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FINAL SITE ASSESSMENT INVESTIGATION AND CHARACTERIZATION OF THE
RECREATIONAL VEHICLE FAMILY CAMPING AREA NAS FORT WORTH TX
6/1/1998
THE ENVIRONMENTAL COMPANY



NAVAL AIR STATION
FORT WORTH JRB
CARSWELL FIELD
TEXAS

**ADMINISTRATIVE RECORD
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AR File Number 430

430 1

File: 17A-71
A.F.

430

FINAL
Site Assessment and Characterization
of the Recreational Vehicle
Family Camping (RV Fam Camp) Area

Naval Air Station (NAS) Fort Worth
Joint Reserve Base
Carswell Field, Texas



Department of the Air Force
Headquarters (HQ) Human Systems Center (HSC) PKVCC
Brooks Air Force Base, Texas

Contract No. F41624-95-D-8002
Delivery Order No. 0003
June 1998

FINAL REPORT

**SITE ASSESSMENT AND CHARACTERIZATION OF THE
RECREATIONAL VEHICLE
FAMILY CAMPING (RV FAM CAMP) AREA**

**NAVAL AIR STATION (NAS) FORT WORTH
JOINT RESERVE BASE
CARSWELL FIELD, TEXAS**

Contract No. F41624-95-D-8002
Delivery Order 0003

June 1998

Prepared for:

Department of the Air Force
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1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE JUNE 1998	3. REPORT TYPE AND DATES COVERED FINAL 1998		
4. TITLE AND SUBTITLE TECHNICAL REPORT SITE ASSESSMENT AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE FAMILY CAMPING (RV FAMCAMP) AREA NAVAL AIR STATION (NAS) FORT WORTH JOINT RESERVE BASE (JRB) CARSWELL FIELD, TEXAS			5. FUNDING NUMBERS F41624-95-D-8002 Delivery Order 0003	
6. AUTHOR(S) The Environmental Company, Inc.				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) The Environmental Company, Inc. 2496 Old Ivy Road, Suit 300 Post Office Box 5127 Charlottesville, Virginia 22905			8. PERFORMING ORGANIZATION REPORT NUMBER NA	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) HQ AFCEE/ERB Air Force Center for Environmental Excellence Base Closure Division Brooks AFB, TX 78235			10. SPONSORING/MONITORING AGENCY REPORT NUMBER NA	
11. SUPPLEMENTARY NOTES				
12a. DISTRIBUTION/AVAILABILITY STATEMENT			12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words) This technical report provides a summary of investigation activities which included a Site Assessment and Site Characterization of the area in the vicinity of the Recreational Vehicle Family Camping Area at Naval Air Station Fort Worth, Joint Reserve Base, Carswell Field, Texas. No contamination was identified as being attributable to a source associated with the RV Fam Camp. It was recommended that the site be managed under Category I: No Further Action.				
14. SUBJECT TERMS TECHNICAL REPORT			15. NUMBER OF PAGES	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION Unclassified	20. LIMITATION OF ABSTRACT	

PREFACE

A site assessment (SA) and a site characterization (SC) of the area in the vicinity of the Recreational Vehicle (RV) Family Camping (Fam Camp) Area at Naval Air Station (NAS) Fort Worth, Joint Reserve Base, Carswell Field, Texas (identified as Project No. 95-8021) was conducted to determine the presence or absence of contamination and to define the nature and extent of such contamination if present.

This report was prepared by The Environmental Company, Inc. (TEC) under contract No. F41624-95-D-8002, Delivery Order 0003. This technical report has been prepared for Project No. 95-8021.

This report provides a summary of the SA and SC investigation activities, including a risk evaluation and conclusions of the investigation.

This report was written under the direction of Mr. Bob Duffner, TEC Project Manager. The Contracting Officer's Representative for this project is Mr. Charles Rice, Air Force Center for Environmental Excellence (AFCEE), Environmental Restoration Branch (ERB), Brooks Air Force Base (AFB), Texas.

