = Estimated quantitation possibly biased high based upon QC data
JL = Estimated quantitation possibly biased low or a false negative based upon QC data
JQ = Estimated quantitation detected below the Practical Quantitation Limit
R = Datum rejected based upon QC data do not use
[ ] Results in boxes exceed MSC value (organics) and background concentration and MSC value (metals)

TABLE 3-2

POSITIVE ANALYTICAL RESULTS
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD (UNITS)	MSC	Sample ID / Sample Date / Depth / Notes	OT3926SA 24-OCT-95 0.0' - 2.0'	OT3927SA 24-OCT-95 0.0' - 2.0'	OT3928SA 24-OCT-95 0.0' - 2.0'	FDUP07 24-OCT-95 0.0' - 2.0' Duplicate of OT3928SA	OT3929SA 24-OCT-95 0.0' - 2.0'	OT3930SA 24-OCT-95 0.0' - 2.0'
SOIL pH - SW9045/NONE (none)								
623-9045 pH units Soil	-		7.65	7.54	7.24	7.54	7.62	7.51
PERCENT SOLID - D2216/NONE (percent)								
623-D2216 Moisture	-		18.0	19.0	17.0	12.0	18.0	19.0
METALS, TOTAL BY ICP/SW6010/SW3050 (mg/kg)								
Aluminum	NA		6970	7910	7700	6420	10700	9150
Antimony	0.6		2.71 JQ	<21.2	<20.5	1.81 JQ	1.92 JQ	2.04 JL
Barium	200		128	135	119	106	123	100
Beryllium	0.4		<2.71	0.592	<2.46	<2.47	0.610	0.742
Calcium	NA		121000 J	71500 J	113000	127000	77100	23000
Chromium	10		<45.2	7.19	26.2 JQ	14.0 JQ	10.3	9.56
Cobalt	NA		2.71 JQ	3.47 JQ	3.03 JQ	2.64 JQ	3.75 JQ	4.08 JQ
Copper	NA		9.93 JQ	13.0	10.7 JQ	10.7 JQ	9.84	9.47
Iron	NA		5930	6790	9630 J	6490 J	7590	7480
Magnesium	NA		2020	2260	2310	1870	3140	2380
Manganese	NA		275	279	381	359	322	397
Molybdenum	NA		<4.52	<4.23	1.72 JQ	2.06 JQ	2.26 JQ	<4.64 JL
Nickel	10		65.8	7.61	116 J	59.3 J	8.88	8.44
Potassium	NA		1580	2010	2060	1560	2290	2000
Sodium	NA		87.5 JB	65.6 JB	103 JB	89.5 JB	126 JB	216 JB
Vanadium	NA		10.1	10.5	10.7	10.5	8.45	11.0
Zinc	NA		34.6	44.3	87.4 J	60.0 J	18.4	18.6
ARSENIC, TOTAL BY GFAA/SW 7060 (mg/kg)								
Arsenic	3.27		1.08 JH	1.73	2.94 J	15.4 JH	2.95	2.56 JL
LEAD, TOTAL BY GFAA/SW 7421 (mg/kg)								
Lead	1.5		8.57	22.9	86.0 J	15.9 J	8.02	10.0 J
SELENIUM, TOTAL BY GFAA/SW 7740/METHOD (mg/kg)								
Selenium	5.0		0.458 JQ	<0.412	<0.453	0.410 JQ	<0.415	<0.468 JL
ORGANOCHLORINE PESTICIDES AND PCBs - SW8080/SW3550 (mg/kg)								
4,4'-DDD	0.119		0.000886 JQ	<0.00408	0.0342 J	<0.00374 J	<0.00402	<0.00405
4,4'-DDE	0.0841		<0.00162	<0.00163	0.143 J	0.000986 JQ	<0.00161	<0.00162
4,4'-DDT	0.0841		<0.00405	<0.00408	0.176 J	<0.00374 J	<0.00402	<0.00405
AR1254	0.05		<0.0405	<0.0408	<0.0397	<0.0374	<0.0402	<0.0405
Chlordane	0.2		<0.0202	<0.0204	0.0773 J	0.0375 J	<0.0201	0.0231
Dieldrin	0.00179		0.00331	<0.000816	<0.000794	<0.000748	<0.000804	<0.000810
Heptachlor epoxide	0.020		<0.00202	<0.00204	<0.00198	<0.00187	<0.00201	<0.00202
Methoxychlor	4.00		<0.0202	<0.0204	<0.0198	0.0129 JB	<0.0201	<0.0202
CHLORINATED HERBICIDES - SW8150/METHOD (mg/kg)								
2,4,5-TP (Silvex)	5		<0.00486	<0.00492	<0.00480	<0.00454	<0.00488	<0.00490
VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8240/NONE (mg/kg)								
2-Butanone (MEK)	511		<0.0118	<0.0124	<0.0119	<0.0122	<0.0126	<0.0124
Acetone	1020		<0.0118	<0.0124	<0.0119	<0.0122	<0.0126	<0.0124
Methylene chloride	0.5		<0.00592	<0.00620	<0.00596	<0.00608	<0.00628	<0.00621
Tetrachloroethene	0.5		<0.00592	<0.00620	<0.00596	<0.00608	<0.00628	358 [illegible]

TABLE 3-2

POSITIVE ANALYTICAL RESULTS
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD (UNITS)	MSC	Sample ID Sample Date Depth Notes	OT3926SA 24-OCT-95 0.0' - 2.0'	OT3927SA 24-OCT-95 0.0' - 2.0'	OT3928SA 24-OCT-95 0.0' - 2.0'	FDUP07 24-OCT-95 0.0' - 2.0' Duplicate of OT3928SA	OT3929SA 24-OCT-95 0.0' - 2.0'	OT3930SA 24-OCT-95 0.0' - 2.0'
Toluene	100		<0.00592	<0.00620	0.00668	0.00159 JQ	<0.00628	0.00230 JQ
Xylenes (total)	1000		<0.00592	<0.00620	<0.00596	<0.00608	<0.00628	<0.00621
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8270/SW3550 (ug/kg)								
2-Methylnaphthalene	NA		<0.405	<0.407	<0.397	<0.373	<0.403	<0.406
Benz(a)anthracene	NA		<0.405 J	<0.407	0.0445 JQ	<0.373 J	<0.403	<0.406
Benzo(a)pyrene	NA		<0.405 J	<0.407	0.0433 J	<0.373 J	<0.403	<0.406
Benzo(b)fluoranthene	NA		<0.405 J	0.0375 JQ	0.0659 J	<0.373 J	0.0431 JQ	<0.406
Butyl benzyl phthalate	NA		<0.405 J	<0.407	<0.397	<0.373 J	<0.403	0.156 JQ
Chrysene	NA		<0.405 J	0.0243 JQ	0.0651 JQ	<0.373 J	0.0345 JQ	<0.406
Di-n-butylphthalate	NA		<0.405	<0.407	<0.397	0.0257 JQ	<0.403	<0.406
Dimethylphthalate	1020		<0.405	<0.407	<0.397	<0.373	<0.403	<0.406
Fluoranthene	NA		<0.405	0.0167 JQ	0.0873 JQ	0.0151 JQ	<0.403	<0.406
Fluorene	409		<0.405	<0.407	<0.397	<0.373	<0.403	0.0137 JQ
Naphthalene	409		<0.405	<0.407	<0.397	<0.373	<0.403	<0.406
Phenanthrene	409		<0.405	<0.407	0.0368 JQ	<0.373	<0.403	0.0265 JQ
Pyrene	NA		<0.405	0.0240 JQ	0.0961 JQ	0.0270 J	<0.403	<0.406
bis(2-Ethylhexyl)phthalate	310		0.0474 J	<0.407	<0.397	<0.373 J	<0.403	0.309 JQ
Total PAHs	2.04		<0.405 J	0.1025	0.439	0.0421	0.0776	0.0402
			0.0474					

Data Qualification Flags/Notes:
MSC = Medium-Specific Concentration
NA = Not available
J = Estimated quantation based upon QC data
JB = Estimated quantitation: possibly biased high or a false positive based upon blank data
JH = Estimated quantitation: possibly biased high based upon QC data
JL = Estimated quantitation: possibly biased low or a false negative based upon QC data
JQ = Estimated quantitation: detected below the Practical Quantitation Limit
R = Datum rejected based upon QC data: do not use
☐ Results in boxes exceed MSC value (organics) and background concentration and MSC value (metals)

PREPARED/DATE John Pecore / 2-22-96
CHECKED/DATE Sue D. Max / 2-22-96

appeared to contain high concentrations of aluminum and vanadium, indicating that the background locations may not be representative of background conditions.

A high degree of variability was observed between the concentrations reported for several metals in the two site-specific background samples. Based on this observation, the background concentrations used for data comparison in the following section may not be representative of basewide background concentrations.

3.2.2 Data Summary

The analytical results for the Grounds Maintenance Yard are discussed by chemical class below.

Volatile Organic Compounds - Acetone, 2-butanone (MEK), carbon disulfide, methylene chloride, tetrachloroethene, toluene, and xylenes were detected in soil samples collected at this site. With the exception of toluene, volatile constituents were not detected in the background samples. Background sample OT3901SA contained 0.00503 mg/kg toluene which was less than the PQL. Toluene was detected in 21 of 28 samples analyzed as depicted in Figure 3-11, however 14 results were reported at concentrations less than the PQL. The maximum concentration of toluene detected was 0.0336 mg/kg at OT3925SA. Other volatile constituents detected include the following:

- Acetone was detected at three locations, OT3912SA, OT3917SA, and OT3920SA with a maximum concentration of 0.107 mg/kg at OT3917SA. These locations are adjacent to the mower storage shed and concrete containment pad.

- 2-Butanone was detected at two locations, OT3917SA and OT3920SA with a maximum concentration of 0.0266 mg/kg at OT3917SA. These locations are adjacent to the mower storage shed and concrete containment pad.

- Carbon disulfide was detected at one location OT3908SA, on the east edge of the site, at a concentration of 0.00061 mg/kg.

- Methylene chloride was detected at five locations with a maximum concentration of 0.0271 mg/kg at OT3921SA, located in the central portion of the site.

- Tetrachloroethene was detected at two locations, OT3918SA and OT3930SA. The maximum sample concentration reported was 0.00358 mg/kg at OT3930SA, located adjacent to the office on the southwest edge of the site.

- Xylenes were detected at one location, OT3917SA, at a concentration of 0.00296 mg/kg, which was below the PQL. This location is adjacent to the mower storage shed.

Semi-Volatile Organic Compounds - Semi-volatile constituents detected in soil samples include 2-methylnaphthalene, acenaphthene, anthracene, benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, butyl benzyl phthalate, chrysene, di-n-butylphthalate, dimethylphthalate, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, pyrene, and bis(2-ethylhexyl)phthalate. Semi-volatiles were not detected in the background surface soil samples with the exception of di-n-butylphthalate detected at 0.0276 mg/kg, which was below the PQL, in sample OT3901SA.

PAHs were detected at 15 of 28 sample locations as depicted in Figure 3-12. The highest concentrations of PAHs encountered were collected from samples collected adjacent to the concrete containment pad and along the east edge of the site. The maximum concentration of total PAHs reported was 41.01 mg/kg, at OT3905SA.

Phthalates were detected in several soil samples, however di-n-butylphthalate was detected only at concentrations below the PQL. Butyl benzyl phthalate was detected above the PQL in one sample, OT3916SA, at a concentration of 2.60 mg/kg. Bis(2-ethylhexyl)phthalate was detected above the PQL at two locations, OT3905SA and OT3918SA, at concentrations of 2.35 mg/kg and 0.494 mg/kg, respectively. OT3905SA is located on the east edge of the site.

Pesticide/PCBs - Pesticides and PCBs detected in soil samples include 4,4'-DDT, 4,4'-DDD, 4,4'-DDE, Aroclor 1254, chlordane, dieldrin, heptachlor epoxide, and methoxychlor. Pesticides and PCBs were not detected in either of the background soil samples. Pesticide/PCB constituents are depicted in Figure 3-13 and are discussed below:

- 4,4'-DDT was detected at two locations, OT3920SA and OT3928SA, at 0.0134 mg/kg and 0.176 mg/kg, respectively. These locations are near the concrete containment pad and the equipment bay.
- 4,4'-DDD was detected at four locations, OT3911SA, OT3920SA, OT3926SA, and OT3928SA. The maximum sample concentration reported was 0.0342 mg/kg at OT3928SA.
- 4,4'-DDE was detected at nine locations, with a maximum sample concentration of 0.143 mg/kg at OT3928SA.
- Aroclor 1254 was detected at two locations, OT3909SA and OT3916SA, at 0.161 mg/kg and 0.181 mg/kg, respectively. These locations are in the fenced electric substation.
- Chlordane was detected at 8 of 28 sample locations. The maximum sample concentration reported was 0.110 mg/kg at OT 3920SA, near the concrete containment pad.
- Dieldrin was detected at three locations, OT3904SA, OT3910SA, and OT3926SA. The maximum sample concentration reported was 0.00331 mg/kg at OT3926SA, near the west edge of the site.
- Heptachlor epoxide was detected at one location, OT3920SA, at a concentration of 0.00175 mg/kg, below the PQL.
- Methoxychlor was detected at one location, OT3928SA, at a concentration of 0.0129 mg/kg, however this result was qualified as an estimated value due to blank contamination.

Chlorinated Herbicides - Herbicides detected in soil samples include 2,4,5-TP (Silvex) and MCPP. Herbicides were not detected in either of the background soil samples. Silvex was detected in two samples, OT3911SA and OT3917SA, at 0.00551 mg/kg and 0.00510 mg/kg,

respectively. MCPP was detected in sample OT3905SA at 4.05 mg/kg. Figure 3-14 depicts the locations where herbicides were detected.

Metals - Metals detected in soil samples include aluminum, antimony, arsenic, barium, beryllium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, molybdenum, nickel, potassium, selenium, sodium, vanadium, and zinc. All of the metal constituents reported were detected at one or both background locations with the exception of antimony and selenium. Aluminum, arsenic, barium, calcium, iron, lead, magnesium, manganese, nickel, potassium, sodium, vanadium, and zinc were detected at concentrations above the PQL in both samples. The following metals were detected at concentrations greater than the maximum background concentration:

- Aluminum results exceeded the maximum background concentration of 9,440 mg/kg at 2 of 28 sample locations. The maximum sample concentration reported was 10,800 mg/kg at OT3922SA.

- Antimony was detected at 10 of 28 sample locations as depicted in Figure 3-15. The maximum sample concentration reported was 3.17 mg/kg at OT3922A. Antimony was not detected in either background sample.

- Arsenic results exceeded the maximum background concentration of 2.23 mg/kg at 6 of 28 sample locations as depicted in Figure 3-16. The maximum sample concentration reported was 169 mg/kg at OT3907SA on the east edge of the site. Additional locations exceeding the background concentration are distributed across the site.

- Barium results exceeded the maximum background concentration of 122 mg/kg at 20 of 28 sample locations. The maximum sample concentration reported was 183 mg/kg at OT3911SA.

- Beryllium results exceeded the maximum background concentration of 0.634 mg/kg at 2 of 28 sample locations. Detections of beryllium were reported at 8 of 28 locations, as depicted in Figure 3-17. The maximum sample concentration reported was 1.81 mg/kg at OT3911SA. Seven of eight detections were encountered on the south side of the site.

- Calcium results exceeded the maximum background concentration of 106,000 mg/kg at 25 of 28 sample locations. The maximum sample concentration reported was 296,000 mg/kg at OT3906SA. Additional locations exceeding the background concentration are distributed across the site.

- Chromium results exceeded the maximum background concentration of 9.28 mg/kg at 12 of 28 sample locations as depicted in Figure 3-18. The maximum sample concentration reported was 32.7 mg/kg at OT3905SA located on the east edge of the site.

- Cobalt results exceeded the maximum background concentration of 3.57 mg/kg at 3 of 28 sample locations, however all of the results were less than the PQL.

- Copper results exceeded the maximum background concentration of 9.04 mg/kg at 13 of 28 sample locations. The maximum sample concentration reported was 24.8 mg/kg at OT3906SA located on the east edge of the site. Many of the concentrations exceeding the background were reported below the PQL.

- No iron results exceeded the maximum background concentration of 10,800 mg/kg reported at OT3901SA. However, 6 of 28 sample locations exceeded the secondary background concentration of 7,090 mg/kg reported at OT3902SA. The highest sample concentration reported was 9,630 mg/kg at OT3928SA.

- Lead results exceeded the maximum background concentration of 12.4 mg/kg at 13 of 28 sample locations as depicted in Figure 3-19. The maximum sample concentration reported was 86.0 mg/kg at OT3928SA located on the west edge of the site between the trailers. Additional results exceeding background were identified at OT3920SA near the concrete containment pad, at OT3905SA and OT3907SA on the east edge of the site, and at other locations distributed across the site.

- Magnesium results exceeded the maximum background concentration of 2,370 mg/kg at 5 of 28 sample locations. The maximum concentration reported was 3,140 mg/kg at OT3929SA located near the office.

- Manganese results exceeded the maximum background concentration of 334 mg/kg at 10 of 28 sample locations. The maximum concentration reported was 493 mg/kg at OT3911SA located on the south side of the site.

- Molybdenum results exceeded the maximum background concentration of 1.59 mg/kg at 7 of 28 sample locations, however many of the results were less than the PQL. The maximum concentration reported was 2.31 mg/kg at OT3918SA, located on the south side of the site.

- Nickel results exceeded the maximum background concentration of 114 mg/kg reported at OT3902SA, at 19 of 28 sample locations. Nickel exceeded the secondary background concentration of 8.72 mg/kg at 22 of 28 sample locations, as depicted in Figure 3-20. The maximum concentration reported was 257 mg/kg at OT3911SA, located on the south side of the site. Other locations exceeding background are distributed across the site.

- One potassium result exceeded the maximum background concentration of 2,170 mg/kg reported at OT3901SA. Potassium exceeded the secondary background concentration of 1,480 mg/kg at 12 of 28 locations. The highest reported concentration was 2,290 mg/kg at OT3929SA.

- Selenium was detected at 12 locations, however several results were reported below the PQL. The maximum concentration reported was 0.617 mg/kg at OT3914SA, located in the central portion of the site. Selenium was not detected in either background sample.

- Sodium results exceeded the maximum background concentration of 70.6 mg/kg at 27 of 28 sample locations, however 17 samples were qualified as estimated due to blank contamination. The maximum concentration reported was 550 mg/kg at OT3917SA, located on the south side of the site.

- None of the vanadium results exceeded the maximum background concentration of 17.4 mg/kg at OT3902SA, located on the north side of the site.

- Zinc results exceeded the maximum background concentration of 44.2 mg/kg at 21 of 28 sample locations. The maximum concentration reported was 122 mg/kg at OT3911SA, located on the south side of the site.

4.0 REGULATORY COMPARISON

The positive analytical results from the site investigation were compared to the appropriate Texas Natural Resource Conservation Commission (TNRCC) regulatory standards. The selection of regulatory standards was based on LAW's understanding of current land use and probable future land use at the facility.

4.1 REGULATORY STANDARDS

The TNRCC published the final Risk Reduction Standards in the Texas Register and the regulation was made effective June 29, 1993, (TNRCC, 1993). The standards were written for the protection of human health and the environment from exposure to contaminant releases. Under the Standards, closure of a contaminated area may be attained by applying Risk Reduction Standard Number 1, 2, or 3. Risk Reduction Standard Number 1 involves closure or remediation to background, or to the practical quantitation limit (PQL), if the PQL is greater than background. Standard Number 2 involves closure or remediation to health-based cleanup levels or medium specific concentrations (MSCs). The TNRCC has published MSCs for soil and ground water, for both industrial and residential land use. If industrial soil MSCs are used, the responsible party must register specific information about the site in the registry of county deeds, and future owners of the facility are required to undertake responsibility for post-closure care. Risk Reduction Standard Number 3 includes a baseline risk assessment for the purpose of assessing the potential risk to human health and the environment under existing site-specific conditions.

The scope of this site investigation was developed to determine the presence of site contaminants that may potentially impact human health through direct contact with surface soil, or through contamination of ground water or surface water. The land use at the two sites investigated is currently, and is expected to continue to be, industrial. Therefore, the industrial MSCs for soil were used for both the Soil/Air and Ingestion Standard (SAI-Ind) and the Soil-to-Ground Water Cross-Media Protection Concentration (GWP-Ind). The lower of the two criteria for any

detected constituent was used to determine whether a reported concentration exceeded the MSC value under Standard Number 2.

4.2 COMPARISON OF RESULTS TO REGULATORY STANDARDS

Background data were obtained for each of the two sites investigated in order to perform a comparison of metals constituents detected at the sites to naturally occurring concentrations. For metals occurring at concentrations exceeding background levels, results were also compared to MSC values (Tables 3-1 and 3-2). Organic constituents were compared directly to MSC values. When sample duplicate results were reported, the highest concentration was used for comparison purposes. Any result qualified as estimated due to blank contamination (JB) was not included in the sample data used for comparison.

4.2.1 Aerospace Museum Site

Eight metals were reported at concentrations exceeding both the site-specific background concentrations, as discussed in Section 3.1, and MSC criteria. A site map depicting the concentrations of these metals is presented in Figure 4-1.

- Antimony was reported in one background sample at a concentration greater than the MSC value of 0.6 mg/kg. Ten samples were reported with antimony concentrations greater than background and the MSC criteria.
- Arsenic was reported at concentrations greater than the MSC value of 3.27 mg/kg in three samples.
- Barium was reported at a concentration greater than the MSC value of 200 mg/kg in one sample.
- Beryllium was reported at concentrations greater than the MSC value of 0.4 mg/kg in 25 samples.
- Cadmium was reported at concentrations greater than the MSC value of 0.5 mg/kg in two samples.

- Chromium was reported in one background sample at 10.8 mg/kg, greater than the MSC value of 10.0 mg/kg. Eighteen samples were reported with chromium concentrations greater than the background sample and MSC value.

- Lead was reported in five samples at concentrations exceeding the secondary background sample and the MSC value of 1.5 mg/kg.

- Nickel was reported in thirty-two samples at concentrations exceeding the secondary background sample and the MSC value of 10.0 mg/kg.

All volatile and semi-volatile organic constituents detected were compared directly to the appropriate MSC values. All sample results reported for organic constituents were less than the MSC values.

4.2.2 Grounds Maintenance Yard

Six metals were reported at concentrations exceeding both the site-specific background concentrations, as discussed in Section 3.2, and MSC values. A site map depicting the concentrations of these metals is presented in Figure 4-2.

- Antimony was detected in ten samples at concentrations exceeding the MSC value of 0.6 mg/kg. Background samples were nondetect.

- Arsenic was detected in three samples at concentrations exceeding the MSC value of 3.27 mg/kg.

- Beryllium was reported in eight samples at concentrations exceeding the secondary background sample and the MSC value of 0.4 mg/kg.

- Chromium was reported in nine samples at concentrations exceeding the MSC value of 10.0 mg/kg.

- Lead was reported in thirteen samples at concentrations exceeding the MSC value of 1.5 mg/kg.

- Nickel was reported in twenty-one samples at concentrations exceeding the secondary background sample and the MSC value of 10.0 mg/kg.

All organic constituents detected, including pesticides/PCBs, herbicides, volatile organics, and semi-volatile organics, were compared directly to the appropriate MSC criteria. The sample results reported for all organic constituents were less than the MSC criteria with the following exceptions: one sample contained bis(2-ethylhexyl)phthalate exceeding the MSC criterion of 2.04 mg/kg; one sample contained both 4,4'-DDT and 4,4'-DDE, each exceeding the MSC criterion of 0.0841 mg/kg; one sample contained dieldrin exceeding the MSC criterion of 0.00179 mg/kg; and two samples contained Aroclor 1254 exceeding the MSC criterion of 0.05 mg/kg.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 SUMMARY OF FINDINGS

A summary of findings based on the results of the soil analyses performed during the site investigations are presented in the following sections.

5.1.1 Aerospace Museum Site

Soil samples collected at the Aerospace Museum Site contained metals, volatile organic, and semi-volatile organic constituents. Toluene was detected in samples throughout the site, including background locations. The toluene results may be attributable to widespread ambient contamination or laboratory contamination; however, no contamination was detected in the associated field or laboratory QC blanks. Methylene chloride was detected at only one location at the site. All detections of volatile compounds were less than the MSC criteria.

Polynuclear aromatic hydrocarbon compounds were detected throughout the site, including the background sample collected north of the site. The highest concentrations encountered were in the northern area of the site adjacent to Farmers Branch. The presence of PAH constituents could be the result of surficial spills of petroleum products, oils, or lubricants previously documented at this site. None of the individual PAH constituents exceeded the MSC criteria.

Phthalates were detected at concentrations less than the MSC criteria. The presence of phthalates at low levels may be due to the prevalence of phthalate compounds in the environment, and thus may be unrelated to previous site activities.

Samples collected from four locations exhibited maximum concentrations for multiple metals. Chromium and copper concentrations were highest at location OT3801SA; aluminum, magnesium, and potassium concentrations were highest at location OT3824SA; iron, lead, molybdenum, and sodium concentrations were highest at location OT3840SA; and antimony,

arsenic, nickel, and zinc were highest at location OT3848SA. These four locations are near the site perimeter on the northeast, west, southwest, and southeast boundaries of the site. Locations OT3801SA and OT3840SA are adjacent to Farmers Branch, which flows along the northern and eastern boundary of the site, and eventually empties into the West Fork of the Trinity River.

Of the 22 metal constituents detected at the site, all 22 were reported at concentrations exceeding background levels at one or more locations. Of these, the following eight metals also exceeded MSC criteria: antimony, arsenic, barium, beryllium, cadmium, chromium, lead, and nickel. However, the background data collected during this investigation may not be representative of base-wide background concentrations, as discussed in section 3.0. As a result, the findings for metals detected at the site are inconclusive.

5.1.2 Grounds Maintenance Yard

Soil samples collected at the Grounds Maintenance Yard contained metals, volatile organics, semi-volatile organics, pesticides/PCBs, and chlorinated herbicides. Seven volatile constituents were detected, including acetone, 2-butanone (MEK), carbon disulfide, methylene chloride, tetrachloroethene, toluene, and xylenes. Toluene was detected in samples throughout the site, including the two background locations. The toluene results may be attributable to widespread ambient contamination or laboratory contamination; however, no contamination was detected in the associated field or laboratory QC blanks. Methylene chloride was detected at five locations, acetone was detected at three locations, 2-butanone and tetrachloroethene were detected at two locations, and carbon disulfide and xylenes were detected at one location. The presence of low levels of volatile constituents may be related to solvent usage for the purpose of cleaning the equipment stored at the site. All detections of volatile compounds were less than the MSC criteria.

Polynuclear aromatic hydrocarbon compounds were detected throughout the site. However, the highest concentrations occurred adjacent to the concrete containment pad and directly east (downgradient) of that location. The presence of PAH constituents could be the result of

surficial spills of petroleum products, oils, or lubricants associated with site activities. None of the individual PAH constituents exceeded the MSC criteria.

All phthalates detected were at concentrations less than the MSC criteria except for bis(2-ethylhexyl)phthalate. The highest concentration detected was at a location near the eastern site boundary. The source of this contamination is unknown; however, phthalates are commonly occurring environmental contaminants.

Pesticides were detected at the site in areas where mixing and handling of these substances likely occurred. Location OT3928SA, between the trailers on the west side of the site, exhibited the maximum concentrations of 4,4'-DDT, 4,4'-DDD, 4,4'-DDE, and methoxychlor. Location OT3920SA, adjacent to the concrete containment pad, exhibited the maximum concentration of chlordane at the site. In addition, heptachlor epoxide, 4,4'-DDT, and 4,4'-DDD were also detected adjacent to the pad. PCBs were detected at two locations in a drainage feature downgradient of the electric substation. Arochlor 1254 concentrations were greater than the MSC criteria at these locations. All pesticide concentrations were less than the MCS criteria with the exception of 4,4'-DDT, 4,4'-DDE, and dieldrin.

The chlorinated herbicides Silvex and MCPP were detected at three locations at the site, but at concentrations less than the MSC criteria. The presence of herbicides is consistent with the historic use of the maintenance yard.

Location OT3911SA, downgradient from both the concrete pads and the mower storage area, exhibited the maximum concentrations for five metals: barium, beryllium, manganese, nickel, and zinc. The presence of arsenic and lead at locations OT3928SA and OT3921SA, adjacent to and downgradient of the pesticide storage area, could be related to pesticides also found at these locations.

Of the 20 metal constituents detected at the site, 18 were reported at concentrations that exceeded background levels at one or more locations. Of these, the following six metals also

exceeded MSC criteria: antimony, arsenic, chromium, lead, and nickel. However, the background data collected during this investigation may not be representative of base-wide background concentrations, as discussed in Section 3.0. As a result, the findings for metals detected at the site are inconclusive.

5.2 RECOMMENDATIONS

Based on the results of the investigations performed at the Aerospace Museum Site and Grounds Maintenance Yard, LAW has prepared the following recommendations.

5.2.1 Aerospace Museum Site

- Polynuclear aromatic hydrocarbons detected in the northern area of the site adjacent to Farmers Branch have not been fully delineated. LAW recommends sampling of Farmers Branch sediments to determine whether PAH constituents pose a threat to surface water. Additional soil sampling may also be necessary to define the vertical extent of PAH contamination.

- Metals data from this investigation were inconclusive because the data from the two background samples do not appear to be representative of true background levels when compared to metals concentrations reported from the site. LAW recommends that the results of the planned base-wide background study be used to reevaluate this site for concentrations of metals.

5.2.2 Grounds Maintenance Yard

- Volatile organic compounds, PAH compounds, and bis(2-ethylhexyl)phthalate detected at the site have not been fully delineated. LAW recommends additional soil sampling to fully delineate the horizontal and vertical extent of these constituents.

- Pesticides/PCBs detected at the site have not been fully delineated. LAW recommends additional sampling to determine the horizontal and vertical extent of these constituents. PCBs may pose a risk due to off-site migration via surface drainage features. LAW recommends containment of run-off from the electric substation to reduce off-site migration, and removal of the PCB source and contaminated soils.