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NOTICE

This report has been prepared for the United States Air Force by The Environmental Company, Inc. (TEC) for the purpose of aiding in the implementation of a final remedial action plan under the Air Force Installation Restoration Program (IRP).

Although the area of study was investigated in accordance with IRP guidance, the area has not been identified as an IRP site. NAS Fort Worth (formerly Carswell Air Force Base) is undergoing property disposal/reuse pursuant to the Defense Base Closure and Realignment Act of 1990 and Round II of the Base Closure Commission deliberations. The area of study is being considered for property disposal or reuse and the Air Force Base Conversion Agency (AFBCA) desires to investigate the area to confirm or deny the presence of contamination.

As the report relates to actual or possible releases of potentially hazardous substances, its release prior to a United States Air Force final decision on remedial action may be in the public's interest. The limited objectives of this report and the ongoing nature of the IRP, along with the evolving knowledge of site conditions and chemical effects on the environment and health, must be considered when evaluating this report because subsequent facts may become known that may make this report premature or inaccurate.

Acceptance of this report in performance of the contract under which it is prepared does not mean that the Air Force adopts the conclusions, recommendations, or other views expressed herein, which are those of the contractor only and do not necessarily reflect the official position of the United States Air Force.

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LIST OF ACRONYMS AND ABBREVIATIONS

AA	Atomic Absorption
ACC	Air Combat Command
AFB	Air Force Base
AFBCA	Air Force Base Conversion Agency
AFCEE	Air Force Center for Environmental Excellence
AL	Action Level
ARAR	Applicable or Relevant and Appropriate Requirement
ASTM	American Society of Testing and Materials
bgs	below ground surface
BHB	Baird, Hampton & Brown, Inc.
BHC	Benzene Hexachloride
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
°C	degrees Celsius
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cm	centimeter
COPC	Chemical of Potential Concern
CPG	Certified Professional Geologist
CSF	Cancer Slope Factor
DBCRA	Defense Base Closure Realignment Act
DEQPPM	Defense Environmental Quality Program Policy Memorandum
DOD	Department of Defense
DOT	Department of Transportation
DQO	Data Quality Objective

LIST OF ACRONYMS AND ABBREVIATIONS, (continued)

DTIC	Defense Technical Information Center
EM	Electromagnetic
EMIMD	Electromagnetic Induction Metal Detection
EMPCL	Electromagnetic Pipe and Cable Location
EPA	U.S. Environmental Protection Agency
ERB	Environmental Restoration Branch
°F	degrees Fahrenheit
Fam Camp	Family Camping
FOD	Frequency of Detect
FSP	Field Sampling Plan
GC/MS	Gas Chromatography/Mass Spectroscopy
GPR	Ground Penetrating Radar
HQ	Headquarters
HSA	Hollow-Stem Auger
ICP	Inductively Coupled Plasma
IRP	Installation Restoration Program
IRPIMS	Installation Restoration Program Information Management System
Kg	Kilogram
L	liter
LCS	Laboratory Control Samples
LSTP	Leaking Storage Tank Program
MCL	Maximum Concentration Level
MDL	Method Detection Limit

LIST OF ACRONYMS AND ABBREVIATIONS, (continued)

mg	milligram
MIBK	Methyl Isobutyl Ketone
MS	Matrix Spike
MSC	Medium-Specific Concentration
MSD	Matrix Spike Duplicate
MSSL	Media-Specific Screening Levels
NAS	Naval Air Station
NCP	National Contingency Plan
ND	Not Detected
NOAEL	No-observed-adverse-effect-level
PCB	Polychlorinated Biphenyl
P.E.	Professional Engineer
PID	Photoionization Detector
ppm	parts per million
PQL	Practical Quantitation Limit
PVC	Polyvinyl Chloride
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
QC	Quality Control
RfD	Reference Dose
RI/FS	Remedial Investigation/Feasibility Study
RRSN	Risk Reduction Standard Number
RV	Recreational Vehicle

LIST OF ACRONYMS AND ABBREVIATIONS, (continued)

SA/SI	Site Assessment/Site Investigation
SAC	Strategic Air Command
SAL	Screening Action Level
SARA	Superfund Amendments Reauthorization Act
SB	Soil Boring
SC	Site Characterization
SOP	Standard Operating Procedures
SOW	Statement of Work
spp.	species
SVOC	Semivolatile Organic Compound
TAC	Texas Administrative Code
TEC	The Environmental Company, Inc.
TNRCC	Texas Natural Resource Conservation Commission
TPH	Total Petroleum Hydrocarbons
µg	microgram
USAF	United States Air Force
UTL	Upper Tolerance Limit
UTL _{95,95}	UTL with 95% confidence and 95% coverage
VOC	Volatile Organic Compound
WP	Work Plan
YMCA	Young Men's Christian Association

EXECUTIVE SUMMARY

A two-phase investigation was conducted at the Naval Air Station (NAS) Fort Worth, Joint Reserve Base, Carswell Field, Texas. The investigation focused on the Recreational Vehicle Family Camp (RV Fam Camp). The investigation was conducted in support of ongoing disposal/reuse efforts pursuant to the Defense Base Closure and Realignment Act of 1990 and Round II of the Base Closure Commission deliberations.

During the initial site assessment phase, background information including historic observations and investigation reports for adjacent and/or associated sites was collected. During this initial effort, it was indicated that a leach field may have been used for disposal of RV Fam Camp domestic wastewater. Results of this assessment were combined with those from a geophysical survey conducted during the site characterization phase to identify potential areas of concern within the RV Fam Camp area. The subsurface soil in portions of the RV Fam Camp area associated with a potential leach field was characterized during the final phase of the investigation.

A total of 5 boreholes were advanced in the RV Fam Camp area. Eight subsurface samples collected from the boreholes were analyzed for selected combinations of volatile organics, semivolatile organics, total petroleum hydrocarbons, pesticides/polychlorinated biphenyls, and inorganics.

The investigation found no evidence indicating that a leach field was present at the RV Fam Camp area. Limited low-level pesticide and volatile organic contamination was identified at concentrations below levels of concern for human health or the environment. These contaminants were above background and were therefore evaluated using TNRCC Risk Reduction Standard Number 2. However the standard is not considered applicable to the site with respect to closure since these low-level contaminants are not believed to be associated with RV Fam Camp historic activities.

Based on the results of this investigation it is recommended that the RV Fam Camp area be managed under Category 1. The Air Force Center for Environmental Excellence defines Category 1 management as no further action because no significant impact to human health or the environment exists.

Subsequent to this investigation, the quality of volatile organic results provided by the laboratory used was questioned. The volatile organic results reported have therefore been qualified. However, this qualification does not change the conclusion of this investigation given that other evidence collected demonstrates that a leach field or any other source of contamination is present.

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1

1.0 INTRODUCTION

This Site Characterization (SC) report has been prepared by The Environmental Company, Inc. (TEC) under U.S. Air Force Center for Environmental Excellence (AFCEE) Contract No. F41624-95-D-8002, Delivery Order 0003, project number 95-8021. The SC report summarizes the results of an investigative effort conducted at the Naval Air Station (NAS) Fort Worth, Joint Reserve Base, Carswell Field, Texas. Areas investigated during this project include the following:

- Fuel distribution lines between Highway 183 and Ascol Drive, in the vicinity of the Unnamed Stream and along the West Fork of the Trinity River west of Jennings Drive; and
- Recreational Vehicle (RV) Family Camping area (Fam Camp).

The RV Fam Camp project consisted of a two-phase data collection effort that included an initial Site Assessment (SA) and an SC. This SC report provides a summary of the activities that took place in these phases and their results for the RV Fam Camp area. The investigation activities and results associated with the fuel pipeline areas are presented in a separate report (TEC 1998).