- Metals data from this investigation were inconclusive because the data from the two background samples do not appear to be representative of true background levels when compared to metals concentrations reported from the site. LAW recommends a base-wide background study of metals in soil and a reevaluation of this site based on base-wide background concentrations of metals.

6.0 REFERENCES

CH2M Hill, 1984. "Installation Restoration Program Phase I Records Search for Carswell AFB, CH2M Hill," February 1984.

LAW, 1995a. "Site Investigation/Site Characterization for Aerospace Museum Site and Grounds Maintenance Yard (Sampling and Analysis Plan) NAS Fort Worth, JRB, Carswell Field, Fort Worth, Texas, Law Environmental, Inc.," September 1995.

LAW, 1995b. "Site Investigation/Site Characterization for Aerospace Museum Site and Grounds Maintenance Yard (Health and Safety Plan) NAS Fort Worth, JRB, Carswell Field, Fort Worth, Texas, Law Environmental, Inc.," September 1995.

NAS Fort Worth, 1993. "Environmental Baseline Survey, Phase I - Southwest Aerospace Museum, Air Force Base Conversion Agency - Carswell Air Force Base," April 20. 1993.

Radian, 1986. "Installation Restoration Program Phase II - Confirmation/Quantification Stage 1, Final Report for Carswell AFB, Texas," October 1986.

Radian, 1991. "Remedial Investigation Report for the East Area, Final Report for Carswell AFB, Texas," October 1991.

TNRCC, 1994. "Final Risk Reduction Standards, Texas Administrative Code, Title 30, Chapter 335, Industrial Solid Waste and Municipal Hazardous Waste in General, Subchapter A, Risk Reduction Standards (TWC 335.551 - 335.568)," June 15, 1993.

USACE, 1991. "Work Plan SWMU No. 64 French Underdrain System/SWMU No. 67 Building 1390 Oil/Water Separator, U.S. Army Corps of Engineers, Fort Worth District," October 7, 1991.

USEPA, 1987, "Data Quality Objectives for Remedial Response Activities - Development Process, EPA/540/G-87/003, United States Environmental Protection Agency (USEPA), Office of Emergency and Remedial Response and Office of Waste Programs Enforcement, Office of Solid Waste and Emergency Response, Washington, D.C.," March 1987.

USEPA, 1988. "Laboratory Data Validation: Functional Guidelines For Evaluating Inorganics Analysis, United States Environmental Protection Agency (USEPA), Hazardous Site Evaluation Division, Washington, D.C.," July 1988.

USEPA, 1990. "National Functional Guidelines For Organic Data Review (Draft), Multi-media Multiconcentration (OLM01.0) and Low Concentration Water (OLC01.0), United States Environmental Protection Agency (USEPA), Contract Laboratory Program, Washington, D.C., December 1990," Revised June 1991.

USGS, 1993. "Personal communication between LAW and J. Bartelino (Project Chief, U.S. Geological Survey, Austin, Texas)," October 20, 1993.

396. 435

TAB

6

Tables

APPENDIX C-2

GROUNDS MAINTENANCE YARD

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID Sample Date Depth : Notes :	OT3901SA 23-OCT-95 0.0' - 2.0' Background Sample	OT3902SA 23-OCT-95 0.0' - 2.0' Background Sample	OT3903SA 23-OCT-95 0.0' - 2.0'	OT3904SA 23-OCT-95 0.0' - 2.0'
SOIL pH - SW9045/NONE (pH)						
623-9045 pH units Soil			7.49	7.81	7.65	7.66
PERCENT SOLID - D2216 /NONE (percent)						
623-D2216 Moisture			13.0	16.0	20.0	17.0
METALS, TOTAL BY ICP/SW6010/SW3050 (mg/kg)						
Aluminum	50.0		7850	9440	7090	4370
Antimony	25.0		<19.8	<21.0	<23.0	<22.3
Barium	2.00		95.3	122	121	170
Beryllium	0.300		0.634	<2.51	0.551	<2.68
Cadmium	1.00		<0.793	<0.838	<0.919	<0.892
Calcium	10.0		19000	106000	108000	234000
Chromium	5.00		9.28	<41.9	2.85 JQ	14.3 JQ
Cobalt	5.00		3.57 JQ	2.77 JQ	3.22 JQ	2.14 JQ
Copper	5.00		9.04	5.87 JQ	8.91	8.03 JQ
Iron	5.00		10800	7090	6680	4200
Magnesium	25.0		1790	2370	2390	2250
Manganese	1.00		333	334	315	384
Molybdenum	5.00		1.43 JQ	1.59 JQ	<4.60	<4.46
Nickel	5.00		8.72	114	7.35	235
Potassium	60.0		2170 JH	1480	1500	1100 JH
Silver	5.00		<3.96	<4.19	<4.60	<4.46
Sodium	25.0		52.0 JB	70.6	87.9	151
Thallium	25.0		<19.8	<21.0	<23.0	<22.3
Vanadium	5.00		15.4	17.4	9.93	6.87
Zinc	1.00		20.4	44.2	17.3	78.5
ARSENIC, TOTAL BY GFAA/SW 7060 (mg/kg)						
Arsenic	0.500		2.23	1.82	1.95	1.47
LEAD, TOTAL BY GFAA/SW 7421 (mg/kg)						
Lead	0.500		12.4	10.1	15.5 JH	5.87
MERCURY, TOTAL BY CVAA/SW 7471 (mg/kg)						
Mercury	0.185		<0.264	<0.251	<0.293	<0.284
SELENIUM, TOTAL BY GFAA/SW 7740/METHOD (mg/kg)						
Selenium	0.500		<0.426 JL	<2.16	<2.35 JL	<2.18 JL
ORGANOCHLORINE PESTICIDES AND PCBs - SW8080/SW3550 (mg/kg)						
4,4'-DDD	0.00333		<0.00382	<0.00400	<0.00412	<0.00413
4,4'-DDE	0.00133		<0.00153	<0.00160	<0.00165	<0.00165
4,4'-DDT	0.00333		<0.00382	<0.00400	<0.00412	<0.00413
AR1016	0.0333		<0.0382	<0.0400	<0.0412	<0.0413
AR1221	0.0333		<0.0382	<0.0400	<0.0412	<0.0413
AR1232	0.0333		<0.0382	<0.0400	<0.0412	<0.0413
AR1242	0.0333		<0.0382	<0.0400	<0.0412	<0.0413
AR1248	0.0333		<0.0382	<0.0400	<0.0412	<0.0413
AR1254	0.0333		<0.0382	<0.0400	<0.0412	<0.0413

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID / Sample Date / Depth / Notes	OT3901SA 23-OCT-95 0.0' - 2.0' Background Sample	OT3902SA 23-OCT-95 0.0' - 2.0' Background Sample	OT3903SA 23-OCT-95 0.0' - 2.0'	OT3904SA 23-OCT-95 0.0' - 2.0'
ORGANOCHLORINE PESTICIDES AND PCBs - SW8080/SW3550 (mg/kg) cont'd.						
AR1260	0.0333		<0.0382	<0.0400	<0.0412	<0.0413
Aldrin	0.00133		<0.00153	<0.00160	<0.00165	<0.00165
Chlordane	0.0166		<0.0191	<0.0200	<0.0206	<0.0206
Dieldrin	0.000666		<0.000764	<0.000800	<0.000824	0.000873
Endosulfan I	0.00166		<0.00191	<0.00200	<0.00206	<0.00206
Endosulfan II	0.00133		<0.00153	<0.00160	<0.00165	<0.00165
Endosulfan sulfate	0.00333		<0.00382	<0.00400	<0.00412	<0.00413
Endrin	0.00200		<0.00229	<0.00240	<0.00247	<0.00248
Endrin aldehyde	0.00333		<0.00382	<0.00400	<0.00412	<0.00413
Heptachlor	0.000999		<0.00115	<0.00120	<0.00124	<0.00124
Heptachlor epoxide	0.00166		<0.00191	<0.00200	<0.00206	<0.00206
Methoxychlor	0.0166		<0.0191	<0.0200	<0.0206	<0.0206
Toxaphene	0.0666		<0.0764	<0.0800	<0.0824	<0.0826
alpha-BHC	0.000999		<0.00115	<0.00120	<0.00124	<0.00124
beta-BHC	0.00166		<0.00191	<0.00200	<0.00206	<0.00206
delta-BHC	0.00166		<0.00191	<0.00200	<0.00206	<0.00206
gamma-BHC (Lindane)	0.00133		<0.00153	<0.00160	<0.00165	<0.00165
% Surrogate Recovery (Control Limit)						
sur-Dibutylchlorendate R% (10 - 181)	-		25.0	7.0	10.0	29.0
sur-TCMX R% (18 - 145)	-		72.5	76.3	80.6	76.4
CHLORINATED HERBICIDES - SW8150/METHOD (mg/kg)						
2,4,5-T	0.00400		<0.00460	<0.00454	<0.00482	<0.00498
2,4,5-TP (Silvex)	0.00400		<0.00460	<0.00454	<0.00482	<0.00498
2,4-D	0.0400		<0.0460	<0.0454	<0.0482	<0.0498
2,4-DB	0.0600		<0.0690	<0.0681	<0.0723	<0.0747
Dalapon	0.140		<0.161	<0.159 J	<0.169 J	<0.174
Dicamba	0.00400		<0.00460 JL	<0.00454 JL	<0.00482 JL	<0.00498 JL
Dichloroprop	0.0400		<0.0460	<0.0454	<0.0482	<0.0498
Dinoseb	0.0140		<0.0161	<0.0159	<0.0169	<0.0174
MCPA	3.00		<3.45	<3.40	<3.62	<3.74
MCPP	3.00		<3.45	<3.40	<3.62	<3.74
% Surrogate Recovery (Control Limit)						
sur-DCAA R% (0 - 191)	-		66.1	51.3	51.8	52.1
VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8240/NONE (mg/kg)						
1,1,1-Trichloroethane	0.00500		<0.00591	<0.00586	<0.00619	<0.00604
1,1,2,2-Tetrachloroethane	0.00500		<0.00591	<0.00586	<0.00619	<0.00604
1,1,2-Trichloroethane	0.00500		<0.00591	<0.00586	<0.00619	<0.00604
1,1-Dichloroethane	0.00500		<0.00591	<0.00586	<0.00619	<0.00604
1,1-Dichloroethene	0.00500		<0.00591	<0.00586	<0.00619	<0.00604
1,2-Dichloroethane	0.00500		<0.00591	<0.00586	<0.00619	<0.00604
1,2-Dichloropropane	0.00500		<0.00591	<0.00586	<0.00619	<0.00604
2-Butanone (MEK)	0.0100		<0.0118	<0.0117 J	<0.0124 J	<0.0121
2-Chloroethyl vinyl ether	0.0100		<0.0118 J	<0.0117	<0.0124	<0.0121 J
2-Hexanone	0.0100		<0.0118	<0.0117	<0.0124	<0.0121
4-Methyl-2-pentanone	0.0100		<0.0118	<0.0117	<0.0124	<0.0121

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID Sample Date Depth Notes	OT3901SA 23-OCT-95 0.0' - 2.0' Background Sample	OT3902SA 23-OCT-95 0.0' - 2.0' Background Sample	OT3903SA 23-OCT-95 0.0' - 2.0'	OT3904SA 23-OCT-95 0.0' - 2.0'
VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8240/NONE (mg/kg) cont'd.						
Acetone	0.0100		<0.0118	<0.0117 J	<0.0124 J	<0.0121
Benzene	0.00500		<0.00591	<0.00586	<0.00619	<0.00604
Bromodichloromethane	0.00500		<0.00591	<0.00586	<0.00619	<0.00604
Bromoform	0.00500		<0.00591	<0.00586	<0.00619	<0.00604
Bromomethane	0.0100		<0.0118	<0.0117	<0.0124	<0.0121
Carbon disulfide	0.00500		<0.00591	<0.00586	<0.00619	<0.00604
Carbon tetrachloride	0.00500		<0.00591	<0.00586	<0.00619	<0.00604
Chlorobenzene	0.00500		<0.00591	<0.00586	<0.00619	<0.00604
Chloroethane	0.0100		<0.0118 J	<0.0117 J	<0.0124 J	<0.0121 J
Chloroform	0.00500		<0.00591	<0.00586	<0.00619	<0.00604
Chloromethane	0.0100		<0.0118	<0.0117	<0.0124	<0.0121
Dibromochloromethane	0.00500		<0.00591	<0.00586	<0.00619	<0.00604
Ethylbenzene	0.00500		<0.00591	<0.00586	<0.00619	<0.00604
Methylene chloride	0.00500		<0.00591	<0.00586	<0.00619	<0.00604
Styrene	0.00500		<0.00591	<0.00586	<0.00619	<0.00604
Tetrachloroethene	0.00500		<0.00591	<0.00586	<0.00619	<0.00604
Toluene	0.00500		0.00503 JQ	<0.00586	0.0140	<0.00604
Trichloroethene	0.00500		<0.00591	<0.00586	<0.00619	<0.00604
Vinyl acetate	0.0100		<0.0118	<0.0117	<0.0124	<0.0121
Vinyl chloride	0.0100		<0.0118	<0.0117	<0.0124	<0.0121
Xylenes (total)	0.00500		<0.00591	<0.00586	<0.00619	<0.00604
cis-1,2-Dichloroethene	0.00500		<0.00591	<0.00586	<0.00619	<0.00604
cis-1,3-Dichloropropene	0.00500		<0.00591	<0.00586	<0.00619	<0.00604
trans-1,2-Dichloroethene	0.00500		<0.00591	<0.00586	<0.00619	<0.00604
trans-1,3-Dichloropropene	0.00500		<0.00591	<0.00586	<0.00619	<0.00604
% Surrogate Recovery (Control Limit)						
sur-1,2-Dichloroethane-d4 R% (70 - 121)	-		104.9	114.0	109.0	106.0
sur-Bromofluorobenzene R% (74 - 121)	-		87.0	95.1	84.0	93.0
sur-Toluene-d8 R% (81 - 117)	-		100.0	100.0	99.0	103.0
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8270/SW3550 (mg/kg)						
1,2,4-Trichlorobenzene	0.333		<0.380	<0.391	<0.412	<0.400
1,2-Dichlorobenzene	0.333		<0.380	<0.391	<0.412	<0.400
1,3-Dichlorobenzene	0.333		<0.380	<0.391	<0.412	<0.400
1,4-Dichlorobenzene	0.333		<0.380	<0.391	<0.412	<0.400
2,4,5-Trichlorophenol	0.667		<0.759	<0.782	<0.824	<0.800
2,4,6-Trichlorophenol	0.333		<0.380	<0.391	<0.412	<0.400
2,4-Dichlorophenol	0.333		<0.380	<0.391	<0.412	<0.400
2,4-Dimethylphenol	0.333		<0.380	<0.391	<0.412	<0.400
2,4-Dinitrophenol	1.67		<1.90 J	<1.96 J	<2.06 J	<2.00 J
2,4-Dinitrotoluene	0.333		<0.380	<0.391	<0.412	<0.400
2,6-Dinitrotoluene	0.333		<0.380	<0.391	<0.412	<0.400
2-Chloronaphthalene	0.333		<0.380	<0.391	<0.412	<0.400
2-Chlorophenol	0.333		<0.380	<0.391	<0.412	<0.400
2-Methylnaphthalene	0.333		<0.380	<0.391	<0.412	<0.400
2-Methylphenol	0.333		<0.380	<0.391	<0.412	<0.400
2-Nitroaniline	1.67		<1.90	<1.96	<2.06	<2.00
2-Nitrophenol	0.333		<0.380	<0.391	<0.412	<0.400

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID Sample Date Depth Notes	OT3901SA 23-OCT-95 0.0' - 2.0' Background Sample	OT3902SA 23-OCT-95 0.0' - 2.0' Background Sample	OT3903SA 23-OCT-95 0.0' - 2.0'	OT3904SA 23-OCT-95 0.0' - 2.0'
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8270/SW3550 (mg/kg) cont'd.						
3,3'-Dichlorobenzidine	0.667		<0.759 J	<0.782	<0.824	<0.800 J
3-Nitroaniline	1.67		<1.90	<1.96	<2.06	<2.00
4,6-Dinitro-2-methylphenol	1.67		<1.90	<1.96	<2.06	<2.00
4-Bromophenyl phenyl ether	0.333		<0.380	<0.391	<0.412	<0.400
4-Chloro-3-methylphenol	0.333		<0.380	<0.391	<0.412	<0.400
4-Chloroaniline	0.667		<0.759	<0.782 J	<0.824 J	<0.800
4-Chlorophenyl phenyl ether	0.333		<0.380	<0.391	<0.412	<0.400
4-Methylphenol	0.333		<0.380	<0.391	<0.412	<0.400
4-Nitroaniline	1.67		<1.90	<1.96	<2.06	<2.00
4-Nitrophenol	1.67		<1.90	<1.96 J	<2.06 J	<2.00
Acenaphthene	0.333		<0.380	<0.391	<0.412	<0.400
Acenaphthylene	0.333		<0.380	<0.391	<0.412	<0.400
Anthracene	0.333		<0.380	<0.391	<0.412	<0.400
Benz(a)anthracene	0.333		<0.380	<0.391	<0.412	<0.400
Benzo(a)pyrene	0.333		<0.380 J	<0.391	<0.412	<0.400 J
Benzo(b)fluoranthene	0.333		<0.380 J	<0.391	<0.412	<0.400 J
Benzo(g,h,i)perylene	0.333		<0.380 J	<0.391	<0.412	<0.400 J
Benzo(k)fluoranthene	0.333		<0.380 J	<0.391	<0.412	<0.400 J
Benzoic acid	1.67		<1.90	<1.96	<2.06	<2.00
Benzyl alcohol	0.667		<0.759	<0.782	<0.824	<0.800
Butyl benzyl phthalate	0.333		<0.380	<0.391	<0.412	<0.400 J
Chrysene	0.333		<0.380	<0.391	<0.412	<0.400 J
Di-n-butylphthalate	0.333		0.0276 JQ	<0.391	<0.412	<0.400
Di-n-octylphthalate	0.333		<0.380 J	<0.391	<0.412	<0.400 J
Dibenz(a,h)anthracene	0.333		<0.380 J	<0.391	<0.412	<0.400 J
Dibenzofuran	0.333		<0.380	<0.391	<0.412	<0.400
Diethylphthalate	0.333		<0.380	<0.391	<0.412	<0.400
Dimethylphthalate	0.333		<0.380	<0.391	<0.412	<0.400
Fluoranthene	0.333		<0.380	<0.391	<0.412	<0.400
Fluorene	0.333		<0.380	<0.391	<0.412	<0.400
Hexachlorobenzene	0.333		<0.380	<0.391	<0.412	<0.400
Hexachlorobutadiene	0.333		<0.380	<0.391	<0.412	<0.400
Hexachlorocyclopentadiene	0.333		<0.380	<0.391	<0.412	<0.400
Hexachloroethane	0.333		<0.380	<0.391	<0.412	<0.400
Indeno(1,2,3-cd)pyrene	0.333		<0.380 J	<0.391	<0.412	<0.400 J
Isophorone	0.333		<0.380	<0.391	<0.412	<0.400
Naphthalene	0.333		<0.380	<0.391	<0.412	<0.400
Nitrobenzene	0.333		<0.380	<0.391	<0.412	<0.400
Pentachlorophenol	1.00		<1.14	<1.17	<1.24	<1.20
Phenanthrene	0.333		<0.380	<0.391	<0.412	<0.400
Phenol	0.333		<0.380	<0.391	<0.412	<0.400
Pyrene	0.333		<0.380	<0.391	<0.412	<0.400 J

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID Sample Date Depth : Notes :	OT3901SA 23-OCT-95 0.0' - 2.0' Background Sample	OT3902SA 23-OCT-95 0.0' - 2.0' Background Sample	OT3903SA 23-OCT-95 0.0' - 2.0'	OT3904SA 23-OCT-95 0.0' - 2.0'
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8270/SW3550 (mg/kg) cont'd.						
bis(2-Chloroethoxy)methane	0.333		<0.380	<0.391	<0.412	<0.400
bis(2-Chloroethyl)ether	0.333		<0.380	<0.391	<0.412	<0.400
bis(2-Chloroisopropyl)ether	0.333		<0.380 JL	<0.391 JL	<0.412 JL	<0.400 JL
bis(2-Ethylhexyl)phthalate	0.333		<0.380	<0.391	<0.412	<0.400 J
n-Nitrosodi-n-propylamine	0.333		<0.380	<0.391	<0.412	<0.400
n-Nitrosodiphenylamine	0.333		<0.380	<0.391	<0.412	<0.400
% Surrogate Recovery (Control Limit)						
sur-2,4,6-Tribromophenol R% (19 - 122)	-		60.9	61.1	68.0	53.0
sur-2-Fluorobiphenyl R% (30 - 115)	-		66.8	63.9	68.9	70.0
sur-2-Fluorophenol R% (25 - 121)	-		56.0	51.0	57.9	55.0
sur-Nitrobenzene-d5 R% (23 - 120)	-		56.1	57.0	61.9	55.0
sur-Phenol-d6 R% (24 - 113)	-		54.0	56.0	62.0	52.0
sur-Terphenyl-d14 R% (18 - 137)	-		112.9	70.1	78.9	93.0

Data Qualification Flags/Notes:
J = Estimated quantitation based upon QC data
JB = Estimated quantitation: possibly biased high or a false positive based upon blank data
JH = Estimated quantitation: possibly biased high based upon QC data
JL = Estimated quantitation: possibly biased low or a false negative based upon QC data
JQ = Estimated quantitation: detected below the Practical Quantitation Limit
R = Datum rejected based upon QC data: do not use.

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID Sample Date Depth Notes	OT3905SA 23-OCT-95 0.0' - 2.0'	OT3906SA 23-OCT-95 0.0' - 2.0'	OT3907SA 23-OCT-95 0.0' - 2.0'	OT3908SA 24-OCT-95 0.0' - 2.0'
SOIL pH - SW9045/NONE (none)						
623-9045 pH units Soil	-		7.72	7.61	7.59	7.90
PERCENT SOLID - D2216/NONE (percent)						
623-D2216 Moisture	-		16.0	23.0	20.0	18.0
METALS, TOTAL BY ICP/SW6010/SW3050 (mg/kg)						
Aluminum	50.0		4300	5140	4060	4580
Antimony	25.0		<22.7	<23.9	<22.6	<22.8
Barium	2.00		118	179	142	152
Beryllium	0.300		<2.73	<2.86	<2.72	<2.73
Cadmium	1.00		<0.909	<0.955	<0.906	<0.910
Calcium	10.0		204000	296000	214000 JQ	269000
Chromium	5.00		32.7	<47.8	10.8 JQ	<45.5
Cobalt	5.00		2.27 JQ	1.15 JQ	1.54 JQ	1.36 JQ
Copper	5.00		19.1	24.8 JQ	9.06	7.28 JQ
Iron	5.00		5410	4550	4210	3750
Magnesium	25.0		1420	1770	1450	1420
Manganese	1.00		340	271	332	271
Molybdenum	5.00		1.91 JQ	1.43 JQ	<4.53	<4.55
Nickel	5.00		242	153	239	243
Potassium	60.0		1010	869	1370 JH	831
Silver	5.00		<4.54	<4.78	<4.53	<4.55
Sodium	25.0		349	180	144	130 JB
Thallium	25.0		<22.7	<23.9	<22.6	<22.8
Vanadium	5.00		9.64	8.40	6.80	4.64
Zinc	1.00		99.0	53.2	91.4	75.5
ARSENIC, TOTAL BY GFAA/SW 7060 (mg/kg)						
Arsenic	0.500		1.61	0.801	169	0.456
LEAD, TOTAL BY GFAA/SW 7421 (mg/kg)						
Lead	0.500		71.9	10.1	44.6	5.92
MERCURY, TOTAL BY CVAA/SW 7471 (mg/kg)						
Mercury	0.185		<0.266	<0.310	<0.244	<0.272
SELENIUM, TOTAL BY GFAA/SW 7740/METHOD (mg/kg)						
Selenium	0.500		<0.454	0.310 JQ	<2.33	0.478 JQ
ORGANOCHLORINE PESTICIDES AND PCBs - SW8080/SW3550 (mg/kg)						
4,4'-DDD	0.00333		<0.00400	<0.00405	<0.00414	<0.00403
4,4'-DDE	0.00133		<0.00160	<0.00162	<0.00166	<0.00161
4,4'-DDT	0.00333		<0.00400	<0.00405	<0.00414	<0.00403
AR1016	0.0333		<0.0400	<0.0405	<0.0414	<0.0403
AR1221	0.0333		<0.0400	<0.0405	<0.0414	<0.0403
AR1232	0.0333		<0.0400	<0.0405	<0.0414	<0.0403
AR1242	0.0333		<0.0400	<0.0405	<0.0414	<0.0403
AR1248	0.0333		<0.0400	<0.0405	<0.0414	<0.0403
AR1254	0.0333		<0.0400	<0.0405	<0.0414	<0.0403

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID Sample Date Depth Notes	OT3905SA 23-OCT-95 0.0' - 2.0'	OT3906SA 23-OCT-95 0.0' - 2.0'	OT3907SA 23-OCT-95 0.0' - 2.0'	OT3908SA 24-OCT-95 0.0' - 2.0'
ORGANOCHLORINE PESTICIDES AND PCBs - SW8080/SW3550 (mg/kg) cont'd.						
AR1260	0.0333		<0.0400	<0.0405	<0.0414	<0.0403
Aldrin	0.00133		<0.00160	<0.00162	<0.00166	<0.00161
Chlordane	0.0166		<0.0200	<0.0202	0.0652	<0.0202
Dieldrin	0.000666		<0.000800	<0.000810	<0.000828	<0.000806
Endosulfan I	0.00166		<0.00200	<0.00202	<0.00207	<0.00202
Endosulfan II	0.00133		<0.00160	<0.00162	<0.00166	<0.00161
Endosulfan sulfate	0.00333		<0.00400	<0.00405	<0.00414	<0.00403
Endrin	0.00200		<0.00240	<0.00243	<0.00248	<0.00242
Endrin aldehyde	0.00333		<0.00400	<0.00405	<0.00414	<0.00403
Heptachlor	0.000999		<0.00120	<0.00122	<0.00124	<0.00121
Heptachlor epoxide	0.00166		<0.00200	<0.00202	<0.00207	<0.00202
Methoxychlor	0.0166		<0.0200	<0.0202	<0.0207	<0.0202
Toxaphene	0.0666		<0.0800	<0.0810	<0.0828	<0.0806
alpha-BHC	0.000999		<0.00120	<0.00122	<0.00124	<0.00121
beta-BHC	0.00166		<0.00200	<0.00202	<0.00207	<0.00202
delta-BHC	0.00166		<0.00200	<0.00202	<0.00207	<0.00202
gamma-BHC (Lindane)	0.00133		<0.00160	<0.00162	<0.00166	<0.00161
% Surrogate Recovery (Control Limit)						
sur-Dibutylchlorendate R% (10 - 181)	-		14.0	26.0	80.9	16.0
sur-TCMX R% (18 - 145)	-		71.3	77.2	-	77.0
CHLORINATED HERBICIDES - SW8150/METHOD (mg/kg)						
2,4,5-T	0.00400		<0.00482	<0.00494	<0.00500	<0.00488
2,4,5-TP (Silvex)	0.00400		<0.00482	<0.00494	<0.00500	<0.00488
2,4-D	0.0400		<0.0482	<0.0494	<0.0500	<0.0488
2,4-DB	0.0600		<0.0723	<0.0741	<0.0750	<0.0732
Dalapon	0.140		<0.169 J	<0.173 J	<0.175	<0.171
Dicamba	0.00400		<0.00482 JL	<0.00494 JL	<0.00500 JL	<0.00488
Dichloroprop	0.0400		<0.0482	<0.0494	<0.0500	<0.0488 J
Dinoseb	0.0140		<0.0169	<0.0173	<0.0175	<0.0171
MCPA	3.00		<3.62	<3.70	<3.75	<3.66
MCPP	3.00		4.05	<3.70	<3.75	<3.66
% Surrogate Recovery (Control Limit)						
sur-DCAA R% (0 - 191)	-		49.0	51.0	44.8	40.0
VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8240/NONE (mg/kg)						
1,1,1-Trichloroethane	0.00500		<0.00596	<0.00606	<0.00624	<0.00606
1,1,2,2-Tetrachloroethane	0.00500		<0.00596	<0.00606	<0.00624	<0.00606
1,1,2-Trichloroethane	0.00500		<0.00596	<0.00606	<0.00624	<0.00606
1,1-Dichloroethane	0.00500		<0.00596	<0.00606	<0.00624	<0.00606
1,1-Dichloroethene	0.00500		<0.00596	<0.00606	<0.00624	<0.00606
1,2-Dichloroethane	0.00500		<0.00596	<0.00606	<0.00624	<0.00606
1,2-Dichloropropane	0.00500		<0.00596	<0.00606	<0.00624	<0.00606
2-Butanone (MEK)	0.0100		<0.0119 J	<0.0121	<0.0125	<0.0121
2-Chloroethyl vinyl ether	0.0100		<0.0119	<0.0121 R	<0.0125 J	<0.0121
2-Hexanone	0.0100		<0.0119	<0.0121 J	<0.0125	<0.0121 J
4-Methyl-2-pentanone	0.0100		<0.0119	<0.0121	<0.0125	<0.0121