All efforts were completed in accordance with guidelines provided in the Headquarters (HQ) AFCEE *Handbook for the Installation Restoration Program (IRP) Remedial Investigations and Feasibility Studies (RI/FS)*, dated September 1993 (hereafter referred to as the *Handbook*). Although the RV Fam Camp area was investigated in accordance with IRP guidance, it has not been identified as a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) site. NAS Fort Worth (formerly Carswell Air Force Base) is undergoing property disposal/reuse pursuant to the Defense Base Closure and Realignment Act (DBCRA) of 1990 and Round II of the Base Closure Commission deliberations. The study area is being considered for property disposal or reuse.

1.1 THE AIR FORCE INSTALLATION RESTORATION PROGRAM

The objective of the U.S. Air Force IRP is to assess past hazardous waste disposal and spill sites at U.S. Air Force (USAF) installations and to develop remedial actions for those sites. The IRP is the basis for assessments and response actions consistent with the National Contingency Plan (NCP); the CERCLA of 1980; and the Superfund Amendments and Reauthorization Act (SARA) of 1986 for sites that pose a threat to human health and welfare or the environment.

Executive Order 12580, adopted in 1987, gave various Federal agencies, including the Department of Defense (DOD), the responsibility to act as lead agencies for conducting investigations and implementing remediation efforts when they are the sole or co-contributor to contamination on or off their properties.

To ensure compliance with CERCLA and Executive Order 12580, the DOD developed the IRP under the Defense Environmental Restoration Program to identify potentially contaminated sites, investigate these sites, and evaluate and select remedial actions for contaminated sites. The DOD issued Defense Environmental Quality Program Policy Memorandum (DEQPPM) 80-6 regarding the IRP program, dated June 1980. The DOD

formally revised and expanded IRP directives, and amplified all previous directives and memoranda concerning the IRP, through DEQPPM 81-5, dated 11 December 1981. The memorandum was implemented by a USAF message dated 21 January 1982.

The IRP is the primary mechanism for implementing response actions on USAF installations affected by the provisions of SARA. In November 1986, in response to SARA and other United States Environmental Protection Agency (EPA) interim guidance, the U.S. Air Force modified the IRP to provide for an RI/FS program. The IRP was modified so that RI/FS could be conducted as parallel activities rather than serial activities. The IRP now encompasses Applicable or Relevant and Appropriate Requirement (ARAR) determinations, identification and screening of remedial technologies, and the development of remedial alternatives. A project conducted under the IRP may include multiple field activities and studies prior to a detailed final analysis of remedial alternatives.

1.2 NAS FORT WORTH DESCRIPTION

1.2.1 Installation Location

NAS Fort Worth, Joint Reserve Base, Carswell Field (hereafter referred to as NAS Fort Worth) is located in north-central Texas in Tarrant County, approximately 8 miles west of the downtown area of the City of Fort Worth (Figure 1-1). NAS Fort Worth property totals 2,555 acres and consists of a main station and two noncontiguous land parcels. The area surrounding NAS Fort Worth is predominantly suburban, including the residential areas of the City of Fort Worth, Westworth Village, River Oaks, and White Settlement (Figure 1-2).

The main station consists of 2,264 acres and is bordered on the north by Lake Worth, on the east by the Trinity River and Westworth Village, on the northeast and southeast by the City of Fort Worth, on the west and southwest by White Settlement, and on the west by Air Force Plant 4 (Lockheed).

Public and recreational land surrounds Lake Worth north of the station; however, public access along the southern shore of the lake is restricted due to NAS Fort Worth activities. Private recreation lands, a fish hatchery, and a Young Men's Christian Association (YMCA) camp are located along the West Fork of the Trinity River northeast of the station. East and southeast of the station are various types of residential development; a commercial area is located south of the station at the interchange of Interstate Highway I-30 and State Highway 183. This commercial area includes a discount retail center, a shopping mall, and a convenience store. Land uses west of the station are primarily residential and industrial and include single-family residences, Air Force Plant 4, commercial centers, and an industrial complex in White Settlement.

1.2.2 Installation History

The land area currently known as NAS Fort Worth was originally an earthen runway constructed to service an aircraft manufacturing facility. When established in 1942, the installation was referred to as the Tarrant Field Airdrome and was under the jurisdiction of the Gulf Coast Army Air Field Training Command. The installation mission was to provide transition training for B-24 bomber pilots.

The Strategic Air Command (SAC) assumed control of Tarrant Field Airdrome in 1946, and the installation served as the HQ for the Eighth Air Force and as a heavy bomber base. In 1948, the installation was renamed Carswell Air Force Base (AFB) in honor of Major Horace S. Carswell, a Fort Worth native. HQ 19th Air Division was located at Carswell AFB in 1951 and the installation became home base for B-52s and KC-135s in 1956. The Air Combat Command (ACC) assumed control of Carswell AFB in 1992 concurrent with the disestablishment of the SAC.

Carswell AFB was selected for closure and associated property disposal/reuse during Round II of Base Closure Commission deliberations pursuant to the DBCRA of 1990. The planning process for closure and property disposal/reuse at Carswell AFB was initiated in 1992 and Carswell AFB officially closed on 30 September 1993.

The U.S. Navy assumed control of Carswell AFB on 1 October 1994 and renamed the installation NAS Fort Worth.

1.2.3 Regional Topography and Surface Hydrology

NAS Fort Worth is situated in the Grand Prairie Section of the Central Lowlands Physiographic Province. The area is characterized by gently sloping broad terraces that incline to the east and are separated by west-facing escarpments. The surface is typically grass covered with isolated stands of timber on some of the uplands. Within the base, the land surface slopes gently northeast toward Lake Worth and east toward the West Fork of the Trinity River, which flows along the eastern border. Elevations range between 550 and 690 feet above sea level.

NAS Fort Worth is located in the Trinity River Basin immediately south of Lake Worth (Figure 1-2). Surface water generated on the base is discharged through a series of storm drains and natural drainage ways, such as Farmers Branch Creek. Farmers Branch Creek begins near the community of White Settlement and flows to the east. This creek drains the majority of the area included in this investigation. Portions of the base are directly adjacent to Lake Worth and the West Fork of the Trinity River. Surface runoff from adjacent areas discharges directly into these water bodies (Figure 1-3).

1.2.4 Regional Geology and Hydrogeology

A layer of Quaternary sediments covers most of the surface of NAS Fort Worth. This material is thin to absent in some areas where a thin layer of organic soil caps near-surface bedrock. Cretaceous limestones and limy shales of the Goodland Limestone and the Walnut Formation form the bedrock in the areas investigated. These units are a portion of the stable Texas shelf. Bedding is essentially horizontal with regional dips of approximately 35 to 40 feet per mile toward the southeast. No major fracture zones or faults have been mapped in the proximity of the base.

Soils encountered in the present investigation range from organic-rich silty clays to fine-grained sediments of the Trinity River alluvial terraces. Typically, borings drilled in the uplands portion of the base encountered a thin profile of topsoil followed by clay-rich silts containing abundant limestone fragments. All borings met refusal against bedrock. Refusal depths ranged from 4 to 7.5 feet in the subsurface of the RV Fam Camp area. A stratigraphic cross section of the area is shown in Figure 1-4.

The principal hydrogeologic units underlying NAS Fort Worth include the Terrace Alluvium Aquifer, and the Upper, Middle, and Lower Paluxy Aquifers. The Paluxy Aquifers are bedrock hosted. The Terrace Alluvium Aquifer is the uppermost aquifer and occurs in unconsolidated material and in the Goodland Formation. The unconsolidated material constituting the Terrace Alluvium is predominantly alluvial and fluvial deposits of clay, silt, sand, and gravel. The Goodland Formation is a thinly to massively bedded fossiliferous limestone. The Terrace Alluvium Aquifer is only partially saturated and is not used as a source of drinking water. Recharge of the aquifer is from precipitation and leaking water supply lines, sewer lines, and storm drains. Discharge seeps into small streams and the Trinity River. Groundwater was not encountered in boreholes drilled at the RV Fam Camp Area.