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID Sample Date Depth Notes	OT3905SA 23-OCT-95 0.0' - 2.0'	OT3906SA 23-OCT-95 0.0' - 2.0'	OT3907SA 23-OCT-95 0.0' - 2.0'	OT3908SA 24-OCT-95 0.0' - 2.0'
VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8240/NONE (mg/kg) cont'd.						
Acetone	0.0100		<0.0119 J	<0.0121 J	<0.0125	<0.0121
Benzene	0.00500		<0.00596	<0.00606	<0.00624	<0.00606
Bromodichloromethane	0.00500		<0.00596	<0.00606	<0.00624	<0.00606
Bromoform	0.00500		<0.00596	<0.00606	<0.00624	<0.00606
Bromomethane	0.0100		<0.0119	<0.0121	<0.0125	<0.0121
Carbon disulfide	0.00500		<0.00596	<0.00606	<0.00624	0.000610 JQ
Carbon tetrachloride	0.00500		<0.00596	<0.00606	<0.00624	<0.00606
Chlorobenzene	0.00500		<0.00596	<0.00606	<0.00624	<0.00606
Chloroethane	0.0100		<0.0119 J	<0.0121 J	<0.0125 J	<0.0121
Chloroform	0.00500		<0.00596	<0.00606	<0.00624	<0.00606
Chloromethane	0.0100		<0.0119	<0.0121	<0.0125	<0.0121
Dibromochloromethane	0.00500		<0.00596	<0.00606	<0.00624	<0.00606
Ethylbenzene	0.00500		<0.00596	<0.00606	<0.00624	<0.00606
Methylene chloride	0.00500		<0.00596	0.00410	<0.00624	<0.00606
Styrene	0.00500		<0.00596	<0.00606	<0.00624	<0.00606
Tetrachloroethene	0.00500		<0.00596	<0.00606	<0.00624	<0.00606
Toluene	0.00500		0.0165	0.000727	<0.00624	0.00501 JQ
Trichloroethene	0.00500		<0.00596	<0.00606	<0.00624	<0.00606
Vinyl acetate	0.0100		<0.0119	<0.0121	<0.0125	<0.0121 J
Vinyl chloride	0.0100		<0.0119	<0.0121	<0.0125	<0.0121
Xylenes (total)	0.00500		<0.00596	<0.00606	<0.00624	<0.00606
cis-1,2-Dichloroethene	0.00500		<0.00596	<0.00606	<0.00624	<0.00606
cis-1,3-Dichloropropene	0.00500		<0.00596	<0.00606	<0.00624	<0.00606
trans-1,2-Dichloroethene	0.00500		<0.00596	<0.00606	<0.00624	<0.00606
trans-1,3-Dichloropropene	0.00500		<0.00596	<0.00606	<0.00624	<0.00606
% Surrogate Recovery (Control Limit)						
sur-1,2-Dichloroethane-d4 R% (70 - 121)	-		106.1	106.9	107.1	110.1
sur-Bromofluorobenzene R% (74 - 121)	-		97.1	89.9	95.0	93.1
sur-Toluene-d8 R% (81 - 117)	-		95.1	100.0	103.0	102.0
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8270/SW3550 (mg/kg)						
1,2,4-Trichlorobenzene	0.333		<0.393	<0.431	<0.413	<0.406
1,2-Dichlorobenzene	0.333		<0.393	<0.431	<0.413	<0.406
1,3-Dichlorobenzene	0.333		<0.393	<0.431	<0.413	<0.406
1,4-Dichlorobenzene	0.333		<0.393	<0.431	<0.413	<0.406
2,4,5-Trichlorophenol	0.667		<0.786	<0.863	<0.826	<0.812
2,4,6-Trichlorophenol	0.333		<0.393	<0.431	<0.413	<0.406
2,4-Dichlorophenol	0.333		<0.393	<0.431	<0.413	<0.406
2,4-Dimethylphenol	0.333		<0.393	<0.431	<0.413	<0.406
2,4-Dinitrophenol	1.67		<1.96	<2.16 J	<2.06 J	<2.03 J
2,4-Dinitrotoluene	0.333		<0.393	<0.431	<0.413	<0.406
2,6-Dinitrotoluene	0.333		<0.393	<0.431	<0.413	<0.406
2-Chloronaphthalene	0.333		<0.393	<0.431	<0.413	<0.406
2-Chlorophenol	0.333		<0.393	<0.431	<0.413	<0.406
2-Methylnaphthalene	0.333		<0.393	<0.431	<0.413	<0.406
2-Methylphenol	0.333		<0.393	<0.431	<0.413	<0.406
2-Nitroaniline	1.67		<1.96	<2.16	<2.06	<2.03
2-Nitrophenol	0.333		<0.393	<0.431	<0.413	<0.406

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID Sample Date Depth Notes	OT3905SA 23-OCT-95 0.0' - 2.0'	OT3906SA 23-OCT-95 0.0' - 2.0'	OT3907SA 23-OCT-95 0.0' - 2.0'	OT3908SA 24-OCT-95 0.0' - 2.0'
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8270/SW3550 (mg/kg) cont'd.						
3,3'-Dichlorobenzidine	0.667		<0.786	<0.863	<0.826 J	<0.812 J
3-Nitroaniline	1.67		<1.96	<2.16	<2.06	<2.03
4,6-Dinitro-2-methylphenol	1.67		<1.96	<2.16	<2.06 J	<2.03
4-Bromophenyl phenyl ether	0.333		<0.393	<0.431	<0.413	<0.406
4-Chloro-3-methylphenol	0.333		<0.393	<0.431	<0.413	<0.406
4-Chloroaniline	0.667		<0.786 J	<0.863 J	<0.826	<0.812
4-Chlorophenyl phenyl ether	0.333		<0.393	<0.431	<0.413	<0.406
4-Methylphenol	0.333		<0.393	<0.431	<0.413	<0.406
4-Nitroaniline	1.67		<1.96	<2.16	<2.06	<2.03
4-Nitrophenol	1.67		<1.96	<2.16	<2.06	<2.03
Acenaphthene	0.333		0.164 JQ	<0.431	0.0259 JQ	<0.406
Acenaphthylene	0.333		<0.393	<0.431	<0.413	<0.406
Anthracene	0.333		0.572	<0.431	0.0834 JQ	<0.406
Benz(a)anthracene	0.333		3.98	<0.431	0.516	<0.406
Benzo(a)pyrene	0.333		4.58	<0.431	0.667	<0.406
Benzo(b)fluoranthene	0.333		6.11	<0.431	0.668	<0.406
Benzo(g,h,i)perylene	0.333		3.48	<0.431	0.414	<0.406
Benzo(k)fluoranthene	0.333		2.11	<0.431	0.513	<0.406
Benzoic acid	1.67		<1.96	<2.16	<2.06	<2.03
Benzyl alcohol	0.667		<0.786	<0.863	<0.826	<0.812
Butyl benzyl phthalate	0.333		<0.393	<0.431	<0.413	<0.406
Chrysene	0.333		3.51	<0.431	0.666	<0.406
Di-n-butylphthalate	0.333		0.0688 JQ	<0.431	<0.413	<0.406
Di-n-octylphthalate	0.333		<0.393	<0.431	<0.413	<0.406
Dibenz(a,h)anthracene	0.333		0.931	<0.431	0.0541 JQ	<0.406
Dibenzofuran	0.333		<0.393	<0.431	<0.413	<0.406
Diethylphthalate	0.333		<0.393	<0.431	<0.413	<0.406
Dimethylphthalate	0.333		<0.393	<0.431	<0.413	<0.406
Fluoranthene	0.333		4.83	<0.431	0.772	<0.406
Fluorene	0.333		0.117 JQ	<0.431	<0.413	<0.406
Hexachlorobenzene	0.333		<0.393	<0.431	<0.413	<0.406
Hexachlorobutadiene	0.333		<0.393	<0.431	<0.413	<0.406
Hexachlorocyclopentadiene	0.333		<0.393	<0.431	<0.413 J	<0.406
Hexachloroethane	0.333		<0.393	<0.431	<0.413	<0.406
Indeno(1,2,3-cd)pyrene	0.333		3.01	<0.431	0.362 JQ	<0.406
Isophorone	0.333		<0.393	<0.431	<0.413	<0.406
Naphthalene	0.333		<0.393	<0.431	<0.413	<0.406
Nitrobenzene	0.333		<0.393	<0.431	<0.413	<0.406
Pentachlorophenol	1.00		<1.18	<1.29	<1.24	<1.22
Phenanthrene	0.333		2.26	<0.431	0.276 JQ	<0.406
Phenol	0.333		<0.393	<0.431	<0.413	<0.406
Pyrene	0.333		6.29	<0.431	0.801	<0.406

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID Sample Date Depth Notes	OT3905SA 23-OCT-95 0.0' - 2.0'	OT3906SA 23-OCT-95 0.0' - 2.0'	OT3907SA 23-OCT-95 0.0' - 2.0'	OT3908SA 24-OCT-95 0.0' - 2.0'
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8270/SW3550 (mg/kg) cont'd.						
bis(2-Chloroethoxy)methane	0.333		<0.393	<0.431	<0.413	<0.406
bis(2-Chloroethyl)ether	0.333		<0.393	<0.431	<0.413	<0.406
bis(2-Chloroisopropyl)ether	0.333		<0.393 JL	<0.431 JL	<0.413 JL	<0.406
bis(2-Ethylhexyl)phthalate	0.333		2.35	<0.431	<0.413	<0.406
n-Nitrosodi-n-propylamine	0.333		<0.393	<0.431	<0.413	<0.406
n-Nitrosodiphenylamine	0.333		<0.393	<0.431	<0.413	<0.406
% Surrogate Recovery (Control Limit)						
sur-2,4,6-Tribromophenol R% (19 - 122)	-		88.1	56.0	57.0	66.0
sur-2-Fluorobiphenyl R% (30 - 115)	-		64.9	63.1	74.1	81.0
sur-2-Fluorophenol R% (25 - 121)	-		50.1	40.0	63.0	61.1
sur-Nitrobenzene-d5 R% (23 - 120)	-		49.1	42.9	55.9	65.0
sur-Phenol-d6 R% (24 - 113)	-		50.1	43.0	52.0	56.0
sur-Terphenyl-d14 R% (18 - 137)	-		93.9	57.1	85.0	73.9

Data Qualification Flags/Notes:
J = Estimated quantation based upon QC data
JB = Estimated quantitation: possibly biased high or a false positive based upon blank data
JH = Estimated quantitation: possibly biased high based upon QC data
JL = Estimated quantitation: possibly biased low or a false negative based upon QC data
JQ = Estimated quantitation: detected below the Practical Quantitation Limit
R = Datum rejected based upon QC data: do not use

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID Sample Date Depth Notes	OT3909SA 24-OCT-95 0.0' - 2.0'	OT3910SA 23-OCT-95 0.0' - 2.0'	OT3911SA 23-OCT-95 0.0' - 2.0'	FDUP-06 23-OCT-95 0.0' - 2.0' Duplicate of OT3911SA
SOIL pH - SW9045/NONE (pH)						
623-9045 pH units Soil	-		7.67	7.77	7.66	7.69
PERCENT SOLID - D2216 /NONE (percent)						
623-D2216 Moisture	-		17.0	16.0	21.0	18.0
METALS, TOTAL BY ICP/SW6010/SW3050 (mg/kg)						
Aluminum	50.0		5260	3880	7000	6890
Antimony	25.0		2.25 JQ	<22.4	<24.0	<22.6
Barium	2.00		150	166	183	177
Beryllium	0.300		<2.60	<2.68	<2.88 J	1.81 JQ
Cadmium	1.00		<0.867	<0.895	<0.959	<0.903
Calcium	10.0		220000	281000	177000	176000
Chromium	5.00		21.7 JQ	<44.8	19.2 JQ	<45.2 J
Cobalt	5.00		2.17 JQ	2.42 JQ	3.16 JQ	2.89 JQ
Copper	5.00		4.34 JQ	4.48 JQ	9.59 JQ	9.03 JQ
Iron	5.00		5470	4580	6830	6710
Magnesium	25.0		1860	2080	2260	2200
Manganese	1.00		379	447	493	477
Molybdenum	5.00		<4.34	1.52 JQ	2.30 JQ	2.17 JQ
Nickel	5.00		231	238	257	241
Potassium	60.0		995	792	1930	1880
Silver	5.00		<4.34	<4.48	<4.80	<4.52
Sodium	25.0		109 JB	454	400	403
Thallium	25.0		<21.7	<22.4	<24.0	<22.6
Vanadium	5.00		8.41	7.70	9.11	9.12
Zinc	1.00		93.0	76.0	112	122
ARSENIC, TOTAL BY GFAA/SW 7060 (mg/kg)						
Arsenic	0.500		2.11	1.87	2.05	1.82
LEAD, TOTAL BY GFAA/SW 7421 (mg/kg)						
Lead	0.500		25.6	6.59	20.2	17.5
MERCURY, TOTAL BY CVAA/SW 7471 (mg/kg)						
Mercury	0.185		<0.279	<0.275	<0.289	<0.288
SELENIUM, TOTAL BY GFAA/SW 7740/METHOD (mg/kg)						
Selenium	0.500		0.562 JQ	0.488 JQ	<0.469	<0.462
ORGANOCHLORINE PESTICIDES AND PCBs - SW8080/SW3550 (mg/kg)						
4,4'-DDD	0.00333		<0.00397	<0.00405	<0.00413	0.00167 JQ
4,4'-DDE	0.00133		0.00792	<0.00162	<0.00165	<0.00161
4,4'-DDT	0.00333		<0.00397	<0.00405	<0.00413	<0.00403
AR1016	0.0333		<0.0397	<0.0405	<0.0413	<0.0403
AR1221	0.0333		<0.0397	<0.0405	<0.0413	<0.0403
AR1232	0.0333		<0.0397	<0.0405	<0.0413	<0.0403
AR1242	0.0333		<0.0397	<0.0405	<0.0413	<0.0403
AR1248	0.0333		<0.0397	<0.0405	<0.0413	<0.0403
AR1254	0.0333		0.161	<0.0405	<0.0413	<0.0403

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID Sample Date Depth Notes	OT3909SA 24-OCT-95 0.0' - 2.0'	OT3910SA 23-OCT-95 0.0' - 2.0'	OT3911SA 23-OCT-95 0.0' - 2.0'	FDUP-06 23-OCT-95 0.0' - 2.0' Duplicate of OT3911SA
ORGANOCHLORINE PESTICIDES AND PCBs - SW8080/SW3550 (mg/kg) cont'd.						
AR1260	0.0333		<0.0397	<0.0405	<0.0413	<0.0403
Aldrin	0.00133		<0.00159	<0.00162	<0.00165	<0.00161
Chlordane	0.0166		<0.0198 R	<0.0202	<0.0206	<0.0202
Dieldrin	0.000666		<0.000794	0.000827	<0.000826	<0.000806
Endosulfan I	0.00166		<0.00198	<0.00202	<0.00206	<0.00202
Endosulfan II	0.00133		<0.00159	<0.00162	<0.00165	<0.00161
Endosulfan sulfate	0.00333		<0.00397	<0.00405	<0.00413	<0.00403
Endrin	0.00200		<0.00238	<0.00243	<0.00248	<0.00242
Endrin aldehyde	0.00333		<0.00397	<0.00405	<0.00413	<0.00403
Heptachlor	0.000999		<0.00119	<0.00122	<0.00124	<0.00121
Heptachlor epoxide	0.00166		<0.00198	<0.00202	<0.00206	<0.00202
Methoxychlor	0.0166		<0.0198	<0.0202	<0.0206	<0.0202
Toxaphene	0.0666		<0.0794	<0.0810	<0.0826	<0.0806
alpha-BHC	0.000999		<0.00119	<0.00122	<0.00124	<0.00121
beta-BHC	0.00166		<0.00198	<0.00202	<0.00206	<0.00202
delta-BHC	0.00166		<0.00198	<0.00202	<0.00206	<0.00202
gamma-BHC (Lindane)	0.00133		<0.00159	<0.00162	<0.00165	<0.00161
% Surrogate Recovery (Control Limit)						
sur-Dibutylchlorendate R% (10 - 181)	-		15.0	1.0	5.0	5.0
sur-TCMX R% (18 - 145)	-		73.0	71.0	54.0	54.1
CHLORINATED HERBICIDES - SW8150/METHOD (mg/kg)						
2,4,5-T	0.00400		<0.00482	<0.00486	<0.00496	<0.00488
2,4,5-TP (Silvex)	0.00400		<0.00482	<0.00486	0.00551	<0.00488
2,4-D	0.0400		<0.0482	<0.0486	<0.0496	<0.0488
2,4-DB	0.0600		<0.0723	<0.0729	<0.0744	<0.0732
Dalapon	0.140		<0.169	<0.170 J	<0.174 J	<0.171 J
Dicamba	0.00400		<0.00482	<0.00486 JL	<0.00496 JL	<0.00488 JL
Dichloroprop	0.0400		<0.0482 J	<0.0486	<0.0496	<0.0488
Dinoseb	0.0140		<0.0169	<0.0170	<0.0174	<0.0171
MCPA	3.00		<3.62	<3.64	<3.72	<3.66
MCPP	3.00		<3.62	<3.64	<3.72	<3.66
% Surrogate Recovery (Control Limit)						
sur-DCAA R% (0 - 191)	-		44.8	46.1	48.0	43.0
VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8240/NONE (mg/kg)						
1,1,1-Trichloroethane	0.00500		<0.00617	<0.00602	<0.00614	<0.00610
1,1,2,2-Tetrachloroethane	0.00500		<0.00617	<0.00602	<0.00614	<0.00610
1,1,2-Trichloroethane	0.00500		<0.00617	<0.00602	<0.00614	<0.00610
1,1-Dichloroethane	0.00500		<0.00617	<0.00602	<0.00614	<0.00610
1,1-Dichloroethene	0.00500		<0.00617	<0.00602	<0.00614	<0.00610
1,2-Dichloroethane	0.00500		<0.00617	<0.00602	<0.00614	<0.00610
1,2-Dichloropropane	0.00500		<0.00617	<0.00602	<0.00614	<0.00610
2-Butanone (MEK)	0.0100		<0.0123	<0.0120 J	<0.0123 J	<0.0122 J
2-Chloroethyl vinyl ether	0.0100		<0.0123	<0.0120	<0.0123	<0.0122
2-Hexanone	0.0100		<0.0123 J	<0.0120	<0.0123	<0.0122
4-Methyl-2-pentanone	0.0100		<0.0123	<0.0120	<0.0123	<0.0122

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID Sample Date Depth Notes	OT3909SA 24-OCT-95 0.0' - 2.0'	OT3910SA 23-OCT-95 0.0' - 2.0'	OT3911SA 23-OCT-95 0.0' - 2.0'	FDUP-06 23-OCT-95 0.0' - 2.0' Duplicate of OT3911SA
VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8240/NONE (mg/kg) cont'd.						
Acetone	0.0100		<0.0123	<0.0120 J	<0.0123 J	<0.0122 J
Benzene	0.00500		<0.00617	<0.00602	<0.00614	<0.00610
Bromodichloromethane	0.00500		<0.00617	<0.00602	<0.00614	<0.00610
Bromoform	0.00500		<0.00617	<0.00602	<0.00614	<0.00610
Bromomethane	0.0100		<0.0123	<0.0120	<0.0123	<0.0122
Carbon disulfide	0.00500		<0.00617	<0.00602	<0.00614	<0.00610
Carbon tetrachloride	0.00500		<0.00617	<0.00602	<0.00614	<0.00610
Chlorobenzene	0.00500		<0.00617	<0.00602	<0.00614	<0.00610
Chloroethane	0.0100		<0.0123	<0.0120 J	<0.0123 J	<0.0122 J
Chloroform	0.00500		<0.00617	<0.00602	<0.00614	<0.00610
Chloromethane	0.0100		<0.0123	<0.0120	<0.0123	<0.0122
Dibromochloromethane	0.00500		<0.00617	<0.00602	<0.00614	<0.00610
Ethylbenzene	0.00500		<0.00617	<0.00602	<0.00614	<0.00610
Methylene chloride	0.00500		<0.00617	<0.00602	<0.00614	<0.00610
Styrene	0.00500		<0.00617	<0.00602	<0.00614	<0.00610
Tetrachloroethene	0.00500		<0.00617	<0.00602	<0.00614	<0.00610
Toluene	0.00500		0.00546 JQ	0.00570 JQ	0.0112	0.00631
Trichloroethene	0.00500		<0.00617	<0.00602	<0.00614	<0.00610
Vinyl acetate	0.0100		<0.0123 J	<0.0120	<0.0123	<0.0122
Vinyl chloride	0.0100		<0.0123	<0.0120	<0.0123	<0.0122
Xylenes (total)	0.00500		<0.00617	<0.00602	<0.00614	<0.00610
cis-1,2-Dichloroethene	0.00500		<0.00617	<0.00602	<0.00614	<0.00610
cis-1,3-Dichloropropene	0.00500		<0.00617	<0.00602	<0.00614	<0.00610
trans-1,2-Dichloroethene	0.00500		<0.00617	<0.00602	<0.00614	<0.00610
trans-1,3-Dichloropropene	0.00500		<0.00617	<0.00602	<0.00614	<0.00610
% Surrogate Recovery (Control Limit)						
sur-1,2-Dichloroethane-d4 R% (70 - 121)	-		110.0	104.0	108.0	104.1
sur-Bromofluorobenzene R% (74 - 121)	-		90.0	82.1	89.9	86.0
sur-Toluene-d8 R% (81 - 117)	-		98.1	95.0	94.0	96.1
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8270/SW3550 (mg/kg)						
1,2,4-Trichlorobenzene	0.333		<0.397	<0.392	<0.419	<0.406
1,2-Dichlorobenzene	0.333		<0.397	<0.392	<0.419	<0.406
1,3-Dichlorobenzene	0.333		<0.397	<0.392	<0.419	<0.406
1,4-Dichlorobenzene	0.333		<0.397	<0.392	<0.419	<0.406
2,4,5-Trichlorophenol	0.667		<0.794	<0.783	<0.839	<0.812
2,4,6-Trichlorophenol	0.333		<0.397	<0.392	<0.419	<0.406
2,4-Dichlorophenol	0.333		<0.397	<0.392	<0.419	<0.406
2,4-Dimethylphenol	0.333		<0.397	<0.392	<0.419	<0.406
2,4-Dinitrophenol	1.67		<1.98 J	<1.96	<2.10	<2.03
2,4-Dinitrotoluene	0.333		<0.397	<0.392	<0.419	<0.406
2,6-Dinitrotoluene	0.333		<0.397	<0.392	<0.419	<0.406
2-Chloronaphthalene	0.333		<0.397	<0.392	<0.419	<0.406
2-Chlorophenol	0.333		<0.397	<0.392	<0.419	<0.406
2-Methylnaphthalene	0.333		<0.397	<0.392	<0.419	0.159 JQ
2-Methylphenol	0.333		<0.397	<0.392	<0.419	<0.406
2-Nitroaniline	1.67		<1.98	<1.96	<2.10	<2.03
2-Nitrophenol	0.333		<0.397	<0.392	<0.419	<0.406

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID Sample Date Depth Notes	OT3909SA 24-OCT-95 0.0' - 2.0'	OT3910SA 23-OCT-95 0.0' - 2.0'	OT3911SA 23-OCT-95 0.0' - 2.0'	FDUP-06 23-OCT-95 0.0' - 2.0' Duplicate of OT3911SA
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8270/SW3550 (mg/kg) cont'd.						
3,3'-Dichlorobenzidine	0.667		<0.794 J	<0.783	<0.839	<0.812
3-Nitroaniline	1.67		<1.98	<1.96	<2.10	<2.03
4,6-Dinitro-2-methylphenol	1.67		<1.98	<1.96	<2.10	<2.03
4-Bromophenyl phenyl ether	0.333		<0.397	<0.392	<0.419	<0.406
4-Chloro-3-methylphenol	0.333		<0.397	<0.392	<0.419	<0.406
4-Chloroaniline	0.667		<0.794	<0.783 J	<0.839 J	<0.812 J
4-Chlorophenyl phenyl ether	0.333		<0.397	<0.392	<0.419	<0.406
4-Methylphenol	0.333		<0.397	<0.392	<0.419	<0.406
4-Nitroaniline	1.67		<1.98	<1.96	<2.10	<2.03
4-Nitrophenol	1.67		<1.98	<1.96	<2.10	<2.03
Acenaphthene	0.333		<0.397	<0.392	<0.419	0.0343 JQ
Acenaphthylene	0.333		<0.397	<0.392	<0.419	<0.406
Anthracene	0.333		<0.397	<0.392	<0.419	<0.406
Benz(a)anthracene	0.333		0.244 JQ	<0.392	<0.419	<0.406
Benzo(a)pyrene	0.333		0.242 JQ	<0.392	<0.419	<0.406
Benzo(b)fluoranthene	0.333		0.488	<0.392	<0.419	<0.406
Benzo(g,h,i)perylene	0.333		0.142 JQ	<0.392	<0.419	<0.406
Benzo(k)fluoranthene	0.333		<0.397	<0.392	<0.419	<0.406
Benzoic acid	1.67		<1.98	<1.96	<2.10	<2.03
Benzyl alcohol	0.667		<0.794	<0.783	<0.839	<0.812
Butyl benzyl phthalate	0.333		<0.397	<0.392	<0.419	<0.406
Chrysene	0.333		0.344 JQ	<0.392	<0.419	<0.406
Di-n-butylphthalate	0.333		<0.397	<0.392	<0.419	<0.406
Di-n-octylphthalate	0.333		<0.397	<0.392	<0.419	<0.406
Dibenz(a,h)anthracene	0.333		0.0381 JQ	<0.392	<0.419	<0.406
Dibenzofuran	0.333		<0.397	<0.392	<0.419	<0.406
Diethylphthalate	0.333		<0.397	<0.392	<0.419	<0.406
Dimethylphthalate	0.333		<0.397	<0.392	<0.419	<0.406
Fluoranthene	0.333		0.243 JQ	<0.392	<0.419	<0.406
Fluorene	0.333		<0.397	<0.392	<0.419	0.0430 JQ
Hexachlorobenzene	0.333		<0.397	<0.392	<0.419	0.0723 JQ
Hexachlorobutadiene	0.333		<0.397	<0.392	<0.419	<0.406
Hexachlorocyclopentadiene	0.333		<0.397	<0.392	<0.419	<0.406
Hexachloroethane	0.333		<0.397	<0.392	<0.419	<0.406
Indeno(1,2,3-cd)pyrene	0.333		0.113 JQ	<0.392	<0.419	<0.406
Isophorone	0.333		<0.397	<0.392	<0.419	<0.406
Naphthalene	0.333		0.0153 JQ	<0.392	<0.419	<0.406
Nitrobenzene	0.333		<0.397	<0.392	<0.419	0.0238 JQ
Pentachlorophenol	1.00		<1.19	<1.18	<1.26	<1.22
Phenanthrene	0.333		0.0405 JQ	<0.392	<0.419	0.259 JQ
Phenol	0.333		<0.397	<0.392	<0.419	<0.406
Pyrene	0.333		0.293 JQ	<0.392	<0.419	0.0731 JQ

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID Sample Date Depth Notes	OT3909SA 24-OCT-95 0.0' - 2.0'	OT3910SA 23-OCT-95 0.0' - 2.0'	OT3911SA 23-OCT-95 0.0' - 2.0'	FDUP-06 23-OCT-95 0.0' - 2.0' Duplicate of OT3911SA
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8270/SW3550 (mg/kg) cont'd.						
bis(2-Chloroethoxy)methane	0.333		<0.397	<0.392	<0.419	<0.406
bis(2-Chloroethyl)ether	0.333		<0.397	<0.392	<0.419	<0.406
bis(2-Chloroisopropyl)ether	0.333		<0.397	<0.392 JL	<0.419 JL	<0.406 JL
bis(2-Ethylhexyl)phthalate	0.333		<0.397	<0.392	<0.419	<0.406
n-Nitrosodi-n-propylamine	0.333		<0.397	<0.392	<0.419	<0.406
n-Nitrosodiphenylamine	0.333		<0.397	<0.392	<0.419	<0.406
% Surrogate Recovery (Control Limit)						
sur-2,4,6-Tribromophenol R% (19 - 122)	-		68.1	67.0	80.0	72.1
sur-2-Fluorobiphenyl R% (30 - 115)	-		68.0	65.8	50.1	70.0
sur-2-Fluorophenol R% (25 - 121)	-		53.9	53.9	59.0	57.0
sur-Nitrobenzene-d5 R% (23 - 120)	-		58.9	64.0	63.0	65.0
sur-Phenol-d6 R% (24 - 113)	-		52.9	57.0	63.0	60.1
sur-Terphenyl-d14 R% (18 - 137)	-		83.9	75.0	72.1	65.0

Data Qualification Flags/Notes:
J = Estimated quantation based upon QC data
JB = Estimated quantitation: possibly biased high or a false positive based upon blank data
JH = Estimated quantitation: possibly biased high based upon QC data
JL = Estimated quantitation: possibly biased low or a false negative based upon QC data
JQ = Estimated quantitation: detected below the Practical Quantitation Limit
R = Datum rejected based upon QC data: do not use.

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID Sample Date Depth Notes	OT3912SA 24-OCT-95 0.0' - 2.0'	OT3913SA 23-OCT-95 0.0' - 2.0'	OT3914SA 24-OCT-95 0.0' - 2.0'	OT3915SA 24-OCT-95 0.0' - 2.0'
SOIL pH - SW9045/NONE (pose)						
623-9045 pH units Soil	-		7.31	7.70	7.65	7.70
PERCENT SOLID - D2216/NONE (percent)						
623-D2216 Moisture	-		19.0	18.0	19.0	17.0
METALS, TOTAL BY ICP/SW6010/SW3050 (mg/kg)						
Aluminum	50.0		4620	5790	6280	5950
Antimony	25.0		<20.7	<22.1 JL	2.97 JQ	<22.3
Barium	2.00		172	182	167	161
Beryllium	0.300		<2.49	<2.65	<2.78	<2.68
Cadmium	1.00		<0.829	<0.884 JL	<0.928	<0.892
Calcium	10.0		219000	232000	196000	197000
Chromium	5.00		9.95 JQ	<44.2	<46.4	8.03 JQ
Cobalt	5.00		2.57 JQ	2.03 JQ	2.51 JQ	1.78 JQ
Copper	5.00		7.46 JQ	8.84 JQ	12.1 JQ	8.03 JQ
Iron	5.00		4090	4390	5300	5160
Magnesium	25.0		1930	2100	2000	1830
Manganese	1.00		418	406	332	302
Molybdenum	5.00		<4.14	1.86 JL	<4.64	<4.46
Nickel	5.00		222	236	249	240
Potassium	60.0		977	1120	1390	991
Silver	5.00		<4.14	<4.42	<4.64	<4.46
Sodium	25.0		162 JB	342	146 JB	134 JB
Thallium	25.0		<20.7	<22.1	<23.2	<22.3
Vanadium	5.00		6.38	5.83	6.96	6.78
Zinc	1.00		73.6	75.1	81.1	75.4
ARSENIC, TOTAL BY GFAA/SW 7060 (mg/kg)						
Arsenic	0.500		<0.460	0.926	0.989	0.760 JH
LEAD, TOTAL BY GFAA/SW 7421 (mg/kg)						
Lead	0.500		10.1	6.66	8.48	9.19
MERCURY, TOTAL BY CVAA/SW 7471 (mg/kg)						
Mercury	0.185		<0.302	<0.288	<0.271	<0.278
SELENIUM, TOTAL BY GFAA/SW 7740/METHOD (mg/kg)						
Selenium	0.500		0.599 JQ	<0.452 JL	0.617 JL	0.422 JQ
ORGANOCHLORINE PESTICIDES AND PCBs - SW8080/SW3550 (mg/kg)						
4,4'-DDD	0.00333		<0.00407	<0.00427	<0.00408	<0.00402
4,4'-DDE	0.00133		0.00128 JQ	<0.00171	0.000749 JQ	0.00104 JQ
4,4'-DDT	0.00333		<0.00407	<0.00427	<0.00408	<0.00402
AR1016	0.0333		<0.0407	<0.0427	<0.0408	<0.0402
AR1221	0.0333		<0.0407	<0.0427	<0.0408	<0.0402
AR1232	0.0333		<0.0407	<0.0427	<0.0408	<0.0402
AR1242	0.0333		<0.0407	<0.0427	<0.0408	<0.0402
AR1248	0.0333		<0.0407	<0.0427	<0.0408	<0.0402
AR1254	0.0333		<0.0407	<0.0427	<0.0408	<0.0402

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID Sample Date Depth Notes	OT3912SA 24-OCT-95 0.0' - 2.0'	OT3913SA 23-OCT-95 0.0' - 2.0'	OT3914SA 24-OCT-95 0.0' - 2.0'	OT3915SA 24-OCT-95 0.0' - 2.0'
ORGANOCHLORINE PESTICIDES AND PCBs - SW8080/SW3550 (mg/kg) cont'd.						
AR1260	0.0333		<0.0407	<0.0427	<0.0408	<0.0402
Aldrin	0.00133		<0.00163	<0.00171	<0.00163	<0.00161
Chlordane	0.0166		0.0127 JQ	<0.0214	<0.0204	<0.0201
Dieldrin	0.000666		<0.000814	<0.000854	<0.000816	<0.000804
Endosulfan I	0.00166		<0.00204	<0.00214	<0.00204	<0.00201
Endosulfan II	0.00133		<0.00163	<0.00171	<0.00163	<0.00161
Endosulfan sulfate	0.00333		<0.00407	<0.00427	<0.00408	<0.00402
Endrin	0.00200		<0.00244	<0.00256	<0.00245	<0.00241
Endrin aldehyde	0.00333		<0.00407	<0.00427	<0.00408	<0.00402
Heptachlor	0.000999		<0.00122	<0.00128	<0.00122	<0.00121
Heptachlor epoxide	0.00166		<0.00204	<0.00214	<0.00204	<0.00201
Methoxychlor	0.0166		<0.0204	<0.0214	<0.0204	<0.0201
Toxaphene	0.0666		<0.0814	<0.0854	<0.0816	<0.0804
alpha-BHC	0.000999		<0.00122	<0.00128	<0.00122	<0.00121
beta-BHC	0.00166		<0.00204	<0.00214	<0.00204	<0.00201
delta-BHC	0.00166		<0.00204	<0.00214	<0.00204	<0.00201
gamma-BHC (Lindane)	0.00133		<0.00163	<0.00171	<0.00163	<0.00161
% Surrogate Recovery (Control Limit)						
sur-Dibutylchlorendate R% (10 - 181)	-		57.0	6.0	52.0	13.0
sur-TCMX R% (18 - 145)	-		-	74.9	-	82.0
CHLORINATED HERBICIDES - SW8150/METHOD (mg/kg)						
2,4,5-T	0.00400		<0.00492	<0.00508	<0.00490	<0.00478
2,4,5-TP (Silvex)	0.00400		<0.00492	<0.00508	<0.00490	<0.00478
2,4-D	0.0400		<0.0492	<0.0508	<0.0490	<0.0478
2,4-DB	0.0600		<0.0738	<0.0762	<0.0735	<0.0717
Dalapon	0.140		<0.172	<0.178 J	<0.172	<0.167
Dicamba	0.00400		<0.00492	<0.00508 JL	<0.00490	<0.00478
Dichloroprop	0.0400		<0.0492	<0.0508	<0.0490	<0.0478 J
Dinoseb	0.0140		<0.0172	<0.0178	<0.0172	<0.0167
MCPA	3.00		<3.69	<3.81	<3.68	<3.58
MCPP	3.00		<3.69	<3.81	<3.68	<3.58
% Surrogate Recovery (Control Limit)						
sur-DCAA R% (0 - 191)	-		40.1	42.1	42.0	40.0
VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8240/NONE (mg/kg)						
1,1,1-Trichloroethane	0.00500		<0.00604	<0.00621	<0.00616	<0.00601
1,1,2,2-Tetrachloroethane	0.00500		<0.00604	<0.00621	<0.00616	<0.00601
1,1,2-Trichloroethane	0.00500		<0.00604	<0.00621	<0.00616	<0.00601
1,1-Dichloroethane	0.00500		<0.00604	<0.00621	<0.00616	<0.00601
1,1-Dichloroethene	0.00500		<0.00604	<0.00621	<0.00616	<0.00601
1,2-Dichloroethane	0.00500		<0.00604	<0.00621	<0.00616	<0.00601
1,2-Dichloropropane	0.00500		<0.00604	<0.00621	<0.00616	<0.00601
2-Butanone (MEK)	0.0100		<0.0121	<0.0124 J	<0.0123	<0.0120
2-Chloroethyl vinyl ether	0.0100		<0.0121	<0.0124	<0.0123	<0.0120
2-Hexanone	0.0100		<0.0121 J	<0.0124	<0.0123 J	<0.0120 J
4-Methyl-2-pentanone	0.0100		<0.0121	<0.0124	<0.0123	<0.0120

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID Sample Date Depth Notes	OT3912SA 24-OCT-95 0.0' - 2.0'	OT3913SA 23-OCT-95 0.0' - 2.0'	OT3914SA 24-OCT-95 0.0' - 2.0'	OT3915SA 24-OCT-95 0.0' - 2.0'
VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8240/NONE (mg/kg) cont'd.						
Acetone	0.0100		0.0403	<0.0124 J	<0.0123	<0.0120
Benzene	0.00500		<0.00604	<0.00621	<0.00616	<0.00601
Bromodichloromethane	0.00500		<0.00604	<0.00621	<0.00616	<0.00601
Bromoform	0.00500		<0.00604	<0.00621	<0.00616	<0.00601
Bromomethane	0.0100		<0.0121	<0.0124	<0.0123	<0.0120
Carbon disulfide	0.00500		<0.00604	<0.00621	<0.00616	<0.00601
Carbon tetrachloride	0.00500		<0.00604	<0.00621	<0.00616	<0.00601
Chlorobenzene	0.00500		<0.00604	<0.00621	<0.00616	<0.00601
Chloroethane	0.0100		<0.0121	<0.0124 J	<0.0123	<0.0120
Chloroform	0.00500		<0.00604	<0.00621	<0.00616	<0.00601
Chloromethane	0.0100		<0.0121	<0.0124	<0.0123	<0.0120
Dibromochloromethane	0.00500		<0.00604	<0.00621	<0.00616	<0.00601
Ethylbenzene	0.00500		<0.00604	<0.00621	<0.00616	<0.00601
Methylene chloride	0.00500		<0.00604	<0.00621	<0.00616	<0.00601
Styrene	0.00500		<0.00604	<0.00621	<0.00616	<0.00601
Tetrachloroethene	0.00500		<0.00604	<0.00621	<0.00616	<0.00601
Toluene	0.00500		0.00244 JQ	0.0125 JQ	0.00376 JQ	0.00304 JQ
Trichloroethene	0.00500		<0.00604	<0.00621	<0.00616	<0.00601
Vinyl acetate	0.0100		<0.0121 J	<0.0124	<0.0123 J	<0.0120 J
Vinyl chloride	0.0100		<0.0121	<0.0124	<0.0123	<0.0120
Xylenes (total)	0.00500		<0.00604	<0.00621	<0.00616	<0.00601
cis-1,2-Dichloroethene	0.00500		<0.00604	<0.00621	<0.00616	<0.00601
cis-1,3-Dichloropropene	0.00500		<0.00604	<0.00621	<0.00616	<0.00601
trans-1,2-Dichloroethene	0.00500		<0.00604	<0.00621	<0.00616	<0.00601
trans-1,3-Dichloropropene	0.00500		<0.00604	<0.00621	<0.00616	<0.00601
% Surrogate Recovery (Control Limit)						
sur-1,2-Dichloroethane-d4 R% (70 - 121)	-		109.9	104.0	113.0	112.0
sur-Bromofluorobenzene R% (74 - 121)	-		88.9	82.0	92.9	88.0
sur-Toluene-d8 R% (81 - 117)	-		101.0	95.0	100.0	101.0
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8270/SW3550 (mg/kg)						
1,2,4-Trichlorobenzene	0.333		<20.4	<0.402	<0.407	<0.395
1,2-Dichlorobenzene	0.333		<20.4	<0.402	<0.407	<0.395
1,3-Dichlorobenzene	0.333		<20.4	<0.402	<0.407	<0.395
1,4-Dichlorobenzene	0.333		<20.4	<0.402	<0.407	<0.395
2,4,5-Trichlorophenol	0.667		<40.8	<0.804	<0.814	<0.790
2,4,6-Trichlorophenol	0.333		<20.4	<0.402	<0.407	<0.395
2,4-Dichlorophenol	0.333		<20.4	<0.402	<0.407	<0.395
2,4-Dimethylphenol	0.333		<20.4	<0.402	<0.407	<0.395
2,4-Dinitrophenol	1.67		<102 J	<2.01 J	<2.04 J	<1.98 J
2,4-Dinitrotoluene	0.333		<20.4	<0.402	<0.407	<0.395
2,6-Dinitrotoluene	0.333		<20.4	<0.402	<0.407	<0.395
2-Chloronaphthalene	0.333		<20.4	<0.402	<0.407	<0.395
2-Chlorophenol	0.333		<20.4	<0.402	<0.407	<0.395
2-Methylnaphthalene	0.333		12.2 JQ	<0.402	<0.407	<0.395
2-Methylphenol	0.333		<20.4	<0.402	<0.407	<0.395
2-Nitroaniline	1.67		<102	<2.01	<2.04	<1.98
2-Nitrophenol	0.333		<20.4	<0.402	<0.407	<0.395

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID Sample Date Depth Notes	OT3912SA 24-OCT-95 0.0' - 2.0'	OT3913SA 23-OCT-95 0.0' - 2.0'	OT3914SA 24-OCT-95 0.0' - 2.0'	OT3915SA 24-OCT-95 0.0' - 2.0'
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8270/SW3550 (mg/kg) cont'd.						
3,3'-Dichlorobenzidine	0.667		<40.8	<0.804	<0.814	<0.790 J
3-Nitroaniline	1.67		<102	<2.01	<2.04	<1.98
4,6-Dinitro-2-methylphenol	1.67		<102	<2.01 J	<2.04	<1.98
4-Bromophenyl phenyl ether	0.333		<20.4	<0.402	<0.407	<0.395
4-Chloro-3-methylphenol	0.333		<20.4	<0.402	<0.407	<0.395
4-Chloroaniline	0.667		<40.8 J	<0.804 J	<0.814 J	<0.790
4-Chlorophenyl phenyl ether	0.333		<20.4	<0.402	<0.407	<0.395
4-Methylphenol	0.333		<20.4	<0.402	<0.407	<0.395
4-Nitroaniline	1.67		<102	<2.01	<2.04	<1.98
4-Nitrophenol	1.67		<102	<2.01	<2.04	<1.98
Acenaphthene	0.333		<20.4	<0.402	<0.407	<0.395
Acenaphthylene	0.333		<20.4	<0.402	<0.407	<0.395
Anthracene	0.333		<20.4	<0.402	<0.407	<0.395
Benz(a)anthracene	0.333		<20.4	<0.402	<0.407 J	<0.395
Benzo(a)pyrene	0.333		<20.4	<0.402	<0.407 J	<0.395
Benzo(b)fluoranthene	0.333		<20.4	<0.402	<0.407 J	<0.395
Benzo(g,h,i)perylene	0.333		<20.4	<0.402	<0.407 J	<0.395
Benzo(k)fluoranthene	0.333		<20.4	<0.402	<0.407 J	<0.395
Benzoic acid	1.67		<102	<2.01	<2.04	<1.98
Benzyl alcohol	0.667		<40.8	<0.804	<0.814	<0.790
Butyl benzyl phthalate	0.333		<20.4	<0.402	<0.407 J	<0.395
Chrysene	0.333		<20.4	<0.402	<0.407 J	<0.395
Di-n-butylphthalate	0.333		<20.4	<0.402	<0.407	<0.395
Di-n-octylphthalate	0.333		<20.4	<0.402	<0.407 J	<0.395
Dibenz(a,h)anthracene	0.333		<20.4	<0.402	<0.407 J	<0.395
Dibenzofuran	0.333		<20.4	<0.402	<0.407	<0.395
Diethylphthalate	0.333		<20.4	<0.402	<0.407	<0.395
Dimethylphthalate	0.333		<20.4	<0.402	<0.407	<0.395
Fluoranthene	0.333		<20.4	<0.402	<0.407	<0.395
Fluorene	0.333		2.53 JQ	<0.402	<0.407	<0.395
Hexachlorobenzene	0.333		<20.4	<0.402	<0.407	<0.395
Hexachlorobutadiene	0.333		<20.4	<0.402	<0.407	<0.395
Hexachlorocyclopentadiene	0.333		<20.4	<0.402 J	<0.407	<0.395
Hexachloroethane	0.333		<20.4	<0.402	<0.407	<0.395
Indeno(1,2,3-cd)pyrene	0.333		<20.4	<0.402	<0.407 J	<0.395
Isophorone	0.333		<20.4	<0.402	<0.407	<0.395
Naphthalene	0.333		3.27 JQ	<0.402	<0.407	<0.395
Nitrobenzene	0.333		<20.4	<0.402	<0.407	<0.395
Pentachlorophenol	1.00		<61.3	<1.21	<1.22	<1.19
Phenanthrene	0.333		5.00 JQ	<0.402	<0.407	<0.395
Phenol	0.333		<20.4	<0.402	<0.407	<0.395
Pyrene	0.333		<20.4	<0.402	<0.407 J	<0.395

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID Sample Date Depth Notes	OT3912SA 24-OCT-95 0.0' - 2.0'	OT3913SA 23-OCT-95 0.0' - 2.0'	OT3914SA 24-OCT-95 0.0' - 2.0'	OT3915SA 24-OCT-95 0.0' - 2.0'
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8270/SW3550 (ug/kg) cont'd.						
bis(2-Chloroethoxy)methane	0.333		<20.4	<0.402	<0.407	<0.395
bis(2-Chloroethyl)ether	0.333		<20.4	<0.402	<0.407	<0.395
bis(2-Chloroisopropyl)ether	0.333		<20.4	<0.402 JL	<0.407 J	<0.395
bis(2-Ethylhexyl)phthalate	0.333		<20.4	<0.402	<0.407	<0.395
n-Nitrosodi-n-propylamine	0.333		<20.4	<0.402	<0.407	<0.395
n-Nitrosodiphenylamine	0.333		<20.4	<0.402	<0.407	<0.395
% Surrogate Recovery (Control Limit)						
sur-2,4,6-Tribromophenol R% (19 - 122)	-		0	58.0	54.0	61.0
sur-2-Fluorobiphenyl R% (30 - 115)	-		89.0	58.0	68.1	72.9
sur-2-Fluorophenol R% (25 - 121)	-		0	46.9	48.0	60.0
sur-Nitrobenzene-d5 R% (23 - 120)	-		0	53.0	58.0	66.1
sur-Phenol-d6 R% (24 - 113)	-		0	48.9	49.9	57.0
sur-Terphenyl-d14 R% (18 - 137)	-		112.0	83.1	112.0	77.0

Data Qualification Flags/Notes:
J = Estimated quantitation based upon QC data
JB = Estimated quantitation: possibly biased high or a false positive based upon blank data
JH = Estimated quantitation: possibly biased high based upon QC data
JL = Estimated quantitation: possibly biased low or a false negative based upon QC data
JQ = Estimated quantitation: detected below the Practical Quantitation Limit
R = Datum rejected based upon QC data: do not use

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID Sample Date Depth : Notes :	OT3916SA 24-OCT-95 0.0' - 2.0'	OT3917SA 23-OCT-95 0.0' - 2.0'	OT3918SA 23-OCT-95 0.0' - 2.0'	OT3919SA 24-OCT-95 0.0' - 2.0'	OT3920SA 24-OCT-95 0.0' - 2.0'
SOIL pH - SW9045/NONE (pesu)							
623-9045 pH units Soil	-		7.83	7.67	7.78	7.60	7.50
PERCENT SOLID - D2216 /NONE (percent)							
623-D2216 Moisture	-		13.0	18.0	14.0	13.0	16.0
METALS, TOTAL BY ICP/SW6010/SW3050 (mg/kg)							
Aluminum	50.0		5890	7810	6730	3540	4530
Antimony	25.0		3.06 JQ	<22.9	<21.4	<19.6	<21.7 JL
Barium	2.00		120	125	130	141	112 JH
Beryllium	0.300		<2.48	0.458	0.428	<2.35	<2.61
Cadmium	1.00		<0.827	<0.917	<0.855	<0.782	<0.869 JL
Calcium	10.0		197000	111000	139000	234000	165000
Chromium	5.00		13.2 JQ	7.06	6.16	7.04 JQ	7.82 JH
Cobalt	5.00		2.48 JQ	3.94 JQ	2.48 JQ	1.09 JQ	2.69 JQ
Copper	5.00		9.92 JQ	9.35	8.21	21.9	3.48 JH
Iron	5.00		6240	7730	6570	4920	5240
Magnesium	25.0		2080	2160	2140	2150	1670
Manganese	1.00		321	313	313	310	328
Molybdenum	5.00		<4.14	2.02	2.31 JQ	1.25 JQ	<4.34
Nickel	5.00		222	6.60	6.58	126	233
Potassium	60.0		1120	1840	1740	738	1170
Silver	5.00		<4.14	<4.58	<4.28	<3.91	<4.34
Sodium	25.0		107 JB	550	383	113 JB	121 JB
Thallium	25.0		<20.7	<22.9	<21.4	<19.6	<21.7
Vanadium	5.00		8.52	11.6	7.18	7.12	9.99
Zinc	1.00		93.0	25.3	26.6	52.7	95.2 J
ARSENIC, TOTAL BY GFAA/SW 7060 (mg/kg)							
Arsenic	0.500		1.49	1.40	2.13	1.33	1.39
LEAD, TOTAL BY GFAA/SW 7421 (mg/kg)							
Lead	0.500		20.3 JH	7.96	14.9	11.3	46.7
MERCURY, TOTAL BY CVAA/SW 7471 (mg/kg)							
Mercury	0.270		<0.257	<0.289	<0.272	<0.268	<0.262
SELENIUM, TOTAL BY GFAA/SW 7740/METHOD (mg/kg)							
Selenium	0.500		<0.396	<0.452	<0.430	0.125 JL	<0.410 JL
ORGANOCHLORINE PESTICIDES AND PCBs - SW8080/SW3550 (mg/kg)							
4,4'-DDD	0.00333		<0.00379	<0.00415	<0.00386	<0.00380	0.0124
4,4'-DDE	0.00133		0.0116	<0.00166	0.00165	<0.00152	0.0430
4,4'-DDT	0.00333		<0.00379	<0.00415	<0.00386	<0.00380	0.0134
AR1016	0.0333		<0.0379	<0.0415	<0.0386	<0.0380	<0.0394
AR1221	0.0333		<0.0379	<0.0415	<0.0386	<0.0380	<0.0394
AR1232	0.0333		<0.0379	<0.0415	<0.0386	<0.0380	<0.0394
AR1242	0.0333		<0.0379	<0.0415	<0.0386	<0.0380	<0.0394
AR1248	0.0333		<0.0379	<0.0415	<0.0386	<0.0380	<0.0394
AR1254	0.0333		0.181	<0.0415	<0.0386	<0.0380	<0.0394

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID Sample Date Depth Notes	OT3916SA 24-OCT-95 0.0' - 2.0'	OT3917SA 23-OCT-95 0.0' - 2.0'	OT3918SA 23-OCT-95 0.0' - 2.0'	OT3919SA 24-OCT-95 0.0' - 2.0'	OT3920SA 24-OCT-95 0.0' - 2.0'
ORGANOCHLORINE PESTICIDES AND PCBs - SW8080/SW3550 (mg/kg) cont'd.							
AR1260	0.0333		<0.0379	<0.0415	<0.0386	<0.0380	<0.0394
Aldrin	0.00133		<0.00152	<0.00166	<0.00154	<0.00152	<0.00158
Chlordane	0.0166		<0.0190 R	<0.0208	<0.0193	0.00982 JQ	0.110
Dieldrin	0.000666		<0.000758	<0.000830	<0.000772	<0.000760	<0.000788
Endosulfan I	0.00166		<0.00190	<0.00208	<0.00193	<0.00190	<0.00197
Endosulfan II	0.00133		<0.00152	<0.00166	<0.00154	<0.00152	<0.00158
Endosulfan sulfate	0.00333		<0.00379	<0.00415	<0.00386	<0.00380	<0.00394
Endrin	0.00200		<0.00227	<0.00249	<0.00232	<0.00228	<0.00236
Endrin aldehyde	0.00333		<0.00379	<0.00415	<0.00386	<0.00380	<0.00394
Heptachlor	0.000999		<0.00114	<0.00124	<0.00116	<0.00114	<0.00118
Heptachlor epoxide	0.00166		<0.00190	<0.00208	<0.00193	<0.00190	0.00175 JQ
Methoxychlor	0.0166		<0.0190	<0.0208	<0.0193	<0.0190	<0.0197
Toxaphene	0.0666		<0.0758	<0.0830	<0.0772	<0.0760	<0.0788
alpha-BHC	0.000999		<0.00114	<0.00124	<0.00116	<0.00114	<0.00118
beta-BHC	0.00166		<0.00190	<0.00208	<0.00193	<0.00190	<0.00197
delta-BHC	0.00166		<0.00190	<0.00208	<0.00193	<0.00190	<0.00197
gamma-BHC (Lindane)	0.00133		<0.00152	<0.00166	<0.00154	<0.00152	<0.00158
% Surrogate Recovery (Control Limit)							
sur-Dibutylchlorendate R% (10 - 181)	-		16.0	7.0	4.0	80.0	59.0
sur-TCMX R% (18 - 145)	-		69.1	77.7	74.8	-	-
CHLORINATED HERBICIDES - SW8150/METHOD (mg/kg)							
2,4,5-T	0.00400		<0.00460	<0.00500	<0.00464	<0.00460	<0.00472
2,4,5-TP (Silvex)	0.00400		<0.00460	0.00510	<0.00464	<0.00460	<0.00472
2,4-D	0.0400		<0.0460	<0.0500	<0.0464	<0.0460	<0.0472
2,4-DB	0.0600		<0.0690	<0.0750	<0.0696	<0.0690	<0.0708
Dalapon	0.140		<0.161	<0.175 J	<0.162 J	<0.161	<0.165
Dicamba	0.00400		<0.00460	<0.00500 JL	<0.00464 JL	<0.00460	<0.00472
Dichloroprop	0.0400		<0.0460 J	<0.0500	<0.0464	<0.0460 J	<0.0472
Dinoseb	0.0140		<0.0161	<0.0175	<0.0162	<0.0161	<0.0165
MCPA	3.00		<3.45	<3.75	<3.48	<3.45	<3.54
MCPP	3.00		<3.45	<3.75	<3.48	<3.45	<3.54
% Surrogate Recovery (Control Limit)							
sur-DCAA R% (0 - 191)	-		39.9	56.8	48.3	38.0	42.1
VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8240/NONE (mg/kg)							
1,1,1-Trichloroethane	0.00500		<0.00630	<0.00607	<0.00603	<0.00603	<0.00600
1,1,2,2-Tetrachloroethane	0.00500		<0.00630	<0.00607	<0.00603	<0.00603	<0.00600
1,1,2-Trichloroethane	0.00500		<0.00630	<0.00607	<0.00603	<0.00603	<0.00600
1,1-Dichloroethane	0.00500		<0.00630	<0.00607	<0.00603	<0.00603	<0.00600
1,1-Dichloroethene	0.00500		<0.00630	<0.00607	<0.00603	<0.00603	<0.00600
1,2-Dichloroethane	0.00500		<0.00630	<0.00607	<0.00603	<0.00603	<0.00600
1,2-Dichloropropane	0.00500		<0.00630	<0.00607	<0.00603	<0.00603	<0.00600
2-Butanone (MEK)	0.0100		<0.0126	0.0266 J	<0.0121 J	<0.0121	0.0193
2-Chloroethyl vinyl ether	0.0100		<0.0126	<0.0121	<0.0121	<0.0121	<0.0120
2-Hexanone	0.0100		<0.0126 J	<0.0121	<0.0121	<0.0121 J	<0.0120 J
4-Methyl-2-pentanone	0.0100		<0.0126	<0.0121	<0.0121	<0.0121	<0.0120

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID / Sample Date / Depth / Notes	OT3916SA 24-OCT-95 0.0' - 2.0'	OT3917SA 23-OCT-95 0.0' - 2.0'	OT3918SA 23-OCT-95 0.0' - 2.0'	OT3919SA 24-OCT-95 0.0' - 2.0'	OT3920SA 24-OCT-95 0.0' - 2.0'
VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8240/NONE (mg/kg) cont'd.							
Acetone	0.0100		<0.0126	0.107 J	<0.0121 J	<0.0121	0.0771
Benzene	0.00500		<0.00630	<0.00607	<0.00603	<0.00603	<0.00600
Bromodichloromethane	0.00500		<0.00630	<0.00607	<0.00603	<0.00603	<0.00600
Bromoform	0.00500		<0.00630	<0.00607	<0.00603	<0.00603	<0.00600
Bromomethane	0.0100		<0.0126	<0.0121	<0.0121	<0.0121	<0.0120
Carbon disulfide	0.00500		<0.00630	<0.00607	<0.00603	<0.00603	<0.00600
Carbon tetrachloride	0.00500		<0.00630	<0.00607	<0.00603	<0.00603	<0.00600
Chlorobenzene	0.00500		<0.00630	<0.00607	<0.00603	<0.00603	<0.00600
Chloroethane	0.0100		<0.0126	<0.0121 J	<0.0121 J	<0.0121	<0.0120
Chloroform	0.00500		<0.00630	<0.00607	<0.00603	<0.00603	<0.00600
Chloromethane	0.0100		<0.0126	<0.0121	<0.0121	<0.0121	<0.0120
Dibromochloromethane	0.00500		<0.00630	<0.00607	<0.00603	<0.00603	<0.00600
Ethylbenzene	0.00500		<0.00630	<0.00607	<0.00603	<0.00603	<0.00600
Methylene chloride	0.00500		<0.00630	<0.00607	<0.00603	<0.00603	<0.00600
Styrene	0.00500		<0.00630	<0.00607	<0.00603	0.00289 JQ	<0.00600
Tetrachloroethene	0.00500		<0.00630	<0.00607	<0.00603	<0.00603	<0.00600
Toluene	0.00500		0.00382 JQ	0.00562 JQ	0.000440 JQ	<0.00603	<0.00600
Trichloroethene	0.00500		<0.00630	<0.00607	0.00469 JQ	0.00136 JQ	0.00344 JQ
Vinyl acetate	0.0100		<0.0126 J	<0.0121	<0.00603	<0.00603	<0.00600
Vinyl chloride	0.0100		<0.0126	<0.0121	<0.0121	<0.0121 J	<0.0120 J
Xylenes (total)	0.00500		<0.00630	0.00296 JQ	<0.0121	<0.0121	<0.0120
cis-1,2-Dichloroethene	0.00500		<0.00630	<0.00607	<0.00603	<0.00603	<0.00600
cis-1,3-Dichloropropene	0.00500		<0.00630	<0.00607	<0.00603	<0.00603	<0.00600
trans-1,2-Dichloroethene	0.00500		<0.00630	<0.00607	<0.00603	<0.00603	<0.00600
trans-1,3-Dichloropropene	0.00500		<0.00630	<0.00607	<0.00603	<0.00603	<0.00600
% Surrogate Recovery (Control Limit)							
sur-1,2-Dichloroethane-d4 R% (70 - 121)	-		110.0	105.9	103.0	110.0	112.0
sur-Bromofluorobenzene R% (74 - 121)	-		90.0	84.0	90.0	87.9	92.0
sur-Toluene-d8 R% (81 - 117)	-		97.0	94.1	97.0	99.0	97.0
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8270/SW3550 (mg/kg)							
1,2,4-Trichlorobenzene	0.333		<0.383	<0.404	<0.382	<0.382	<0.395
1,2-Dichlorobenzene	0.333		<0.383	<0.404	<0.382	<0.382	<0.395
1,3-Dichlorobenzene	0.333		<0.383	<0.404	<0.382	<0.382	<0.395
1,4-Dichlorobenzene	0.333		<0.383	<0.404	<0.382	<0.382	<0.395
2,4,5-Trichlorophenol	0.667		<0.766	<0.808	<0.763	<0.765	<0.790
2,4,6-Trichlorophenol	0.333		<0.383	<0.404	<0.382	<0.382	<0.395
2,4-Dichlorophenol	0.333		<0.383	<0.404	<0.382	<0.382	<0.395
2,4-Dimethylphenol	0.333		<0.383	<0.404	<0.382	<0.382 JL	<0.395
2,4-Dinitrophenol	1.67		<1.92 J	<2.02	<1.91	<1.91	<1.98 J
2,4-Dinitrotoluene	0.333		<0.383	<0.404	<0.382	<0.382	<0.395 JL
2,6-Dinitrotoluene	0.333		<0.383	<0.404	<0.382	<0.382	<0.395
2-Chloronaphthalene	0.333		<0.383	<0.404	<0.382	<0.382	<0.395
2-Chlorophenol	0.333		<0.383	<0.404	<0.382	<0.382	<0.395
2-Methylnaphthalene	0.333		<0.383	<0.404	<0.382	<0.382	<0.395
2-Methylphenol	0.333		<0.383	<0.404	<0.382	<0.382	0.139 JQ
2-Nitroaniline	1.67		<1.92	<2.02	<1.91	<1.91	<0.395
2-Nitrophenol	0.333		<0.383	<0.404	<0.382	<0.382	<1.98
							<0.395