The Paluxy Aquifers are hosted by fine- to medium-grained sandstone separated by clays and shales of the Paluxy Formation. The Middle Paluxy Aquifer serves as a water supply source for the community of White Settlement. The Paluxy Aquifers are hydraulically separated from the Terrace Alluvium Aquifer by the Walnut Formation, a limestone coquina. The Walnut Formation has been subjected to subaerial erosion, suggesting the possibility of local hydraulic communication between the Terrace Formation Aquifer and the deeper Paluxy Aquifers.

1.2.5 Climate

Sub-tropical humid summers and dry winters characterize the climate of NAS Fort Worth, which is situated at 33°N latitude. The average annual air temperature is 66 degrees Fahrenheit (°F). July is the warmest month, with an average monthly air temperature of 86°F. January is the coldest month, with an average monthly air temperature of 45°F. Temperature changes can be rapid in the region, often changing 20° to 30°F in a matter of hours. During calendar year 1995, temperatures averaged 66°F and varied from 48°F in February to 97°F in July. Freezing temperatures occurred during 34 days in 1995. The average annual relative humidity is 63 percent.

The average annual precipitation is 31.5 inches, with the majority of precipitation falling between April and October. There were 31.4 inches of precipitation during 1995, with the wettest month being May. The period from October to February was the driest of the year. Thunderstorms, clustering between March and July, occurred during 61 days in 1995. The maximum recorded precipitation in 1995 was 2.14 inches during one 24-hour period (May 5th). During the present investigation, two major precipitation events occurred on October 21 and 27, causing flash flooding coupled with wind and hail damage.

Prevailing winds are primarily southerly from March through November and northerly from December through February. The average wind speed is 8 knots. Thunderstorms with wind speeds in excess of 65 knots as well as hail storms are common in the region. Climate conditions in summer make tornado formations possible.

1.3 SITE DESCRIPTION

The Air Force Base Conversion Agency (AFBCA) has labeled this site on DD Form 1391 as the "RV parking area (Fam Camp)." The RV Fam Camp area is located northwest of the Roaring Springs Road/Highway 183 intersection (Figure 1-3). The area encompasses approximately 3 acres (250 feet by 550 feet). Entrance drives into the area are located off Highway 183 and Roaring Springs Road; however, they are currently blocked. The RV Fam Camp provided a camping area for Carswell AFB military personnel. The exact operational period of the area is not known; however, the area has not been used since base closure in 1993.