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID / Sample Date / Depth / Notes	OT3916SA 24-OCT-95 0.0' - 2.0'	OT3917SA 23-OCT-95 0.0' - 2.0'	OT3918SA 23-OCT-95 0.0' - 2.0'	OT3919SA 24-OCT-95 0.0' - 2.0'	OT3920SA 24-OCT-95 0.0' - 2.0'
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8270/SW3550 (mg/kg) cont'd.							
3,3'-Dichlorobenzidine	0.667		<0.766 J	<0.808	<0.763	<0.765 J	<0.790
3-Nitroaniline	1.67		<1.92	<2.02	<1.91	<1.91	<1.98
4,6-Dinitro-2-methylphenol	1.67		<1.92	<2.02	<1.91	<1.91	<1.98
4-Bromophenyl phenyl ether	0.333		<0.383	<0.404	<0.382	<0.382	<0.395
4-Chloro-3-methylphenol	0.333		<0.383	<0.404	<0.382	<0.382	<0.395
4-Chloroaniline	0.667		<0.766	<0.808 J	<0.763 J	<0.765 J	<0.790 J
4-Chlorophenyl phenyl ether	0.333		<0.383	<0.404	<0.382	<0.382	<0.395
4-Methylphenol	0.333		<0.383	<0.404	<0.382	<0.382	<0.395
4-Nitroaniline	1.67		<1.92	<2.02	<1.91	<1.91	<1.98
4-Nitrophenol	1.67		<1.92	<2.02	<1.91	<1.91	<1.98
Acenaphthene	0.333		<0.383	<0.404	<0.382	<0.382	<0.395
Acenaphthylene	0.333		<0.383	<0.404	<0.382	<0.382	<0.395
Anthracene	0.333		<0.383	<0.404	<0.382	<0.382	<0.395
Benz(a)anthracene	0.333		<0.383	<0.404	<0.382	<0.382	<0.395 J
Benzo(a)pyrene	0.333		0.0274 JQ	<0.404	<0.382	<0.382	0.0419 J
Benzo(b)fluoranthene	0.333		0.0697 JQ	<0.404	<0.382	<0.382	0.0335 J
Benzo(g,h,i)perylene	0.333		<0.383	<0.404	<0.382	<0.382	<0.395 J
Benzo(k)fluoranthene	0.333		<0.383	<0.404	<0.382	<0.382	<0.395 J
Benzoic acid	1.67		<1.92	<2.02	<1.91	<1.91	<1.98
Benzyl alcohol	0.667		<0.766	<0.808	<0.763	<0.765	<0.790
Butyl benzyl phthalate	0.333		2.60	<0.404	<0.382	<0.382	<0.395 J
Chrysene	0.333		0.0490 JQ	<0.404	<0.382	<0.382	0.0389 J
Di-n-butylphthalate	0.333		0.0282 JQ	<0.404	<0.382	<0.382	<0.395
Di-n-octylphthalate	0.333		<0.383	<0.404	<0.382	<0.382	<0.395 J
Dibenz(a,h)anthracene	0.333		<0.383	<0.404	<0.382	<0.382	<0.395 J
Dibenzofuran	0.333		<0.383	<0.404	<0.382	<0.382	<0.395
Diethylphthalate	0.333		<0.383	<0.404	<0.382	<0.382	<0.395
Dimethylphthalate	0.333		6.13	<0.404	<0.382	<0.382	<0.395
Fluoranthene	0.333		0.0598 JQ	<0.404	<0.382	<0.382	0.0486 JQ
Fluorene	0.333		<0.383	<0.404	<0.382	<0.382	<0.395
Hexachlorobenzene	0.333		<0.383	<0.404	<0.382	<0.382	<0.395
Hexachlorobutadiene	0.333		<0.383	<0.404	<0.382	<0.382	<0.395
Hexachlorocyclopentadiene	0.333		<0.383	<0.404	<0.382	<0.382 R	<0.395
Hexachloroethane	0.333		<0.383	<0.404	<0.382	<0.382	<0.395
Indeno(1,2,3-cd)pyrene	0.333		<0.383	<0.404	<0.382	<0.382	<0.395 J
Isophorone	0.333		<0.383	<0.404	<0.382	<0.382	<0.395
Naphthalene	0.333		<0.383	<0.404	<0.382	<0.382	0.0774 JQ
Nitrobenzene	0.333		<0.383	<0.404	<0.382	<0.382	<0.395
Pentachlorophenol	1.00		<1.15	<1.21	<1.14	<1.15	<1.18 JL
Phenanthrene	0.333		<0.383	<0.404	<0.382	<0.382	0.0423 JQ
Phenol	0.333		<0.383	<0.404	<0.382	<0.382	<0.395

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID Sample Date Depth Notes	OT3916SA 24-OCT-95 0.0' - 2.0'	OT3917SA 23-OCT-95 0.0' - 2.0'	OT3918SA 23-OCT-95 0.0' - 2.0'	OT3919SA 24-OCT-95 0.0' - 2.0'	OT3920SA 24-OCT-95 0.0' - 2.0'
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8270/SW3550 (mg/kg) cont'd.							
Pyrene	0.333		0.0600 JQ	<0.404	<0.382	<0.382	0.0889 J
bis(2-Chloroethoxy)methane	0.333		<0.383	<0.404	<0.382	<0.382	<0.395
bis(2-Chloroethyl)ether	0.333		<0.383	<0.404	<0.382	<0.382	<0.395
bis(2-Chloroisopropyl)ether	0.333		<0.383	<0.404 JL	<0.382 JL	<0.382	<0.395
bis(2-Ethylhexyl)phthalate	0.333		0.0170 JQ	<0.404	0.494	<0.382	<0.395 J
n-Nitrosodi-n-propylamine	0.333		<0.383	<0.404	<0.382	<0.382	<0.395
n-Nitrosodiphenylamine	0.333		<0.383	<0.404	<0.382	<0.382	<0.395
% Surrogate Recovery (Control Limit)							
sur-2,4,6-Tribromophenol R% (19 - 122)	-		68.0	57.1	68.9	58.0	53.0
sur-2-Fluorobiphenyl R% (30 - 115)	-		67.9	80.9	69.9	73.0	60.0
sur-2-Fluorophenol R% (25 - 121)	-		52.0	62.0	55.0	51.9	43.1
sur-Nitrobenzene-d5 R% (23 - 120)	-		59.0	68.1	62.8	58.1	50.1
sur-Phenol-d6 R% (24 - 113)	-		52.0	62.0	60.9	54.9	44.1
sur-Terphenyl-d14 R% (18 - 137)	-		84.1	80.9	84.0	64.1	84.1

Data Qualification Flags/Notes:
J = Estimated quantation based upon QC data
JB = Estimated quantitation: possibly biased high or a false positive based upon blank data
JH = Estimated quantitation: possibly biased high based upon QC data
JL = Estimated quantitation: possibly biased low or a false negative based upon QC data
JQ = Estimated quantitation: detected below the Practical Quantitation Limit
R = Datum rejected based upon QC data, do not use

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID Sample Date Depth Notes	OT3921SA 24-OCT-95 0.0' - 2.0'	OT3922SA 24-OCT-95 0.0' - 2.0'	OT3923SA 24-OCT-95 0.0' - 2.0'	OT3924SA 24-OCT-95 0.0' - 2.0'	OT3925SA 24-OCT-95 0.0' - 2.0'
SOIL pH - SW9045/NONE (pene)							
623-9045 pH units Soil	-		7.52	7.54	7.56	7.61	7.74
PERCENT SOLID - D2216 /NONE (percent)							
623-D2216 Moisture	-		12.0	18.0	22.0	17.0	17.0
METALS, TOTAL BY ICP/SW6010/SW3050 (mg/kg)							
Aluminum	50.0		4810	10800	9060	5530	7520
Antimony	25.0		2.24 JQ	3.17 JQ	<23.9	2.68 JQ	<22.3
Barium	2.00		82.9	133	133	100	125
Beryllium	0.300		<2.49	<2.44	<2.87	<2.51	0.535
Cadmium	1.00		<0.829	<0.813	<0.957	<0.837	<0.892
Calcium	10.0		157000	119000	120000	193000	122000
Chromium	5.00		<41.4	14.6 JQ	<47.8	13.4 JQ	7.40
Cobalt	5.00		1.74 JQ	2.60 JQ	1.24 JQ	1.59 JQ	2.59 JQ
Copper	5.00		8.29 JQ	10.6 JQ	16.3 JQ	21.8 JQ	9.81
Iron	5.00		5280	7920	8570	4620	6910
Magnesium	25.0		1770	2630	2210	2480	2140
Manganese	1.00		273	222	163	372	220
Molybdenum	5.00		1.41 JQ	<4.06	1.53 JQ	<4.18	<4.46
Nickel	5.00		134	114	155	135	7.76
Potassium	60.0		984	1970	1860	1130	1660
Silver	5.00		<4.14	<4.06	<4.78	<4.18	<4.46
Sodium	25.0		92.4 JB	216 JB	81.8 JB	147 JB	132 JB
Thallium	25.0		<20.7	<20.3	<23.9	<20.9	<22.3
Vanadium	5.00		11.3	9.84	13.8	8.79	10.3
Zinc	1.00		71.2	48.9	58.8	105	32.4 J
ARSENIC, TOTAL BY GFAA/SW 7060 (mg/kg)							
Arsenic	0.500		14.2	3.08	0.566	1.27	0.814 JH
LEAD, TOTAL BY GFAA/SW 7421 (mg/kg)							
Lead	0.500		14.6	9.11	33.1	14.0	8.67
MERCURY, TOTAL BY CVAA/SW 7471 (mg/kg)							
Mercury	0.270		<0.251	<0.296	<0.302	<0.276	<0.254
SELENIUM, TOTAL BY GFAA/SW 7740/METHOD (mg/kg)							
Selenium	0.500		0.0895 JL	<0.430	<0.493 JL	0.104 JL	<0.460
ORGANOCHLORINE PESTICIDES AND PCBs - SW8080/SW3550 (mg/kg)							
4,4'-DDD	0.00333		<0.00376	<0.00400	<0.00426	<0.00400	<0.00397
4,4'-DDE	0.00133		0.000653 JQ	<0.00160	<0.00170	<0.00160	<0.00159
4,4'-DDT	0.00333		<0.00376	<0.00400	<0.00426	<0.00400	<0.00397
AR1016	0.0333		<0.0376	<0.0400	<0.0426	<0.0400	<0.0397
AR1221	0.0333		<0.0376	<0.0400	<0.0426	<0.0400	<0.0397
AR1232	0.0333		<0.0376	<0.0400	<0.0426	<0.0400	<0.0397
AR1242	0.0333		<0.0376	<0.0400	<0.0426	<0.0400	<0.0397
AR1248	0.0333		<0.0376	<0.0400	<0.0426	<0.0400	<0.0397
AR1254	0.0333		<0.0376	<0.0400	<0.0426	<0.0400	<0.0397

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID Sample Date Depth Notes	OT3921SA 24-OCT-95 0.0' - 2.0'	OT3922SA 24-OCT-95 0.0' - 2.0'	OT3923SA 24-OCT-95 0.0' - 2.0'	OT3924SA 24-OCT-95 0.0' - 2.0'	OT3925SA 24-OCT-95 0.0' - 2.0'
ORGANOCHLORINE PESTICIDES AND PCBs - SW8080/SW3550 (mg/kg) cont'd.							
AR1260	0.0333		<0.0376	<0.0400	<0.0426	<0.0400	<0.0397
Aldrin	0.00133		<0.00150	<0.00160	<0.00170	<0.00160	<0.00159
Chlordane	0.0166		0.0584	<0.0200	<0.0213	0.0104 JQ	<0.0198
Dieldrin	0.000666		<0.000752	<0.000800	<0.000852	<0.000800	<0.000794
Endosulfan I	0.00166		<0.00188	<0.00200	<0.00213	<0.00200	<0.00198
Endosulfan II	0.00133		<0.00150	<0.00160	<0.00170	<0.00160	<0.00159
Endosulfan sulfate	0.00333		<0.00376	<0.00400	<0.00426	<0.00400	<0.00397
Endrin	0.00200		<0.00226	<0.00240	<0.00256	<0.00240	<0.00238
Endrin aldehyde	0.00333		<0.00376	<0.00400	<0.00426	<0.00400	<0.00397
Heptachlor	0.000999		<0.00113	<0.00120	<0.00128	<0.00120	<0.00119
Heptachlor epoxide	0.00166		<0.00188	<0.00200	<0.00213	<0.00200	<0.00198
Methoxychlor	0.0166		<0.0188	<0.0200	<0.0213	<0.0200	<0.0198
Toxaphene	0.0666		<0.0752	<0.0800	<0.0852	<0.0800	<0.0794
alpha-BHC	0.000999		<0.00113	<0.00120	<0.00128	<0.00120	<0.00119
beta-BHC	0.00166		<0.00188	<0.00200	<0.00213	<0.00200	<0.00198
delta-BHC	0.00166		<0.00188	<0.00200	<0.00213	<0.00200	<0.00198
gamma-BHC (Lindane)	0.00133		<0.00150	<0.00160	<0.00170	<0.00160	<0.00159
% Surrogate Recovery (Control Limit)							
sur-Dibutylchlorendate R% (10 - 181)	-		81.0	15.0	85.1	86.0	48.0
sur-TCMX R% (18 - 145)	-		-	81.3	-	-	-
CHLORINATED HERBICIDES - SW8150/METHOD (mg/kg)							
2,4,5-T	0.00400		<0.00450	<0.00488	<0.00508	<0.00480	<0.00480
2,4,5-TP (Silvex)	0.00400		<0.00450	<0.00488	<0.00508	<0.00480	<0.00480
2,4-D	0.0400		<0.0450	<0.0488	<0.0508	<0.0480	<0.0480
2,4-DB	0.0600		<0.0675	<0.0732	<0.0762	<0.0720	<0.0720
Dalapon	0.140		<0.158	<0.171	<0.178	<0.168	<0.168
Dicamba	0.00400		<0.00450	<0.00488	<0.00508	<0.00480	<0.00480
Dichloroprop	0.0400		<0.0450 J	<0.0488 J	<0.0508 J	<0.0480 J	<0.0480
Dinoseb	0.0140		<0.0158	<0.0171	<0.0178	<0.0168	<0.0168
MCPA	3.00		<3.38	<3.66	<3.81	<3.60	<3.60
MCPP	3.00		<3.38	<3.66	<3.81	<3.60	<3.60
% Surrogate Recovery (Control Limit)							
sur-DCAA R% (0 - 191)	-		39.0	39.0	42.1	40.0	42.1
VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8240/NONE (mg/kg)							
1,1,1-Trichloroethane	0.00500		<0.00610	<0.00606	<0.00635	<0.00625	<0.00600
1,1,2,2-Tetrachloroethane	0.00500		<0.00610	<0.00606	<0.00635	<0.00625	<0.00600
1,1,2-Trichloroethane	0.00500		<0.00610	<0.00606	<0.00635	<0.00625	<0.00600
1,1-Dichloroethane	0.00500		<0.00610	<0.00606	<0.00635	<0.00625	<0.00600
1,1-Dichloroethene	0.00500		<0.00610	<0.00606	<0.00635	<0.00625	<0.00600
1,2-Dichloroethane	0.00500		<0.00610	<0.00606	<0.00635	<0.00625	<0.00600
1,2-Dichloropropane	0.00500		<0.00610	<0.00606	<0.00635	<0.00625	<0.00600
2-Butanone (MEK)	0.0100		<0.0122	<0.0121	<0.0127	<0.0125	<0.0120
2-Chloroethyl vinyl ether	0.0100		<0.0122	<0.0121	<0.0127	<0.0125	<0.0120
2-Hexanone	0.0100		<0.0122 J	<0.0121 J	<0.0127 J	<0.0125 J	<0.0120 J
4-Methyl-2-pentanone	0.0100		<0.0122	<0.0121	<0.0127	<0.0125	<0.0120

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID Sample Date Depth Notes	OT3921SA 24-OCT-95 0.0' - 2.0'	OT3922SA 24-OCT-95 0.0' - 2.0'	OT3923SA 24-OCT-95 0.0' - 2.0'	OT3924SA 24-OCT-95 0.0' - 2.0'	OT3925SA 24-OCT-95 0.0' - 2.0'
VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8240/NONE (mg/kg) cont'd.							
Acetone	0.0100		<0.0122	<0.0121	<0.0127	<0.0125	<0.0120
Benzene	0.00500		<0.00610	<0.00606	<0.00635	<0.00625	<0.00600
Bromodichloromethane	0.00500		<0.00610	<0.00606	<0.00635	<0.00625	<0.00600
Bromoform	0.00500		<0.00610	<0.00606	<0.00635	<0.00625	<0.00600
Bromomethane	0.0100		<0.0122	<0.0121	<0.0127	<0.0125	<0.0120
Carbon disulfide	0.00500		<0.00610	<0.00606	<0.00635	<0.00625	<0.00600
Carbon tetrachloride	0.00500		<0.00610	<0.00606	<0.00635	<0.00625	<0.00600
Chlorobenzene	0.00500		<0.00610	<0.00606	<0.00635	<0.00625	<0.00600
Chloroethane	0.0100		<0.0122	<0.0121	<0.0127	<0.0125	<0.0120
Chloroform	0.00500		<0.00610	<0.00606	<0.00635	<0.00625	<0.00600
Chloromethane	0.0100		<0.0122	<0.0121	<0.0127	<0.0125	<0.0120
Dibromochloromethane	0.00500		<0.00610	<0.00606	<0.00635	<0.00625	<0.00600
Ethylbenzene	0.00500		<0.00610	<0.00606	<0.00635	<0.00625	<0.00600
Methylene chloride	0.00500		0.0271	<0.00606	0.00312 JQ	0.00319 JQ	<0.00600
Styrene	0.00500		<0.00610	<0.00606	<0.00635	<0.00625	<0.00600
Tetrachloroethene	0.00500		<0.00610	<0.00606	<0.00635	<0.00625	<0.00600
Toluene	0.00500		<0.00610	0.00770	<0.00635	0.000692 JQ	0.0336 JQ
Trichloroethene	0.00500		<0.00610	<0.00606	<0.00635	<0.00625	<0.00600
Vinyl acetate	0.0100		<0.0122 J	<0.0121 J	<0.0127 J	<0.0125 J	<0.0120 J
Vinyl chloride	0.0100		<0.0122	<0.0121	<0.0127	<0.0125	<0.0120
Xylenes (total)	0.00500		<0.00610	<0.00606	<0.00635	<0.00625	<0.00600
cis-1,2-Dichloroethene	0.00500		<0.00610	<0.00606	<0.00635	<0.00625	<0.00600
cis-1,3-Dichloropropene	0.00500		<0.00610	<0.00606	<0.00635	<0.00625	<0.00600
trans-1,2-Dichloroethene	0.00500		<0.00610	<0.00606	<0.00635	<0.00625	<0.00600
trans-1,3-Dichloropropene	0.00500		<0.00610	<0.00606	<0.00635	<0.00625	<0.00600
% Surrogate Recovery (Control Limit)							
sur-1,2-Dichloroethane-d4 R% (70 - 121)	-		113.1	110.9	113.1	113.0	110.0
sur-Bromofluorobenzene R% (74 - 121)	-		92.0	90.9	91.0	92.0	91.2
sur-Toluene-d8 R% (81 - 117)	-		99.0	101.0	103.0	101.9	102.0
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8270/SW3550 (mg/kg)							
1,2,4-Trichlorobenzene	0.333		<0.377	<0.400	<0.423	<0.400	<0.399
1,2-Dichlorobenzene	0.333		<0.377	<0.400	<0.423	<0.400	<0.399
1,3-Dichlorobenzene	0.333		<0.377	<0.400	<0.423	<0.400	<0.399
1,4-Dichlorobenzene	0.333		<0.377	<0.400	<0.423	<0.400	<0.399
2,4,5-Trichlorophenol	0.667		<0.753	<0.801	<0.845	<0.800	<0.799
2,4,6-Trichlorophenol	0.333		<0.377	<0.400	<0.423	<0.400	<0.399
2,4-Dichlorophenol	0.333		<0.377	<0.400	<0.423	<0.400	<0.399
2,4-Dimethylphenol	0.333		<0.377 JL	<0.400	<0.423 JL	<0.400 JL	<0.399
2,4-Dinitrophenol	1.67		<1.88 J	<2.00 J	<2.11	<2.00	<2.00 J
2,4-Dinitrotoluene	0.333		<0.377	<0.400	<0.423	<0.400	<0.399
2,6-Dinitrotoluene	0.333		<0.377	<0.400	<0.423	<0.400	<0.399
2-Chloronaphthalene	0.333		<0.377	<0.400	<0.423	<0.400	<0.399
2-Chlorophenol	0.333		<0.377	<0.400	<0.423	<0.400	<0.399
2-Methylnaphthalene	0.333		<0.377	<0.400	<0.423	<0.400	<0.399
2-Methylphenol	0.333		<0.377	<0.400	<0.423	<0.400	<0.399
2-Nitroaniline	1.67		<1.88	<2.00	<2.11	<2.00	<2.00
2-Nitrophenol	0.333		<0.377	<0.400	<0.423	<0.400	<0.399

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID Sample Date Depth Notes	OT3921SA 24-OCT-95 0.0' - 2.0'	OT3922SA 24-OCT-95 0.0' - 2.0'	OT3923SA 24-OCT-95 0.0' - 2.0'	OT3924SA 24-OCT-95 0.0' - 2.0'	OT3925SA 24-OCT-95 0.0' - 2.0'
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8270/SW3550 (mg/kg) cont'd.							
3,3'-Dichlorobenzidine	0.667		<0.753	<0.801 J	<0.845	<0.800	<0.799
3-Nitroaniline	1.67		<1.88	<2.00	<2.11	<2.00	<2.00
4,6-Dinitro-2-methylphenol	1.67		<1.88	<2.00	<2.11	<2.00	<2.00
4-Bromophenyl phenyl ether	0.333		<0.377	<0.400	<0.423	<0.400	<0.399
4-Chloro-3-methylphenol	0.333		<0.377	<0.400	<0.423	<0.400	<0.399
4-Chloroaniline	0.667		<0.753 J	<0.801	<0.845 J	<0.800 J	<0.799 J
4-Chlorophenyl phenyl ether	0.333		<0.377	<0.400	<0.423	<0.400	<0.399
4-Methylphenol	0.333		<0.377	<0.400	<0.423	<0.400	<0.399
4-Nitroaniline	1.67		<1.88	<2.00	<2.11	<2.00	<2.00
4-Nitrophenol	1.67		<1.88	<2.00	<2.11	<2.00	<2.00
Acenaphthene	0.333		<0.377	<0.400	<0.423	<0.400	<0.399
Acenaphthylene	0.333		<0.377	<0.400	<0.423	<0.400	<0.399
Anthracene	0.333		<0.377	<0.400	<0.423	<0.400	<0.399
Benz(a)anthracene	0.333		<0.377 J	<0.400	<0.423	<0.400	<0.399 J
Benzo(a)pyrene	0.333		<0.377 J	<0.400	<0.423	0.0296 J	<0.399 J
Benzo(b)fluoranthene	0.333		<0.377 J	<0.400	<0.423	0.0860 J	<0.399 J
Benzo(g,h,i)perylene	0.333		<0.377 J	<0.400	<0.423	<0.400 J	<0.399 J
Benzo(k)fluoranthene	0.333		<0.377 J	<0.400	<0.423	<0.400 J	<0.399 J
Benzoic acid	1.67		<1.88	<2.00	<2.11	<2.00	<2.00
Benzyl alcohol	0.667		<0.753	<0.801	<0.845	<0.800	<0.799
Butyl benzyl phthalate	0.333		<0.377 J	<0.400	<0.423	<0.400	<0.399 J
Chrysene	0.333		<0.377 J	<0.400	<0.423	<0.400	<0.399 J
Di-n-butylphthalate	0.333		<0.377	<0.400	<0.423	<0.400	<0.399
Di-n-octylphthalate	0.333		<0.377 J	<0.400	<0.423	<0.400 J	<0.399 J
Dibenz(a,h)anthracene	0.333		<0.377 J	<0.400	<0.423	<0.400 J	<0.399 J
Dibenzofuran	0.333		<0.377	<0.400	<0.423	<0.400	<0.399
Diethylphthalate	0.333		<0.377	<0.400	<0.423	<0.400	<0.399
Dimethylphthalate	0.333		<0.377	<0.400	<0.423	<0.400	<0.399
Fluoranthene	0.333		0.0224 JQ	<0.400	<0.423	<0.400	0.0127 JQ
Fluorene	0.333		<0.377	<0.400	<0.423	<0.400	<0.399
Hexachlorobenzene	0.333		<0.377	<0.400	<0.423	<0.400	<0.399
Hexachlorobutadiene	0.333		<0.377	<0.400	<0.423	<0.400	<0.399
Hexachlorocyclopentadiene	0.333		<0.377 R	<0.400	<0.423 R	<0.400 R	<0.399
Hexachloroethane	0.333		<0.377	<0.400	<0.423	<0.400	<0.399
Indeno(1,2,3-cd)pyrene	0.333		<0.377 J	<0.400	<0.423	<0.400 J	<0.399 J
Isophorone	0.333		<0.377	<0.400	<0.423	<0.400	<0.399
Naphthalene	0.333		<0.377	<0.400	<0.423	<0.400	<0.399
Nitrobenzene	0.333		<0.377	<0.400	<0.423	<0.400	<0.399
Pentachlorophenol	1.00		<1.13	<1.20	<1.27	<1.20	<1.20
Phenanthrene	0.333		<0.377	<0.400	<0.423	<0.400	<0.399
Phenol	0.333		<0.377	<0.400	<0.423	<0.400	<0.399

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID Sample Date Depth Notes	OT3921SA 24-OCT-95 0.0' - 2.0'	OT3922SA 24-OCT-95 0.0' - 2.0'	OT3923SA 24-OCT-95 0.0' - 2.0'	OT3924SA 24-OCT-95 0.0' - 2.0'	OT3925SA 24-OCT-95 0.0' - 2.0'
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8270/SW3550 (mg/kg) cont'd.							
Pyrene	0.333		0.0708 J	<0.400	<0.423	<0.400	<0.399 J
bis(2-Chloroethoxy)methane	0.333		<0.377	<0.400	<0.423	<0.400	<0.399
bis(2-Chloroethyl)ether	0.333		<0.377	<0.400	<0.423	<0.400	<0.399
bis(2-Chloroisopropyl)ether	0.333		<0.377 J	<0.400	<0.423	<0.400	<0.399
bis(2-Ethylhexyl)phthalate	0.333		<0.377	<0.400	<0.423	<0.400	<0.399 J
n-Nitrosodi-n-propylamine	0.333		<0.377	<0.400	<0.423	<0.400	<0.399
n-Nitrosodiphenylamine	0.333		<0.377	<0.400	<0.423	<0.400	<0.399
% Surrogate Recovery (Control Limit)							
sur-2,4,6-Tribromophenol R% (19 - 122)	-		41.9	61.0	56.9	61.0	51.1
sur-2-Fluorobiphenyl R% (30 - 115)	-		53.8	77.0	80.9	73.0	60.2
sur-2-Fluorophenol R% (25 - 121)	-		34.0	59.0	53.0	50.0	44.1
sur-Nitrobenzene-d5 R% (23 - 120)	-		35.0	65.0	61.0	53.0	47.1
sur-Phenol-d6 R% (24 - 113)	-		35.0	56.0	64.0	58.0	40.1
sur-Terphenyl-d14 R% (18 - 137)	-		67.9	85.0	70.0	80.0	76.2

Data Qualification Flags/Notes:
J = Estimated quantation based upon QC data
JB = Estimated quantitation: possibly biased high or a false positive based upon blank data
JH = Estimated quantitation: possibly biased high based upon QC data
JL = Estimated quantitation: possibly biased low or a false negative based upon QC data
JQ = Estimated quantitation: detected below the Practical Quantitation Limit
R = Datum rejected based upon QC data: do not use

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID Sample Date Depth Notes	FDUP08 24-OCT-95 0.0' - 2.0' Duplicate of OT3925SA	OT3926SA 24-OCT-95 0.0' - 2.0'	OT3927SA 24-OCT-95 0.0' - 2.0'	OT3928SA 24-OCT-95 0.0' - 2.0'
SOIL pH - SW9045/NONE (pcsu)						
623-9045 pH units Soil	-		7.82	7.65	7.54	7.24
PERCENT SOLID - D2216/NONE (percent)						
623-D2216 Moisture	-		19.0	18.0	19.0	17.0
METALS, TOTAL BY ICP/SW6010/SW3050 (mg/kg)						
Aluminum	50.0		7680	6970	7910	7700
Antimony	25.0		<21.7	2.71 JQ	<21.2	<20.5
Barium	2.00		126	128	135	119
Beryllium	0.300		0.521	<2.71	0.592	<2.46
Cadmium	1.00		<0.869	<0.903	<0.846	<0.820
Calcium	10.0		128000	121000 J	71500 J	113000
Chromium	5.00		9.21	<45.2	7.19	26.2 JQ
Cobalt	5.00		2.43 JQ	2.71 JQ	3.47 JQ	3.03 JQ
Copper	5.00		9.04	9.93 JQ	13.0	10.7 JQ
Iron	5.00		6850	5930	6790	9630 J
Magnesium	25.0		2110	2020	2260	2310
Manganese	1.00		190	275	279	381
Molybdenum	5.00		<4.34	<4.52	<4.23	1.72 JQ
Nickel	5.00		6.78	65.8	7.61	116 J
Potassium	60.0		1540	1580	2010	2060
Silver	5.00		<4.34	<4.52	<4.23	<4.10
Sodium	25.0		141 JB	87.5 JB	65.6 JB	103 JB
Thallium	25.0		<21.7	<22.6	<21.2	<20.5
Vanadium	5.00		11.0	10.1	10.5	10.7
Zinc	1.00		21.2 J	34.6	44.3	87.4 J
ARSENIC, TOTAL BY GFAA/SW 7060 (mg/kg)						
Arsenic	0.500		0.844	1.08 JH	1.73	2.94 J
LEAD, TOTAL BY GFAA/SW 7421 (mg/kg)						
Lead	0.500		9.09	8.57	22.9	86.0 J
MERCURY, TOTAL BY CVAA/SW 7471 (mg/kg)						
Mercury	0.270		<0.266	<0.254	<0.300	<0.274
SELENIUM, TOTAL BY GFAA/SW 7740/METHOD (mg/kg)						
Selenium	0.500		<0.432	0.458 JQ	<0.412	<0.453
ORGANOCHLORINE PESTICIDES AND PCBs - SW8080/SW3550 (mg/kg)						
4,4'-DDD	0.00333		<0.00408	0.000886 JQ	<0.00408	0.0342 J
4,4'-DDE	0.00133		<0.00163	<0.00162	<0.00163	0.143 J
4,4'-DDT	0.00333		<0.00408	<0.00405	<0.00408	0.176 J
AR1016	0.0333		<0.0408	<0.0405	<0.0408	<0.0397
AR1221	0.0333		<0.0408	<0.0405	<0.0408	<0.0397
AR1232	0.0333		<0.0408	<0.0405	<0.0408	<0.0397
AR1242	0.0333		<0.0408	<0.0405	<0.0408	<0.0397
AR1248	0.0333		<0.0408	<0.0405	<0.0408	<0.0397
AR1254	0.0333		<0.0408	<0.0405	<0.0408	<0.0397

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID / Sample Date / Depth / Notes	FDUP08 / 24-OCT-95 / 0.0' - 2.0' / Duplicate of OT3925SA	OT3926SA / 24-OCT-95 / 0.0' - 2.0'	OT3927SA / 24-OCT-95 / 0.0' - 2.0'	OT3928SA / 24-OCT-95 / 0.0' - 2.0'
ORGANOCHLORINE PESTICIDES AND PCBs - SW8080/SW3550 (mg/kg) cont'd.						
AR1260	0.0333		<0.0408	<0.0405	<0.0408	<0.0397
Aldrin	0.00133		<0.00163	<0.00162	<0.00163	<0.00159
Chlordane	0.0166		<0.0204	<0.0202	<0.0204	0.0773 J
Dieldrin	0.000666		<0.000816	0.00331	<0.000816	<0.000794
Endosulfan I	0.00166		<0.00204	<0.00202	<0.00204	<0.00198
Endosulfan II	0.00133		<0.00163	<0.00162	<0.00163	<0.00159
Endosulfan sulfate	0.00333		<0.00408	<0.00405	<0.00408	<0.00397
Endrin	0.00200		<0.00245	<0.00243	<0.00245	<0.00238
Endrin aldehyde	0.00333		<0.00408	<0.00405	<0.00408	<0.00397
Heptachlor	0.000999		<0.00122	<0.00122	<0.00122	<0.00119
Heptachlor epoxide	0.00166		<0.00204	<0.00202	<0.00204	<0.00198
Methoxychlor	0.0166		<0.0204	<0.0202	<0.0204	<0.0198
Toxaphene	0.0666		<0.0816	<0.0810	<0.0816	<0.0794
alpha-BHC	0.000999		<0.00122	<0.00122	<0.00122	<0.00119
beta-BHC	0.00166		<0.00204	<0.00202	<0.00204	<0.00198
delta-BHC	0.00166		<0.00204	<0.00202	<0.00204	<0.00198
gamma-BHC (Lindane)	0.00133		<0.00163	<0.00162	<0.00163	<0.00159
% Surrogate Recovery (Control Limit)						
sur-Dibutylchlorendate R% (10 - 181)	-		62.0	48.0	57.1	62.0
sur-TCMX R% (18 - 145)	-		-	-	-	-
CHLORINATED HERBICIDES - SW8150/METHOD (mg/kg)						
2,4,5-T	0.00400		<0.00494	<0.00486	<0.00492	<0.00480
2,4,5-TP (Silvex)	0.00400		<0.00494	<0.00486	<0.00492	<0.00480
2,4-D	0.0400		<0.0494	<0.0486	<0.0492	<0.0480
2,4-DB	0.0600		<0.0741	<0.0729	<0.0738	<0.0720
Dalapon	0.140		<0.173	<0.170	<0.172	<0.168
Dicamba	0.00400		<0.00494	<0.00486	<0.00492	<0.00480
Dichloroprop	0.0400		<0.0494	<0.0486	<0.0492 J	<0.0480
Dinoseb	0.0140		<0.0173	<0.0170	<0.0172	<0.0168
MCPA	3.00		<3.70	<3.64	<3.69	<3.60
MCPP	3.00		<3.70	<3.64	<3.69	<3.60
% Surrogate Recovery (Control Limit)						
sur-DCAA R% (0 - 191)	-		40.0	40.9	41.9	38.0
VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8240/NONE (mg/kg)						
1,1,1-Trichloroethane	0.00500		<0.00594	<0.00592	<0.00620	<0.00596
1,1,2,2-Tetrachloroethane	0.00500		<0.00594	<0.00592	<0.00620	<0.00596
1,1,2-Trichloroethane	0.00500		<0.00594	<0.00592	<0.00620	<0.00596
1,1-Dichloroethane	0.00500		<0.00594	<0.00592	<0.00620	<0.00596
1,1-Dichloroethene	0.00500		<0.00594	<0.00592	<0.00620	<0.00596
1,2-Dichloroethane	0.00500		<0.00594	<0.00592	<0.00620	<0.00596
1,2-Dichloropropane	0.00500		<0.00594	<0.00592	<0.00620	<0.00596
2-Butanone (MEK)	0.0100		<0.0119	<0.0118	<0.0124	<0.0119
2-Chloroethyl vinyl ether	0.0100		<0.0119	<0.0118	<0.0124	<0.0119
2-Hexanone	0.0100		<0.0119 J	<0.0118 J	<0.0124 J	<0.0119 J
4-Methyl-2-pentanone	0.0100		<0.0119	<0.0118	<0.0124	<0.0119

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID Sample Date Depth Notes	FDUP08 24-OCT-95 0.0' - 2.0' Duplicate of OT3925SA	OT3926SA 24-OCT-95 0.0' - 2.0'	OT3927SA 24-OCT-95 0.0' - 2.0'	OT3928SA 24-OCT-95 0.0' - 2.0'
VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8240/NONE (mg/kg) cont'd.						
Acetone	0.0100		<0.0119	<0.0118	<0.0124	<0.0119
Benzene	0.00500		<0.00594	<0.00592	<0.00620	<0.00596
Bromodichloromethane	0.00500		<0.00594	<0.00592	<0.00620	<0.00596
Bromoform	0.00500		<0.00594	<0.00592	<0.00620	<0.00596
Bromomethane	0.0100		<0.0119	<0.0118	<0.0124	<0.0119
Carbon disulfide	0.00500		<0.00594	<0.00592	<0.00620	<0.00596
Carbon tetrachloride	0.00500		<0.00594	<0.00592	<0.00620	<0.00596
Chlorobenzene	0.00500		<0.00594	<0.00592	<0.00620	<0.00596
Chloroethane	0.0100		<0.0119	<0.0118	<0.0124	<0.0119
Chloroform	0.00500		<0.00594	<0.00592	<0.00620	<0.00596
Chloromethane	0.0100		<0.0119	<0.0118	<0.0124	<0.0119
Dibromochloromethane	0.00500		<0.00594	<0.00592	<0.00620	<0.00596
Ethylbenzene	0.00500		<0.00594	<0.00592	<0.00620	<0.00596
Methylene chloride	0.00500		<0.00594	<0.00592	<0.00620	<0.00596
Styrene	0.00500		<0.00594	<0.00592	<0.00620	<0.00596
Tetrachloroethene	0.00500		<0.00594	<0.00592	<0.00620	<0.00596
Toluene	0.00500		<0.00594	<0.00592	<0.00620	<0.00596
Trichloroethene	0.00500		<0.00594 J	<0.00592	<0.00620	<0.00596
Vinyl acetate	0.00500		<0.00594	<0.00592	<0.00620	0.00668
Vinyl chloride	0.0100		<0.0119 J	<0.0118 J	<0.0124 J	<0.0119 J
Xylenes (total)	0.0100		<0.0119	<0.0118	<0.0124	<0.0119
cis-1,2-Dichloroethene	0.00500		<0.00594	<0.00592	<0.00620	<0.00596
cis-1,3-Dichloropropene	0.00500		<0.00594	<0.00592	<0.00620	<0.00596
trans-1,2-Dichloroethene	0.00500		<0.00594	<0.00592	<0.00620	<0.00596
trans-1,3-Dichloropropene	0.00500		<0.00594	<0.00592	<0.00620	<0.00596
% Surrogate Recovery (Control Limit)						
sur-1,2-Dichloroethane-d4 R% (70 - 121)	-		112.0	112.0	111.9	107.1
sur-Bromofluorobenzene R% (74 - 121)	-		89.1	89.0	92.9	90.1
sur-Toluene-d8 R% (81 - 117)	-		102.0	97.0	100.0	98.0
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8270/SW3550 (mg/kg)						
1,2,4-Trichlorobenzene	0.333		<0.410	<0.405	<0.407	<0.397
1,2-Dichlorobenzene	0.333		<0.410	<0.405	<0.407	<0.397
1,3-Dichlorobenzene	0.333		<0.410	<0.405	<0.407	<0.397
1,4-Dichlorobenzene	0.333		<0.410	<0.405	<0.407	<0.397
2,4,5-Trichlorophenol	0.667		<0.821	<0.810	<0.814	<0.794
2,4,6-Trichlorophenol	0.333		<0.410	<0.405	<0.407	<0.397
2,4-Dichlorophenol	0.333		<0.410	<0.405	<0.407	<0.397
2,4-Dimethylphenol	0.333		<0.410	<0.405	<0.407	<0.397
2,4-Dinitrophenol	1.67		<2.05 J	<2.02 J	<2.03 J	<1.98 J
2,4-Dinitrotoluene	0.333		<0.410	<0.405	<0.407	<0.397
2,6-Dinitrotoluene	0.333		<0.410	<0.405	<0.407	<0.397
2-Chloronaphthalene	0.333		<0.410	<0.405	<0.407	<0.397
2-Chlorophenol	0.333		<0.410	<0.405	<0.407	<0.397
2-Methylnaphthalene	0.333		<0.410	<0.405	<0.407	<0.397
2-Methylphenol	0.333		<0.410	<0.405	<0.407	<0.397
2-Nitroaniline	1.67		<2.05	<2.02	<2.03	<1.98
2-Nitrophenol	0.333		<0.410	<0.405	<0.407	<0.397

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID / Sample Date / Depth / Notes	FDUP08 24-OCT-95 0.0' - 2.0' Duplicate of OT3925SA	OT3926SA 24-OCT-95 0.0' - 2.0'	OT3927SA 24-OCT-95 0.0' - 2.0'	OT3928SA 24-OCT-95 0.0' - 2.0'
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8270/SW3550 (mg/kg) cont'd.						
3,3'-Dichlorobenzidine	0.667		<0.821	<0.810	<0.814	<0.794
3-Nitroaniline	1.67		<2.05	<2.02	<2.03	<1.98
4,6-Dinitro-2-methylphenol	1.67		<2.05	<2.02	<2.03	<1.98
4-Bromophenyl phenyl ether	0.333		<0.410	<0.405	<0.407	<0.397
4-Chloro-3-methylphenol	0.333		<0.410	<0.405	<0.407	<0.397
4-Chloroaniline	0.667		<0.821 J	<0.810 J	<0.814 J	<0.794 J
4-Chlorophenyl phenyl ether	0.333		<0.410	<0.405	<0.407	<0.397
4-Methylphenol	0.333		<0.410	<0.405	<0.407	<0.397
4-Nitroaniline	1.67		<2.05	<2.02	<2.03	<1.98
4-Nitrophenol	1.67		<2.05	<2.02	<2.03	<1.98
Acenaphthene	0.333		<0.410	<0.405	<0.407	<0.397
Acenaphthylene	0.333		<0.410	<0.405	<0.407	<0.397
Anthracene	0.333		<0.410	<0.405	<0.407	<0.397
Benz(a)anthracene	0.333		<0.410 J	<0.405 J	<0.407	0.0445 JQ
Benzo(a)pyrene	0.333		<0.410 J	<0.405 J	<0.407	0.0433 J
Benzo(b)fluoranthene	0.333		<0.410 J	<0.405 J	0.0375 JQ	0.0659 J
Benzo(g,h,i)perylene	0.333		<0.410 J	<0.405 J	<0.407	<0.397 J
Benzo(k)fluoranthene	0.333		<0.410 J	<0.405 J	<0.407	<0.397 J
Benzoic acid	1.67		<2.05	<2.02	<2.03	<1.98
Benzyl alcohol	0.667		<0.821	<0.810	<0.814	<0.794
Butyl benzyl phthalate	0.333		<0.410 J	<0.405 J	<0.407	<0.397
Chrysene	0.333		<0.410 J	<0.405 J	0.0243 JQ	0.0651 JQ
Di-n-butylphthalate	0.333		<0.410	<0.405	<0.407	<0.397
Di-n-octylphthalate	0.333		<0.410 J	<0.405 J	<0.407	<0.397 J
Dibenz(a,h)anthracene	0.333		<0.410 J	<0.405 J	<0.407	<0.397 J
Dibenzofuran	0.333		<0.410	<0.405	<0.407	<0.397
Diethylphthalate	0.333		<0.410	<0.405	<0.407	<0.397
Dimethylphthalate	0.333		<0.410	<0.405	<0.407	<0.397
Fluoranthene	0.333		<0.410	<0.405	0.0167 JQ	0.0873 JQ
Fluorene	0.333		<0.410	<0.405	<0.407	<0.397
Hexachlorobenzene	0.333		<0.410	<0.405	<0.407	<0.397
Hexachlorobutadiene	0.333		<0.410	<0.405	<0.407	<0.397
Hexachlorocyclopentadiene	0.333		<0.410	<0.405	<0.407	<0.397
Hexachloroethane	0.333		<0.410	<0.405	<0.407	<0.397
Indeno(1,2,3-cd)pyrene	0.333		<0.410 J	<0.405 J	<0.407	<0.397 J
Isophorone	0.333		<0.410	<0.405	<0.407	<0.397
Naphthalene	0.333		<0.410	<0.405	<0.407	<0.397
Nitrobenzene	0.333		<0.410	<0.405	<0.407	<0.397
Pentachlorophenol	1.00		<1.23	<1.22	<1.22	<1.19
Phenanthrene	0.333		<0.410	<0.405	<0.407	0.0368 JQ
Phenol	0.333		<0.410	<0.405	<0.407	<0.397

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID Sample Date Depth : Notes :	FDUP08 24-OCT-95 0.0' - 2.0' Duplicate of OT3925SA	OT3926SA 24-OCT-95 0.0' - 2.0'	OT3927SA 24-OCT-95 0.0' - 2.0'	OT3928SA 24-OCT-95 0.0' - 2.0'
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8270/SW3550 (mg/kg) cont'd.						
Pyrene	0.333		<0.410 J	0.0474 J	0.0240 JQ	0.0961 JQ
bis(2-Chloroethoxy)methane	0.333		<0.410	<0.405	<0.407	<0.397
bis(2-Chloroethyl)ether	0.333		<0.410	<0.405	<0.407	<0.397
bis(2-Chloroisopropyl)ether	0.333		<0.410	<0.405	<0.407	<0.397
bis(2-Ethylhexyl)phthalate	0.333		<0.410 J	<0.405 J	<0.407	<0.397
n-Nitrosodi-n-propylamine	0.333		<0.410	<0.405	<0.407	<0.397
n-Nitrosodiphenylamine	0.333		<0.410	<0.405	<0.407	<0.397
% Surrogate Recovery (Control Limit)						
sur-2,4,6-Tribromophenol R% (19 - 122)	-		46.9	85.0	53.0	51.0
sur-2-Fluorobiphenyl R% (30 - 115)	-		59.0	90.9	54.1	58.9
sur-2-Fluorophenol R% (25 - 121)	-		39.9	74.0	38.0	40.9
sur-Nitrobenzene-d5 R% (23 - 120)	-		46.1	84.0	42.0	48.1
sur-Phenol-d6 R% (24 - 113)	-		39.9	70.0	38.0	45.0
sur-Terphenyl-d14 R% (18 - 137)	-		75.1	113.1	64.9	69.0

Data Qualification Flags/Notes:
J = Estimated quantation based upon QC data
JB = Estimated quantitation: possibly biased high or a false positive based upon blank data
JH = Estimated quantitation: possibly biased high based upon QC data
JL = Estimated quantitation: possibly biased low or a false negative based upon QC data
JQ = Estimated quantitation: detected below the Practical Quantitation Limit
R = Datum rejected based upon QC data: do not use

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID Sample Date Depth Notes	FDUP07 24-OCT-95 0.0' - 2.0' Duplicate of OT3928SA	OT3929SA 24-OCT-95 0.0' - 2.0'	OT3930SA 24-OCT-95 0.0' - 2.0'
SOIL pH - SW9045/NONE (pH)					
623-9045 pH units Soil	-		7.54	7.62	7.51
PERCENT SOLID - D2216/NONE (percent)					
623-D2216 Moisture	-		12.0	18.0	19.0
METALS, TOTAL BY ICP/SW6010/SW3050 (mg/kg)					
Aluminum	50.0		6420	10700	9150
Antimony	25.0		1.81 JQ	1.92 JQ	2.04 JL
Barium	2.00		106	123	100
Beryllium	0.300		<2.47	0.610	0.742
Cadmium	1.00		<0.824	<0.871	<0.928 JL
Calcium	10.0		127000	77100	23000
Chromium	5.00		14.0 JQ	10.3	9.56
Cobalt	5.00		2.64 JQ	3.75 JQ	4.08 JQ
Copper	5.00		10.7 JQ	9.84	9.47
Iron	5.00		6490 J	7590	7480
Magnesium	25.0		1870	3140	2380
Manganese	1.00		359	322	397
Molybdenum	5.00		2.06 JQ	2.26 JQ	<4.64 JL
Nickel	5.00		59.3 J	8.88	8.44
Potassium	60.0		1560	2290	2000
Silver	5.00		<4.12	<4.36	<4.64
Sodium	25.0		89.5 JB	126 JB	216 JB
Thallium	25.0		<20.6	<21.8	<23.2
Vanadium	5.00		10.5	8.45	11.0
Zinc	1.00		60.0 J	18.4	18.6
ARSENIC, TOTAL BY GFAA/SW 7060 (mg/kg)					
Arsenic	0.500		15.4 JH	2.95	2.56 JL
LEAD, TOTAL BY GFAA/SW 7421 (mg/kg)					
Lead	0.500		15.9 J	8.02	10.0 J
MERCURY, TOTAL BY CVAA/SW 7471 (mg/kg)					
Mercury	0.270		<0.220	<0.266	<0.282
SELENIUM, TOTAL BY GFAA/SW 7740/METHOD (mg/kg)					
Selenium	0.500		0.410 JQ	<0.415	<0.468 JL
ORGANOCHLORINE PESTICIDES AND PCBs - SW8080/SW3550 (mg/kg)					
4,4'-DDD	0.00333		<0.00374 J	<0.00402	<0.00405
4,4'-DDE	0.00133		0.000986 JQ	<0.00161	<0.00162
4,4'-DDT	0.00333		<0.00374 J	<0.00402	<0.00405
AR1016	0.0333		<0.0374	<0.0402	<0.0405
AR1221	0.0333		<0.0374	<0.0402	<0.0405
AR1232	0.0333		<0.0374	<0.0402	<0.0405
AR1242	0.0333		<0.0374	<0.0402	<0.0405
AR1248	0.0333		<0.0374	<0.0402	<0.0405
AR1254	0.0333		<0.0374	<0.0402	<0.0405

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID Sample Date Depth Notes	FDUP07 24-OCT-95 0.0' - 2.0' Duplicate of OT3928SA	OT3929SA 24-OCT-95 0.0' - 2.0'	OT3930SA 24-OCT-95 0.0' - 2.0'
ORGANOCHLORINE PESTICIDES AND PCBs - SW8080/SW3550 (mg/kg) cont'd.					
AR1260	0.0333		<0.0374	<0.0402	<0.0405
Aldrin	0.00133		<0.00150	<0.00161	<0.00162
Chlordane	0.0166		0.0375 J	<0.0201	0.0231
Dieldrin	0.000666		<0.000748	<0.000804	<0.000810
Endosulfan I	0.00166		<0.00187	<0.00201	<0.00202
Endosulfan II	0.00133		<0.00150	<0.00161	<0.00162
Endosulfan sulfate	0.00333		<0.00374	<0.00402	<0.00405
Endrin	0.00200		<0.00224	<0.00241	<0.00243
Endrin aldehyde	0.00333		<0.00374	<0.00402	<0.00405
Heptachlor	0.000999		<0.00112	<0.00121	<0.00122
Heptachlor epoxide	0.00166		<0.00187	<0.00201	<0.00202
Methoxychlor	0.0166		0.0129 JB	<0.0201	<0.0202
Toxaphene	0.0666		<0.0748	<0.0804	<0.0810
alpha-BHC	0.000999		<0.00112	<0.00121	<0.00122
beta-BHC	0.00166		<0.00187	<0.00201	<0.00202
delta-BHC	0.00166		<0.00187	<0.00201	<0.00202
gamma-BHC (Lindane)	0.00133		<0.00150	<0.00161	<0.00162
% Surrogate Recovery (Control Limit)					
sur-Dibutylchlorendate R% (10 - 181)	-		51.9	46.0	16.0
sur-TCMX R% (18 - 145)	-		-	-	64.0
CHLORINATED HERBICIDES - SW8150/METHOD (mg/kg)					
2,4,5-T	0.00400		<0.00454	<0.00488	<0.00490
2,4,5-TP (Silvex)	0.00400		<0.00454	<0.00488	<0.00490
2,4-D	0.0400		<0.0454	<0.0488	<0.0490
2,4-DB	0.0600		<0.0681	<0.0732	<0.0735
Dalapon	0.140		<0.159	<0.171	<0.172
Dicamba	0.00400		<0.00454	<0.00488	<0.00490
Dichloroprop	0.0400		<0.0454	<0.0488	<0.0490 J
Dinoseb	0.0140		<0.0159	<0.0171	<0.0172
MCPA	3.00		<3.40	<3.66	<3.68
MCPP	3.00		<3.40	<3.66	<3.68
% Surrogate Recovery (Control Limit)					
sur-DCAA R% (0 - 191)	-		42.0	48.0	44.9
VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8240/NONE (mg/kg)					
1,1,1-Trichloroethane	0.00500		<0.00608	<0.00628	<0.00621
1,1,2,2-Tetrachloroethane	0.00500		<0.00608	<0.00628	<0.00621
1,1,2-Trichloroethane	0.00500		<0.00608	<0.00628	<0.00621
1,1-Dichloroethane	0.00500		<0.00608	<0.00628	<0.00621
1,1-Dichloroethene	0.00500		<0.00608	<0.00628	<0.00621
1,2-Dichloroethane	0.00500		<0.00608	<0.00628	<0.00621
1,2-Dichloropropane	0.00500		<0.00608	<0.00628	<0.00621
2-Butanone (MEK)	0.0100		<0.0122	<0.0126	<0.0124
2-Chloroethyl vinyl ether	0.0100		<0.0122	<0.0126	<0.0124
2-Hexanone	0.0100		<0.0122 J	<0.0126 J	<0.0124 J
4-Methyl-2-pentanone	0.0100		<0.0122	<0.0126	<0.0124

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID:	FDUP07	OT3929SA	OT3930SA
		Sample Date:	24-OCT-95	24-OCT-95	24-OCT-95
		Depth:	0.0' - 2.0'	0.0' - 2.0'	0.0' - 2.0'
		Notes:	Duplicate of OT3928SA		
VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8240/NONE (mg/kg) cont'd.					
Acetone	0.0100		<0.0122	<0.0126	<0.0124
Benzene	0.00500		<0.00608	<0.00628	<0.00621
Bromodichloromethane	0.00500		<0.00608	<0.00628	<0.00621
Bromoform	0.00500		<0.00608	<0.00628	<0.00621
Bromomethane	0.0100		<0.0122	<0.0126	<0.0124
Carbon disulfide	0.00500		<0.00608	<0.00628	<0.00621
Carbon tetrachloride	0.00500		<0.00608	<0.00628	<0.00621
Chlorobenzene	0.00500		<0.00608	<0.00628	<0.00621
Chloroethane	0.0100		<0.0122	<0.0126	<0.0124
Chloroform	0.00500		<0.00608	<0.00628	<0.00621
Chloromethane	0.0100		<0.0122	<0.0126	<0.0124
Dibromochloromethane	0.00500		<0.00608	<0.00628	<0.00621
Ethylbenzene	0.00500		<0.00608	<0.00628	<0.00621
Methylene chloride	0.00500		<0.00608	<0.00628	<0.00621
Styrene	0.00500		<0.00608	<0.00628	<0.00621
Tetrachloroethene	0.00500		<0.00608	<0.00628	0.00358 JQ
Toluene	0.00500		0.00159 JQ	<0.00628	0.00230 JQ
Trichloroethene	0.00500		<0.00608	<0.00628	<0.00621
Vinyl acetate	0.0100		<0.0122 J	<0.0126 J	<0.0124 J
Vinyl chloride	0.0100		<0.0122	<0.0126	<0.0124
Xylenes (total)	0.00500		<0.00608	<0.00628	<0.00621
cis-1,2-Dichloroethene	0.00500		<0.00608	<0.00628	<0.00621
cis-1,3-Dichloropropene	0.00500		<0.00608	<0.00628	<0.00621
trans-1,2-Dichloroethene	0.00500		<0.00608	<0.00628	<0.00621
trans-1,3-Dichloropropene	0.00500		<0.00608	<0.00628	<0.00621
% Surrogate Recovery (Control Limit)					
sur-1,2-Dichloroethane-d4 R% (70 - 121)	-		109.0	112.1	105.0
sur-Bromofluorobenzene R% (74 - 121)	-		89.0	91.1	87.0
sur-Toluene-d8 R% (81 - 117)	-		102.0	99.0	100.0
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8270/SW3550 (mg/kg)					
1,2,4-Trichlorobenzene	0.333		<0.373	<0.403	<0.406
1,2-Dichlorobenzene	0.333		<0.373	<0.403	<0.406
1,3-Dichlorobenzene	0.333		<0.373	<0.403	<0.406
1,4-Dichlorobenzene	0.333		<0.373	<0.403	<0.406
2,4,5-Trichlorophenol	0.667		<0.746	<0.806	<0.812
2,4,6-Trichlorophenol	0.333		<0.373	<0.403	<0.406
2,4-Dichlorophenol	0.333		<0.373	<0.403	<0.406
2,4-Dimethylphenol	0.333		<0.373	<0.403	<0.406
2,4-Dinitrophenol	1.67		<1.87 J	<2.02 J	<2.03 J
2,4-Dinitrotoluene	0.333		<0.373	<0.403	<0.406
2,6-Dinitrotoluene	0.333		<0.373	<0.403	<0.406
2-Chloronaphthalene	0.333		<0.373	<0.403	<0.406
2-Chlorophenol	0.333		<0.373	<0.403	<0.406
2-Methylnaphthalene	0.333		<0.373	<0.403	<0.406
2-Methylphenol	0.333		<0.373	<0.403	<0.406
2-Nitroaniline	1.67		<1.87	<2.02	<2.03
2-Nitrophenol	0.333		<0.373	<0.403	<0.406

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID Sample Date Depth Notes	FDUP08 24-OCT-95 0.0' - 2.0' Duplicate of OT3925SA	OT3926SA 24-OCT-95 0.0' - 2.0'	OT3927SA 24-OCT-95 0.0' - 2.0'	OT3928SA 24-OCT-95 0.0' - 2.0'
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8270/SW3550 (mg/kg) cont'd.						
Pyrene	0.333		<0.410 J	0.0474 J	0.0240 JQ	0.0961 JQ
bis(2-Chloroethoxy)methane	0.333		<0.410	<0.405	<0.407	<0.397
bis(2-Chloroethyl)ether	0.333		<0.410	<0.405	<0.407	<0.397
bis(2-Chloroisopropyl)ether	0.333		<0.410	<0.405	<0.407	<0.397
bis(2-Ethylhexyl)phthalate	0.333		<0.410 J	<0.405 J	<0.407	<0.397
n-Nitrosodi-n-propylamine	0.333		<0.410	<0.405	<0.407	<0.397
n-Nitrosodiphenylamine	0.333		<0.410	<0.405	<0.407	<0.397
% Surrogate Recovery (Control Limit)						
sur-2,4,6-Tribromophenol R% (19 - 122)	-		46.9	85.0	53.0	51.0
sur-2-Fluorobiphenyl R% (30 - 115)	-		59.0	90.9	54.1	58.9
sur-2-Fluorophenol R% (25 - 121)	-		39.9	74.0	38.0	40.9
sur-Nitrobenzene-d5 R% (23 - 120)	-		46.1	84.0	42.0	48.1
sur-Phenol-d6 R% (24 - 113)	-		39.9	70.0	38.0	45.0
sur-Terphenyl-d14 R% (18 - 137)	-		75.1	113.1	68.9	69.0