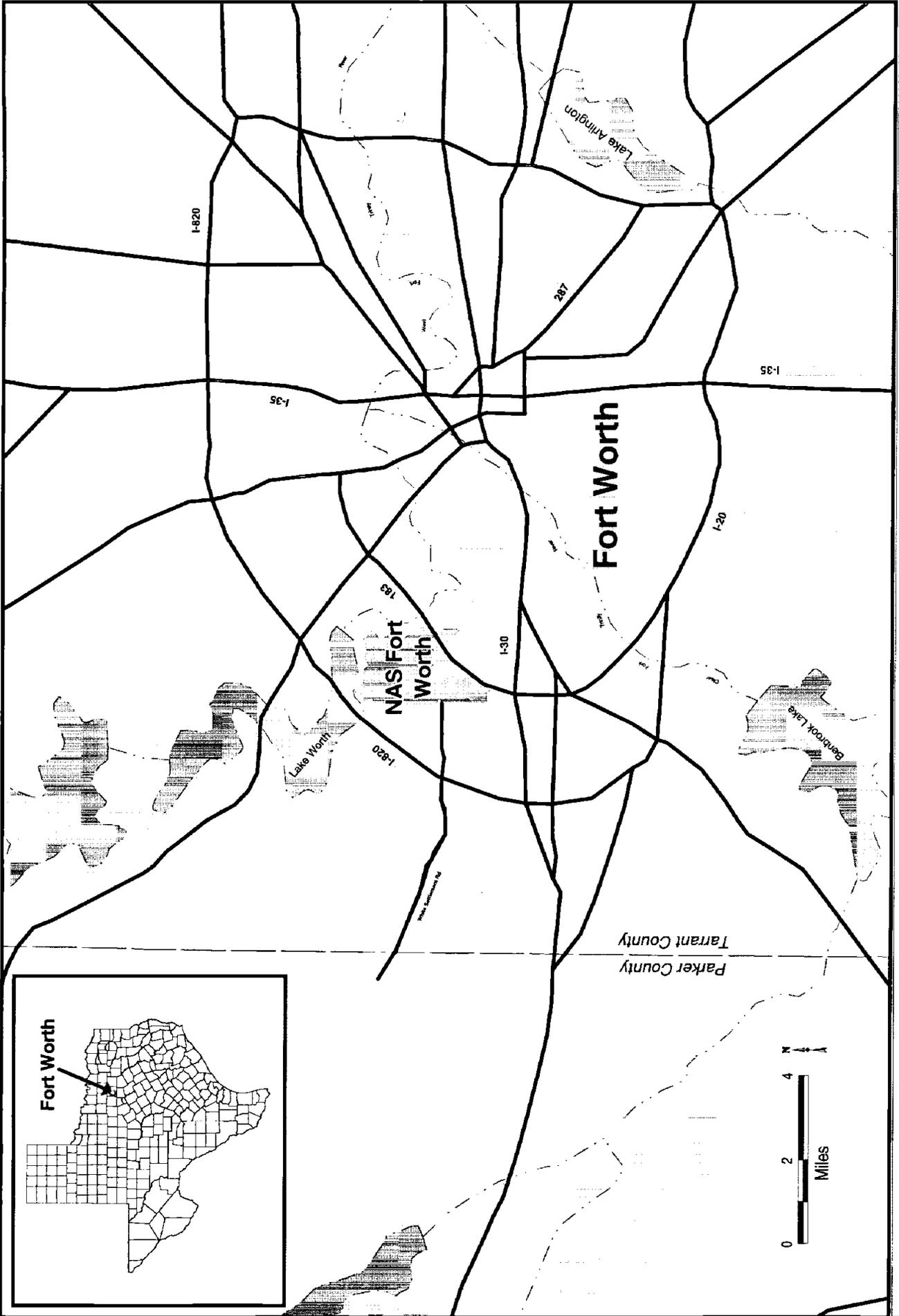
The camping area consisted of nine parking stalls. A utility drawing dated 1972 indicates that the area was served by individual sanitary waste dump stations and water supply (Appendix A). A central sanitary waste dump station is also shown on the service road. The individual and central sanitary stations are connected to a sewer collection pipe running from the southwest to the northeast. Remnants of these services are still present. Four-inch diameter polyvinyl chloride (PVC) sewer pipe inlets protrude from the ground surface at each parking stall. Water pipes with hose valves are also present at each stall.

1.4 PAST OBSERVATIONS AND INVESTIGATIONS

There have been no past observations or investigations related to potential environmental threat or hazards at the RV Fam Camp area. However, concern was generated following reports by past base public works personnel that the RV Fam Camp sanitary waste stations may have been connected to a leach field (Long 1996). It is not known whether the leach field would have been associated with the sewer lines shown on the 1972 drawing provided in Appendix A. Use of the area as a camp was unrestricted. Therefore, non-domestic wastes could have been disposed of by past users of the RV Fam Camp area. If a leach field system was in service at the time, such uncontrolled disposals could have impacted soil and/or groundwater in the area.