Data Qualification Flags/Notes:
J = Estimated quantation based upon QC data
JB = Estimated quantitation: possibly biased high or a false positive based upon blank data
JH = Estimated quantitation: possibly biased high based upon QC data
JL = Estimated quantitation: possibly biased low or a false negative based upon QC data
JQ = Estimated quantitation: detected below the Practical Quantitation Limit
R = Datum rejected based upon QC data: do not use

TABLE C-2

DATA SUMMARY TABLE
Ground Maintenance Yard
Naval Air Station Fort Worth Joint Reserve Base, Carswell Field
Fort Worth, Texas

PARAMETER/METHOD(UNITS)	Quantitation Limits	Sample ID Sample Date Depth Notes	FDUP07 24-OCT-95 0.0' - 2.0' Duplicate of OT3928SA		OT3929SA 24-OCT-95 0.0' - 2.0'		OT3930SA 24-OCT-95 0.0' - 2.0'	
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS - SW8270/SW3550 (mg/kg) cont'd.								
Pyrene	0.333		0.0270	J	<0.403		<0.406	
bis(2-Chloroethoxy)methane	0.333		<0.373		<0.403		<0.406	
bis(2-Chloroethyl)ether	0.333		<0.373		<0.403		<0.406	
bis(2-Chloroisopropyl)ether	0.333		<0.373		<0.403		<0.406	
bis(2-Ethylhexyl)phthalate	0.333		<0.373	J	<0.403		0.309	JQ
n-Nitrosodi-n-propylamine	0.333		<0.373		<0.403		<0.406	
n-Nitrosodiphenylamine	0.333		<0.373		<0.403		<0.406	
% Surrogate Recovery (Control Limit)								
sur-2,4,6-Tribromophenol R% (19 - 122)	-		57.0		56.0		64.0	
sur-2-Fluorobiphenyl R% (30 - 115)	-		67.0		67.0		73.9	
sur-2-Fluorophenol R% (25 - 121)	-		48.0		48.9		58.9	
sur-Nitrobenzene-d5 R% (23 - 120)	-		49.1		54.1		63.1	
sur-Phenol-d6 R% (24 - 113)	-		48.9		48.9		58.0	
sur-Terphenyl-d14 R% (18 - 137)	-		82.0		68.0		70.9	

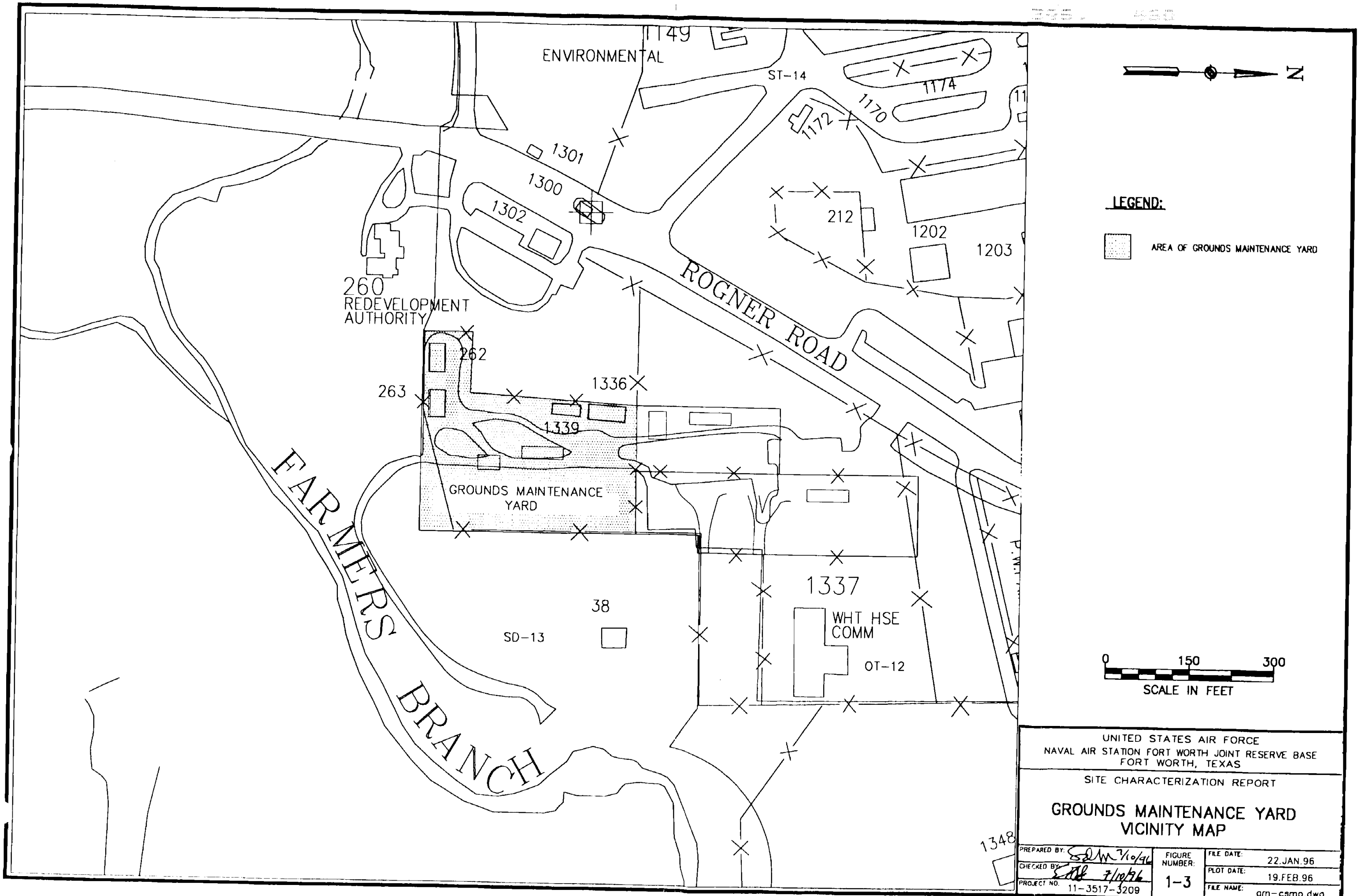
Data Qualifiers/Reason Flags/Notes:
J = Estimated quantitation based upon QC data
JB = Estimated quantitation: possibly biased high or a false positive based upon blank data
JH = Estimated quantitation: possibly biased high based upon QC data
JL = Estimated quantitation: possibly biased low or a false negative based upon QC data
JQ = Estimated quantitation: detected below the Practical Quantitation Limit
R = Data rejected based upon QC data: do not use.

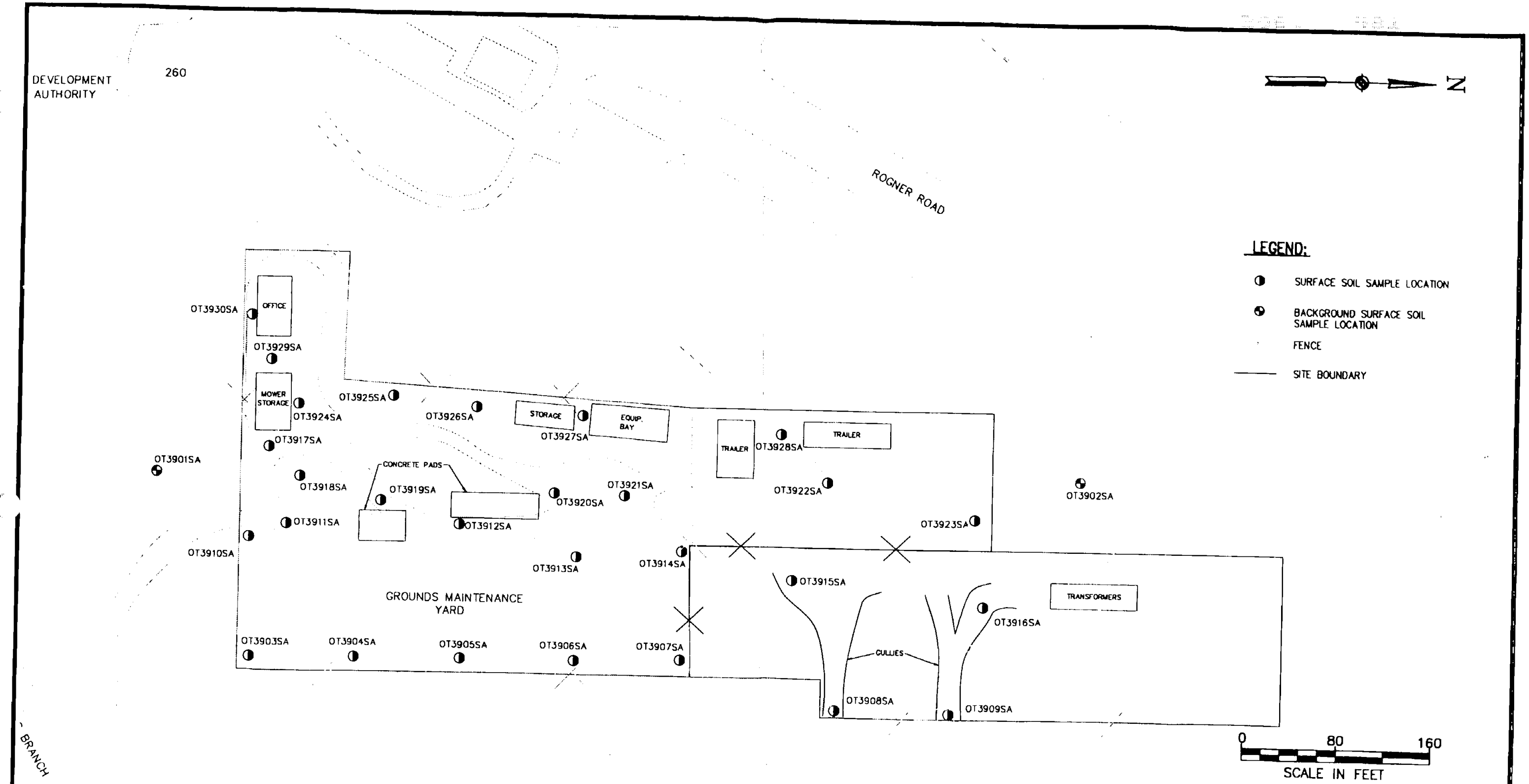
PREPARED/DATED: John Pecore/2-22-96
CHECKED/DATE: Sue Max/2-22-96

TAB

7

Figures


1149
ENVIRONMENTAL
ST-14
1174
1170
1172
1301
1300
1302
212
1202
1203
260
REDEVELOPMENT
AUTHORITY
ROGNER ROAD
262
263
1336
1339
GROUNDS MAINTENANCE
YARD
FARMERS BRANCH
38
SD-13
1337
WHT HSE
COMM
OT-12
1348
N
LEGEND:
AREA OF GROUNDS MAINTENANCE YARD
0
150
300
SCALE IN FEET
UNITED STATES AIR FORCE
NAVAL AIR STATION FORT WORTH JOINT RESERVE BASE
FORT WORTH, TEXAS
SITE CHARACTERIZATION REPORT
GROUNDS MAINTENANCE YARD
VICINITY MAP
PREPARED BY: 7/10/96
CHECKED BY: 7/10/96
PROJECT NO. 11-3517-3209
FIGURE NUMBER: 1-3
FILE DATE: 22.JAN.96
PLOT DATE: 19.FEB.96
FILE NAME: gm-csmp.dwg

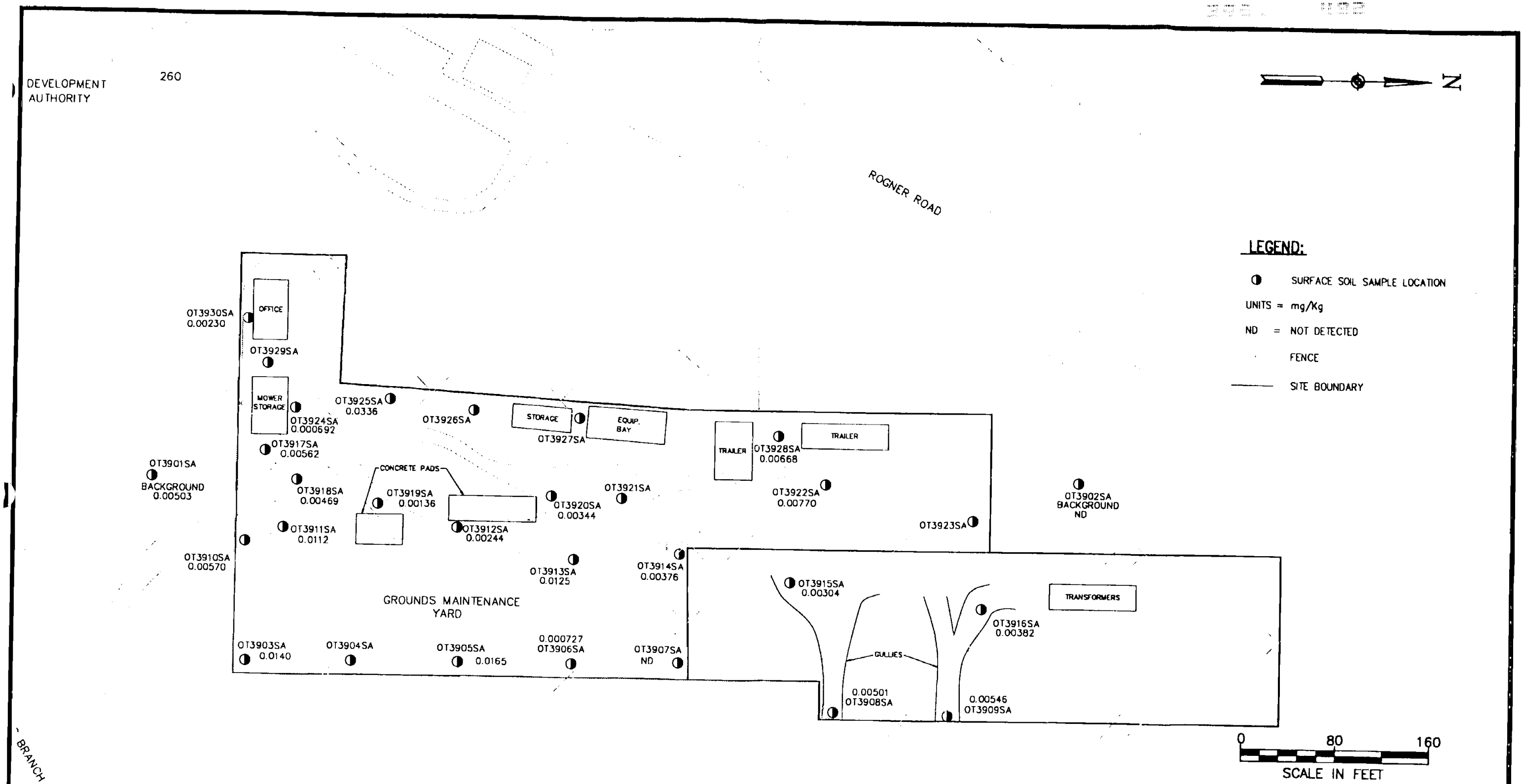


UNITED STATES AIR FORCE
NAVAL AIR STATION FORT WORTH JOINT RESERVE BASE
FORT WORTH, TEXAS

SITE CHARACTERIZATION REPORT

GROUNDS MAINTENANCE YARD SAMPLE LOCATIONS

PREPARED BY: CJM 7/10/96	FIGURE NUMBER: 2-2	FILE DATE:	22.JAN.96
CHECKED BY: 7/10/96		PLOT DATE:	10.JULY.96
PROJECT NO. 11-3517-3209		FILE NAME:	gm-chem.dwg



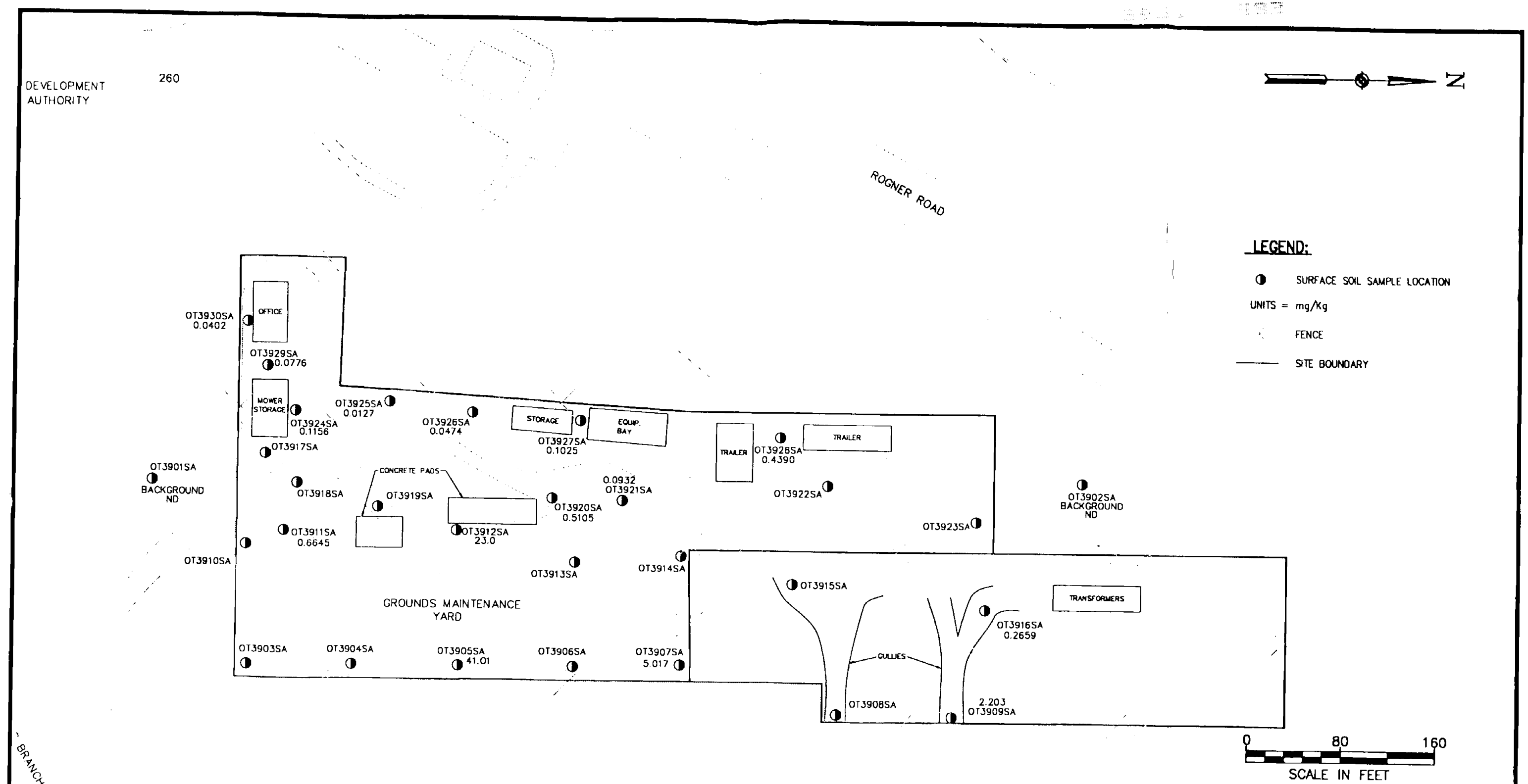
UNITED STATES AIR FORCE
NAVAL AIR STATION FORT WORTH JOINT RESERVE BASE
FORT WORTH, TEXAS

SITE CHARACTERIZATION REPORT

TOLUENE CONCENTRATIONS

GROUNDS MAINTENANCE YARD

PREPARED BY: SDM 7/10/96	FIGURE NUMBER: 3-11	FILE DATE:	22.JAN.96
CHECKED BY: ESA 7/10/96		PLOT DATE:	21.FEB.96
PROJECT NO. 11-3517-3209		FILE NAME:	grn-tolu.dwg



UNITED STATES AIR FORCE
NAVAL AIR STATION FORT WORTH JOINT RESERVE BASE
FORT WORTH, TEXAS

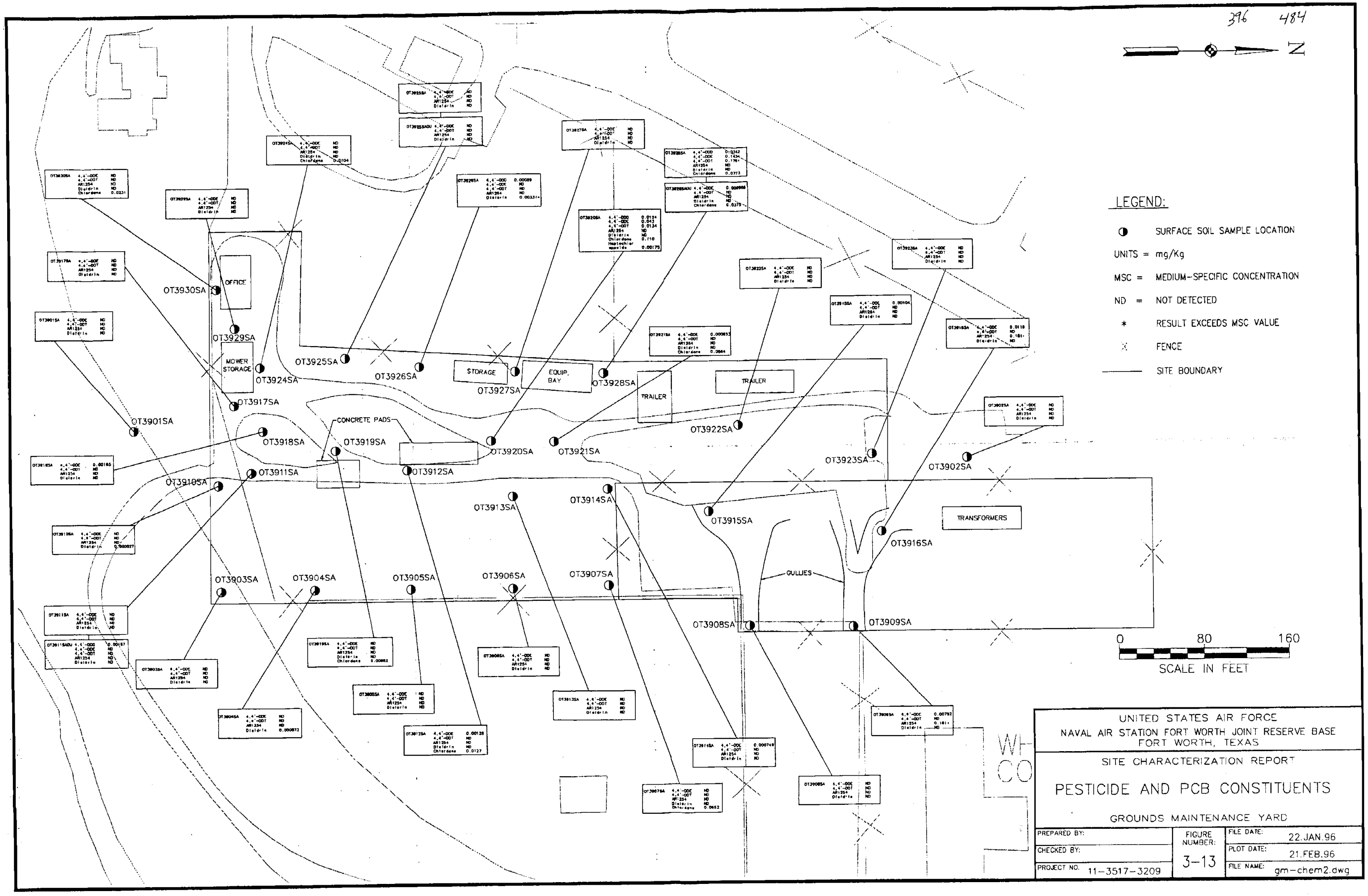
SITE CHARACTERIZATION REPORT

TOTAL PAH CONCENTRATIONS

GROUNDS MAINTENANCE YARD

PREPARED BY: SDM 7/10/96	FIGURE NUMBER: 3-12	FILE DATE:	22.JAN.96
CHECKED BY: SDP 7/10/96		PLOT DATE:	20.FEB.96
PROJECT NO. 11-3517-3209		FILE NAME:	gm-tpah.dwg

396 484



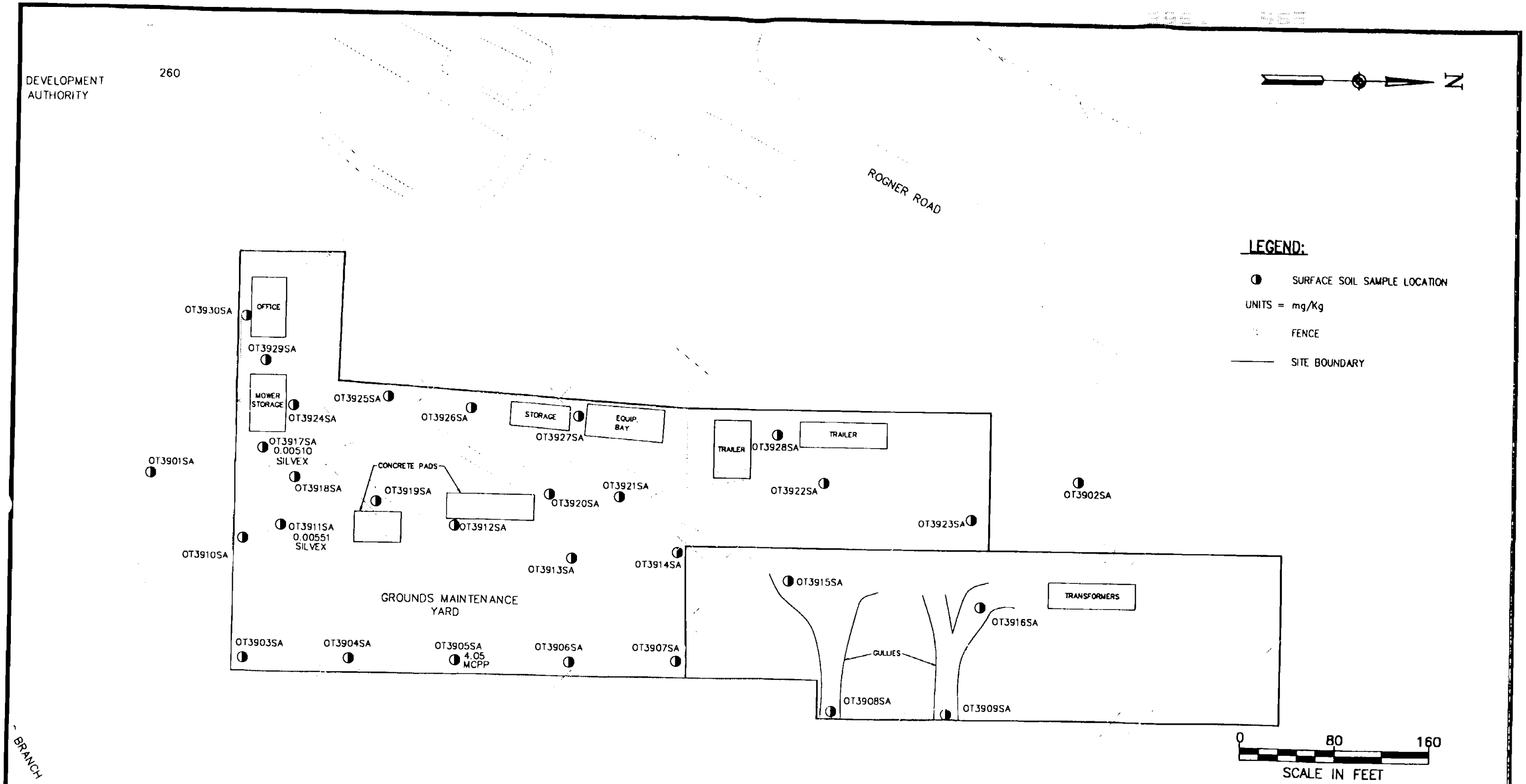
UNITED STATES AIR FORCE
NAVAL AIR STATION FORT WORTH JOINT RESERVE BASE
FORT WORTH, TEXAS

SITE CHARACTERIZATION REPORT

PESTICIDE AND PCB CONSTITUENTS

GROUNDS MAINTENANCE YARD

PREPARED BY:	FIGURE NUMBER: 3-13	FILE DATE:	22.JAN.96
CHECKED BY:		PLOT DATE:	21.FEB.96
PROJECT NO. 11-3517-3209		FILE NAME:	gm-chem2.dwg



UNITED STATES AIR FORCE
NAVAL AIR STATION FORT WORTH JOINT RESERVE BASE
FORT WORTH, TEXAS

SITE CHARACTERIZATION REPORT

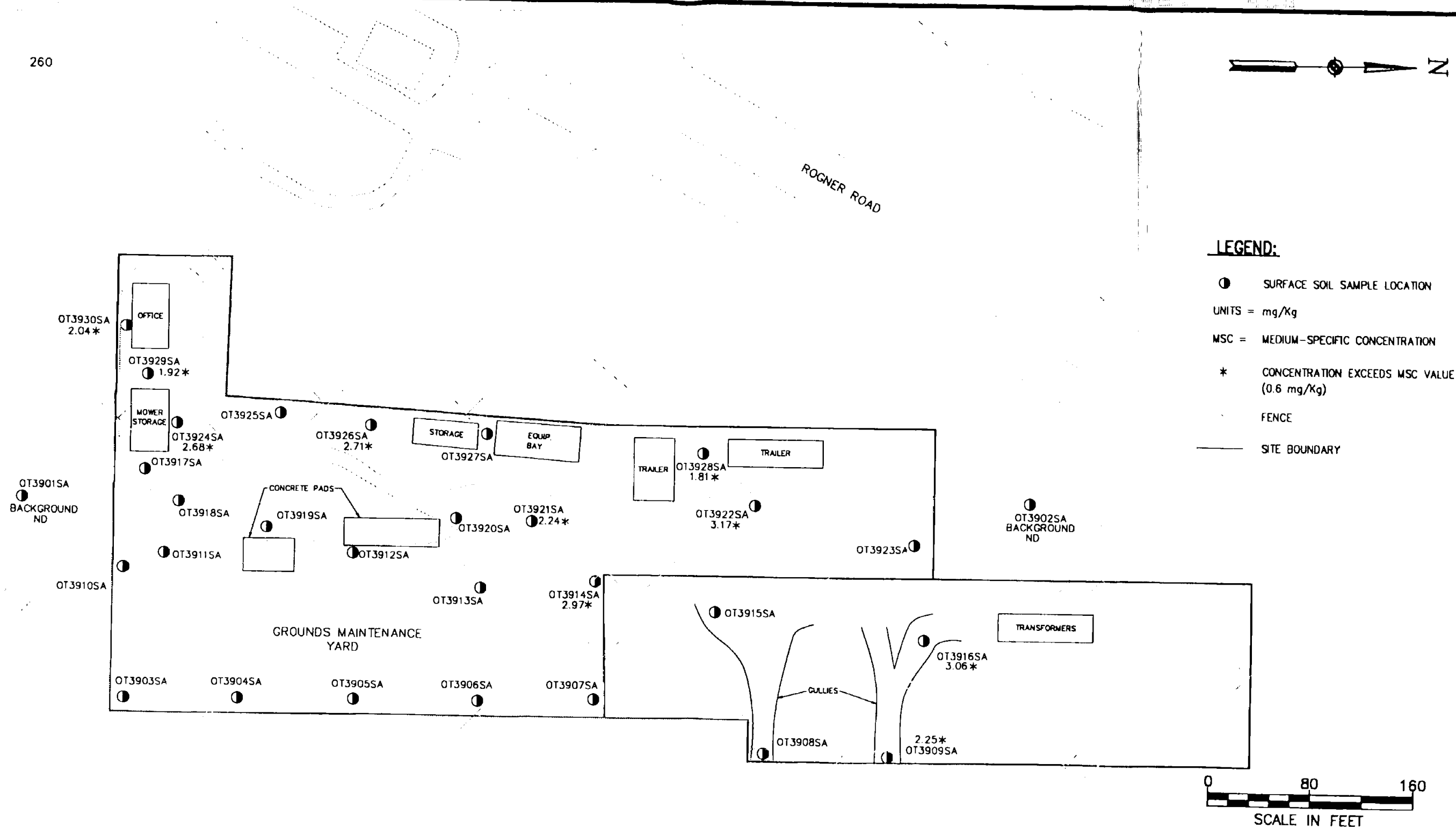
MCPP AND SILVEX (2,4,5–TP) CONCENTRATIONS

GROUNDS MAINTENANCE YARD

PREPARED BY: SJM 7/10/96	FIGURE NUMBER: 3–14	FILE DATE:	22.JAN.96
CHECKED BY: CB 7/10/96		PLOT DATE:	20.FEB.96
PROJECT NO. 11–3517–3209		FILE NAME:	gm–slvr.dwg

DEVELOPMENT AUTHORITY

260



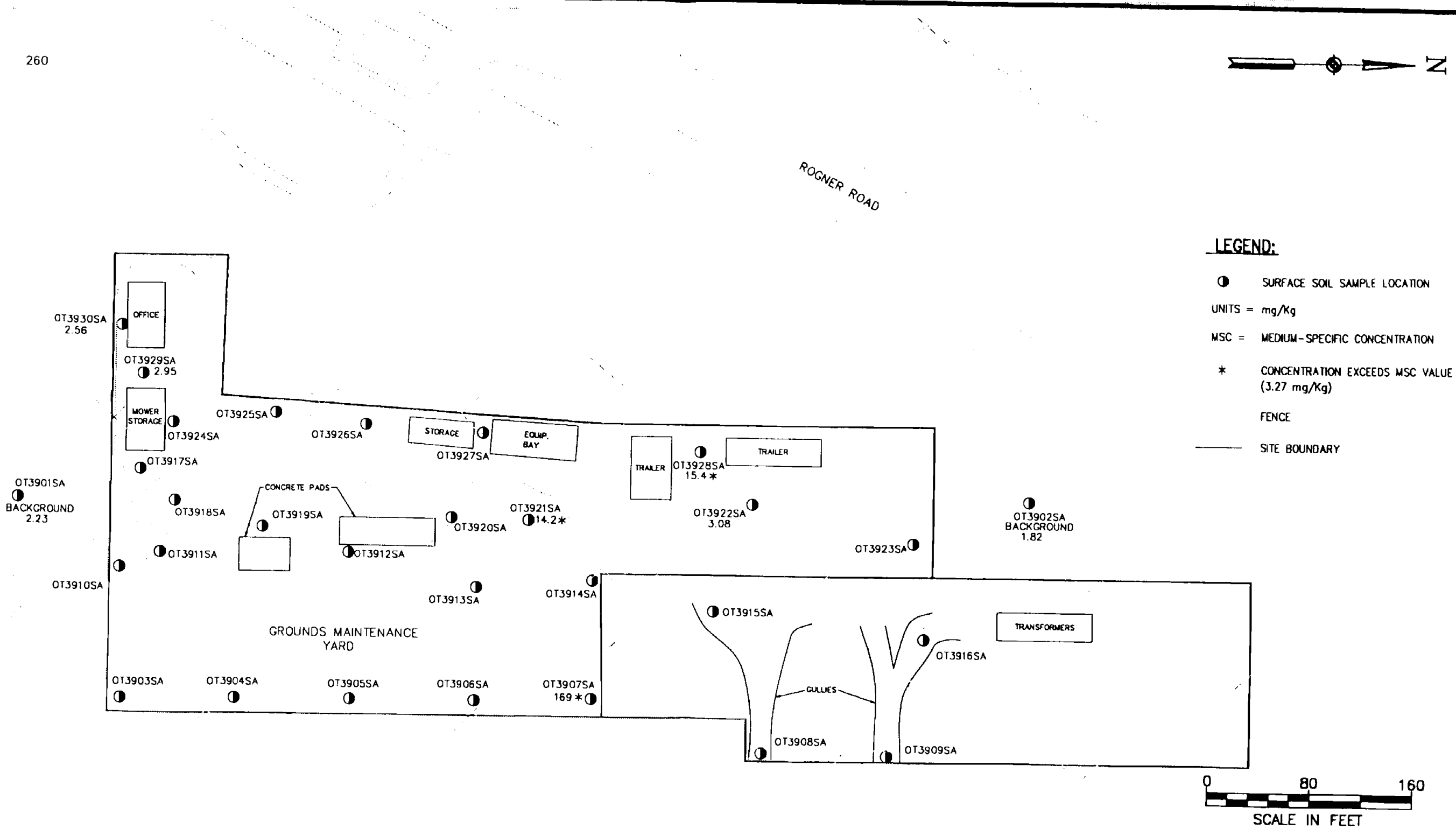
UNITED STATES AIR FORCE
NAVAL AIR STATION FORT WORTH JOINT RESERVE BASE
FORT WORTH, TEXAS

SITE CHARACTERIZATION REPORT

ANTIMONY CONCENTRATIONS GREATER THAN BACKGROUND

GROUNDS MAINTENANCE YARD

PREPARED BY: Sdm 7/10/96	FIGURE NUMBER: 3-15	FILE DATE:	22.JAN.96
CHECKED BY: EBT 7/10/96		PLOT DATE:	14.FEB.96
PROJECT NO. 11-3517-3209		FILE NAME:	gm-anti.dwg



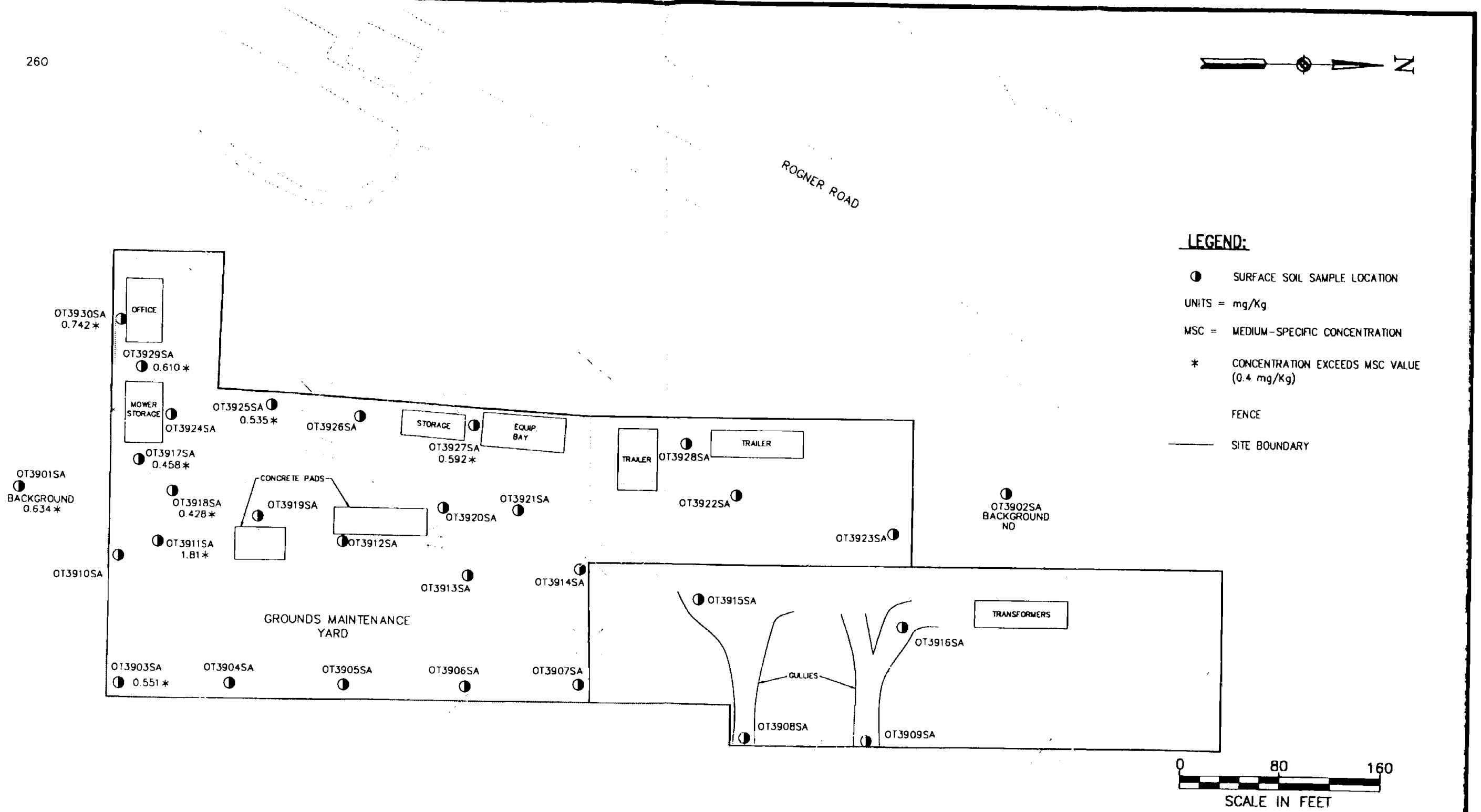
UNITED STATES AIR FORCE
NAVAL AIR STATION FORT WORTH JOINT RESERVE BASE
FORT WORTH, TEXAS

SITE CHARACTERIZATION REPORT

ARSENIC CONCENTRATIONS GREATER THAN BACKGROUND

GROUNDS MAINTENANCE YARD

PREPARED BY: SEM 7/10/96	FIGURE NUMBER: 3-16	FILE DATE:	22.JAN.96
CHECKED BY: SBB 7/10/96		PLOT DATE:	20.FEB.96
PROJECT NO. 11-3517-3209		FILE NAME:	gm-arse.dwg



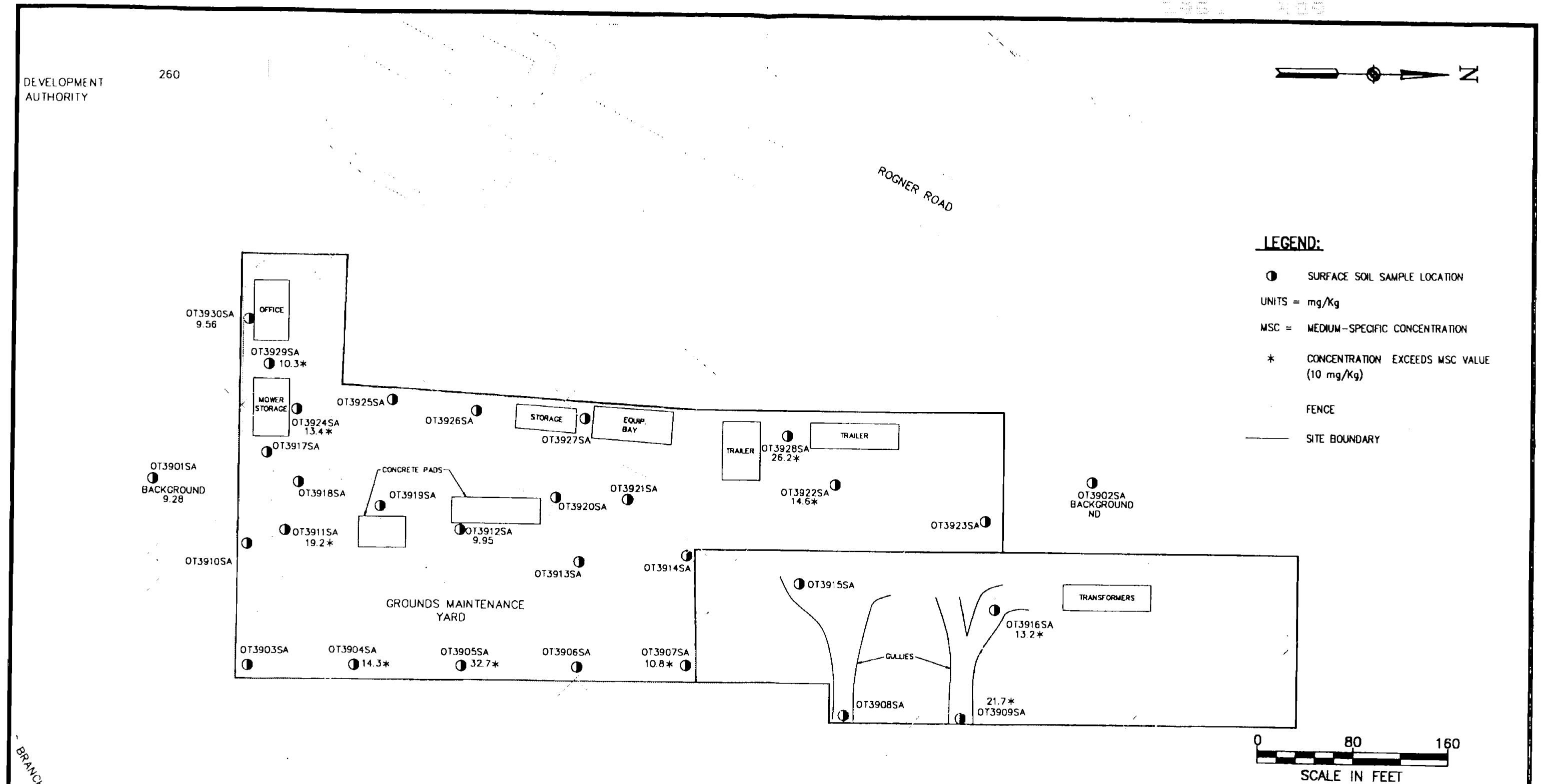
UNITED STATES AIR FORCE
NAVAL AIR STATION FORT WORTH JOINT RESERVE BASE
FORT WORTH, TEXAS

SITE CHARACTERIZATION REPORT

BERYLLIUM CONCENTRATIONS GREATER THAN BACKGROUND

GROUNDS MAINTENANCE YARD

PREPARED BY: SDM 7/10/96	FIGURE NUMBER: 3-17	FILE DATE:	22.JAN.96
CHECKED BY: SBL 7/10/96		PLOT DATE:	20.FEB.96
PROJECT NO. 11-3517-3209		FILE NAME:	gm-bery.dwg



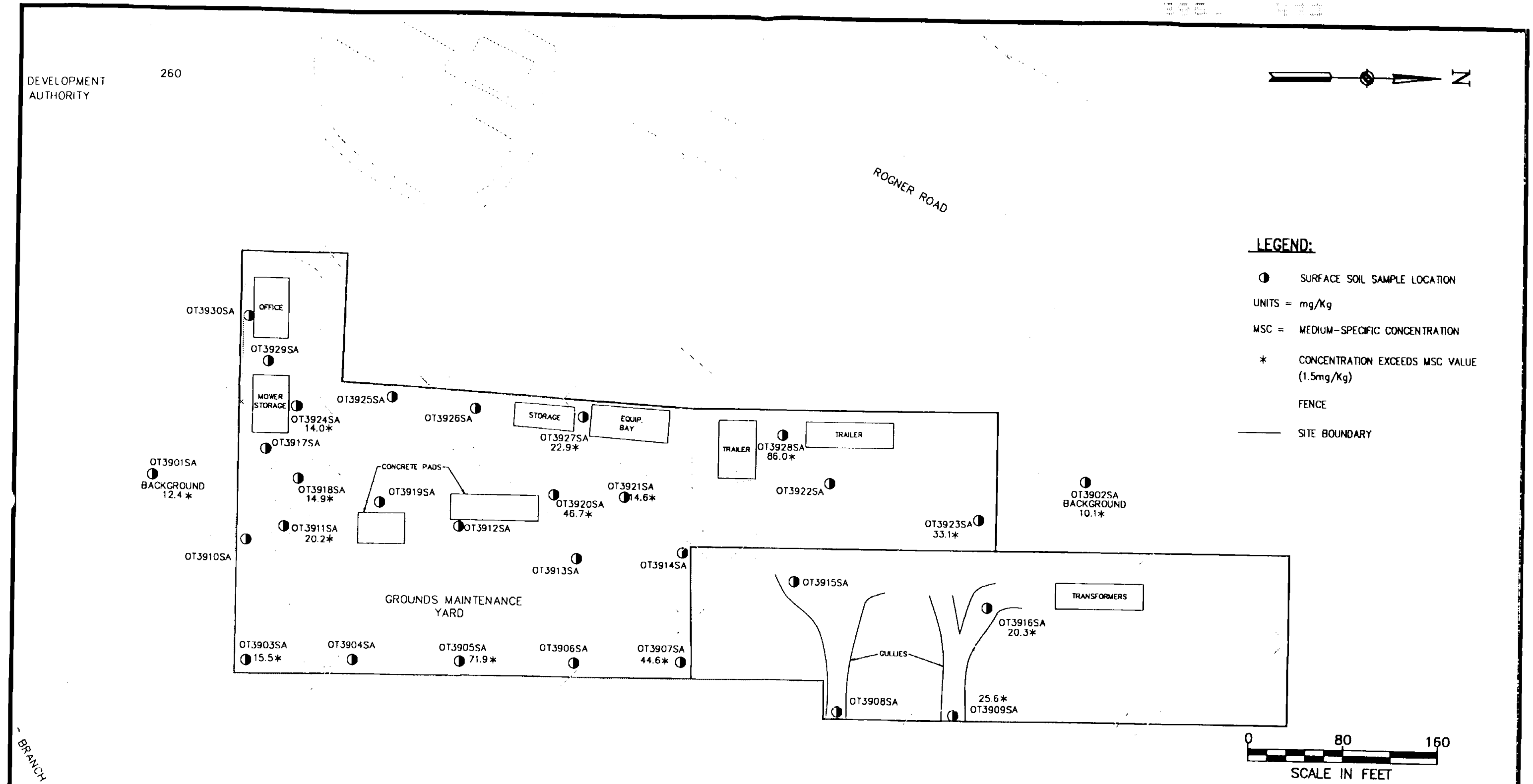
UNITED STATES AIR FORCE
NAVAL AIR STATION FORT WORTH JOINT RESERVE BASE
FORT WORTH, TEXAS

SITE CHARACTERIZATION REPORT

CHROMIUM CONCENTRATIONS GREATER THAN BACKGROUND

GROUNDS MAINTENANCE YARD

PREPARED BY:	7/10/96	FIGURE NUMBER: 3-18	FILE DATE: 22.JAN.96
CHECKED BY:	7/10/96		PLOT DATE: 20.FEB.96
PROJECT NO.	11-3517-3209		FILE NAME: gm-chrm.dwg



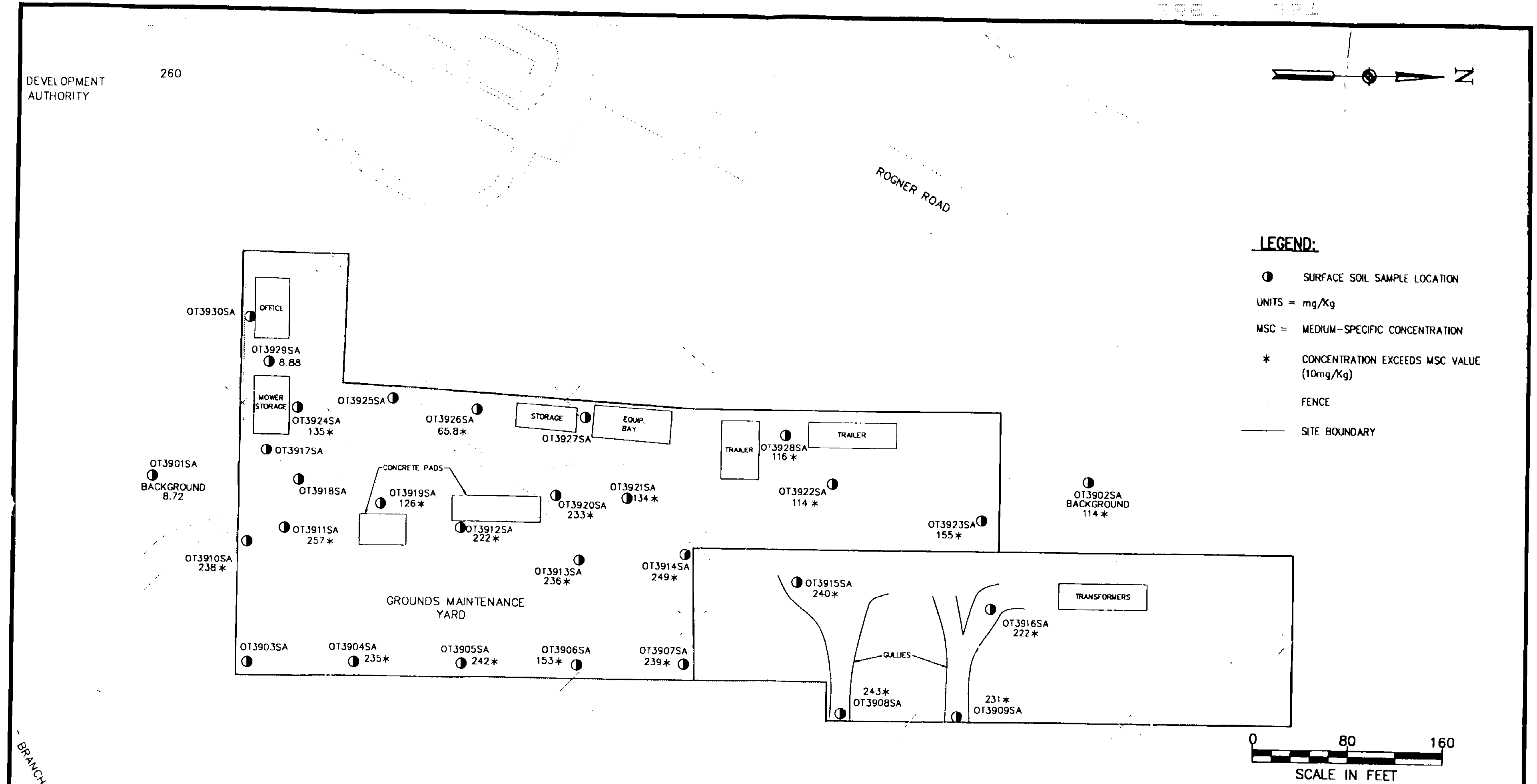
UNITED STATES AIR FORCE
NAVAL AIR STATION FORT WORTH JOINT RESERVE BASE
FORT WORTH, TEXAS

SITE CHARACTERIZATION REPORT

LEAD CONCENTRATIONS GREATER THAN BACKGROUND

GROUNDS MAINTENANCE YARD

PREPARED BY: Sdm 7/10/96	FIGURE NUMBER: 3-19	FILE DATE: 22.JAN.96
CHECKED BY: SSF 7/10/96		PLOT DATE: 20.FEB.96
PROJECT NO. 11-3517-3209		FILE NAME: gm-lead.dwg



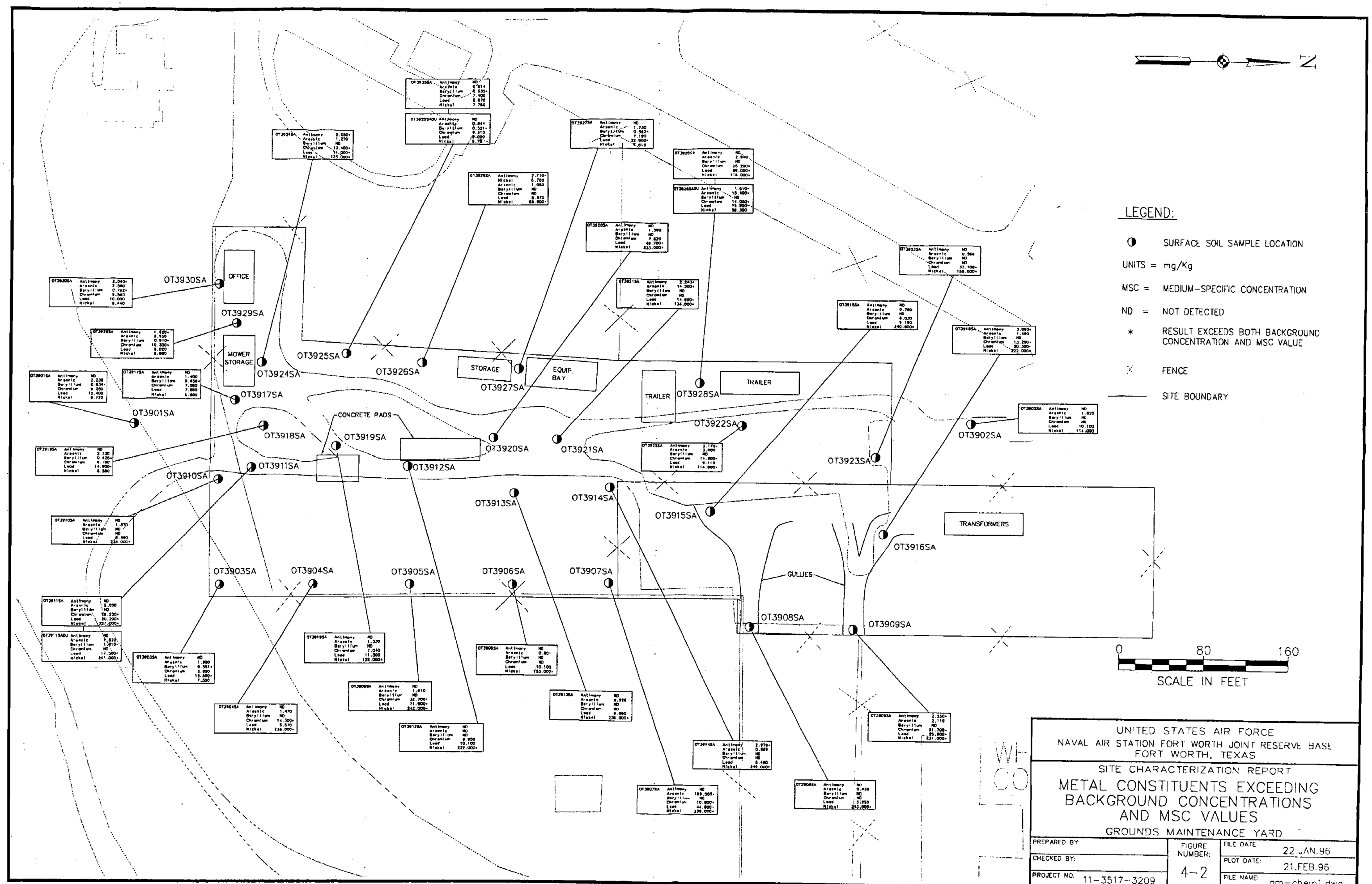
UNITED STATES AIR FORCE
NAVAL AIR STATION FORT WORTH JOINT RESERVE BASE
FORT WORTH, TEXAS

SITE CHARACTERIZATION REPORT

NICKEL CONCENTRATIONS GREATER THAN BACKGROUND

GROUNDS MAINTENANCE YARD

PREPARED BY:		FIGURE NUMBER:	FILE DATE: 22.JAN.96
CHECKED BY:		3-20	PLOT DATE: 20.FEB.96
PROJECT NO. 11-3517-3209			FILE NAME: gm-nick.dwg



UNITED STATES AIR FORCE
NAVAL AIR STATION FORT WORTH JOINT RESERVE BASE
FORT WORTH, TEXAS

SITE CHARACTERIZATION REPORT

METAL CONSTITUENTS EXCEEDING BACKGROUND CONCENTRATIONS AND MSC VALUES

GROUNDS MAINTENANCE YARD

PREPARED BY:	FIGURE NUMBER: 4-2	FILE DATE:	22.JAN.96
CHECKED BY:		PLOT DATE:	21.FEB.96
PROJECT NO. 11-3517-3209		FILE NAME:	gm-chem1.dwg

FINAL PAGE

ADMINISTRATIVE RECORD

FINAL PAGE

FINAL PAGE

ADMINISTRATIVE RECORD

FINAL PAGE