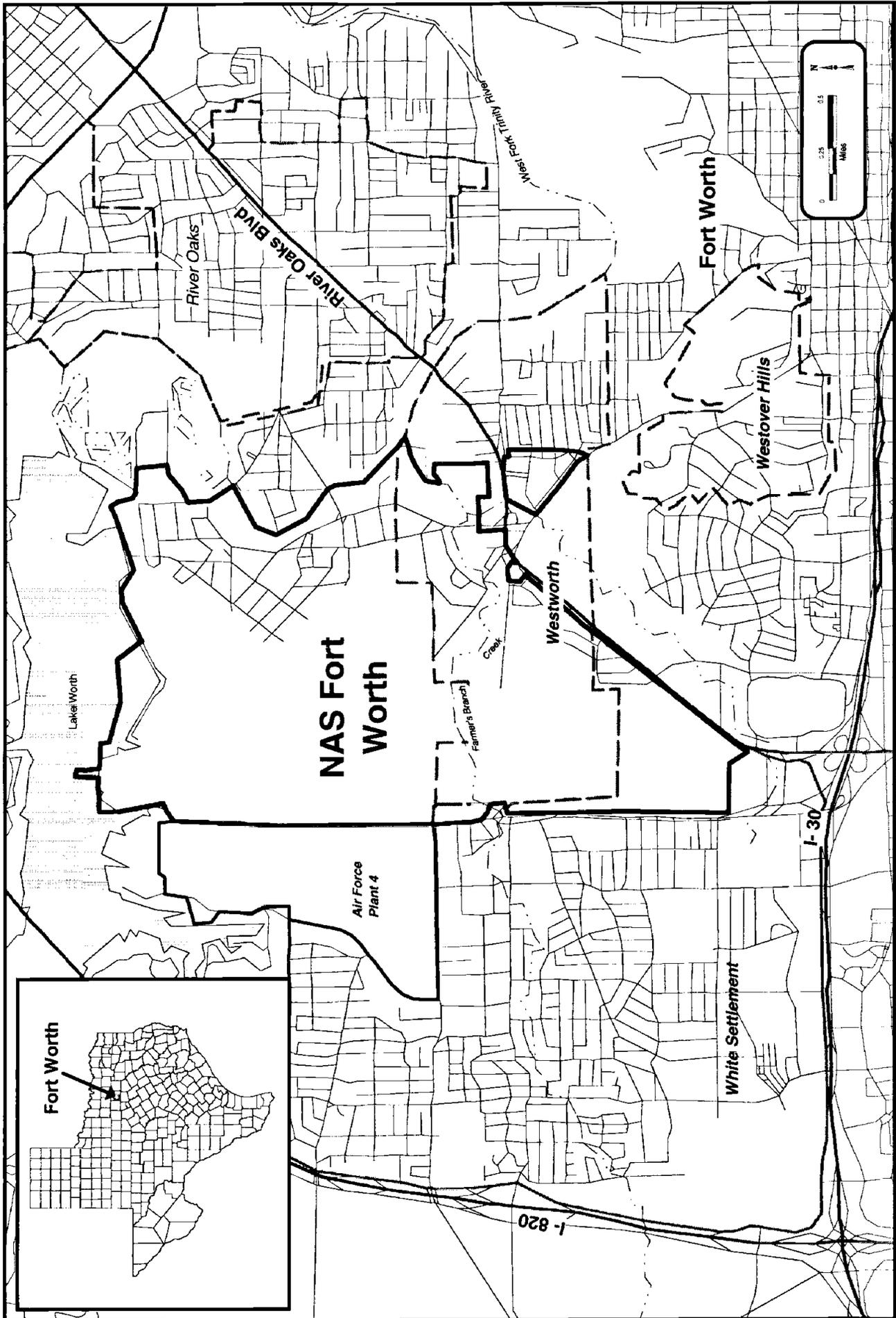
No past remedial actions have been completed within the RV Fam Camp investigation area.

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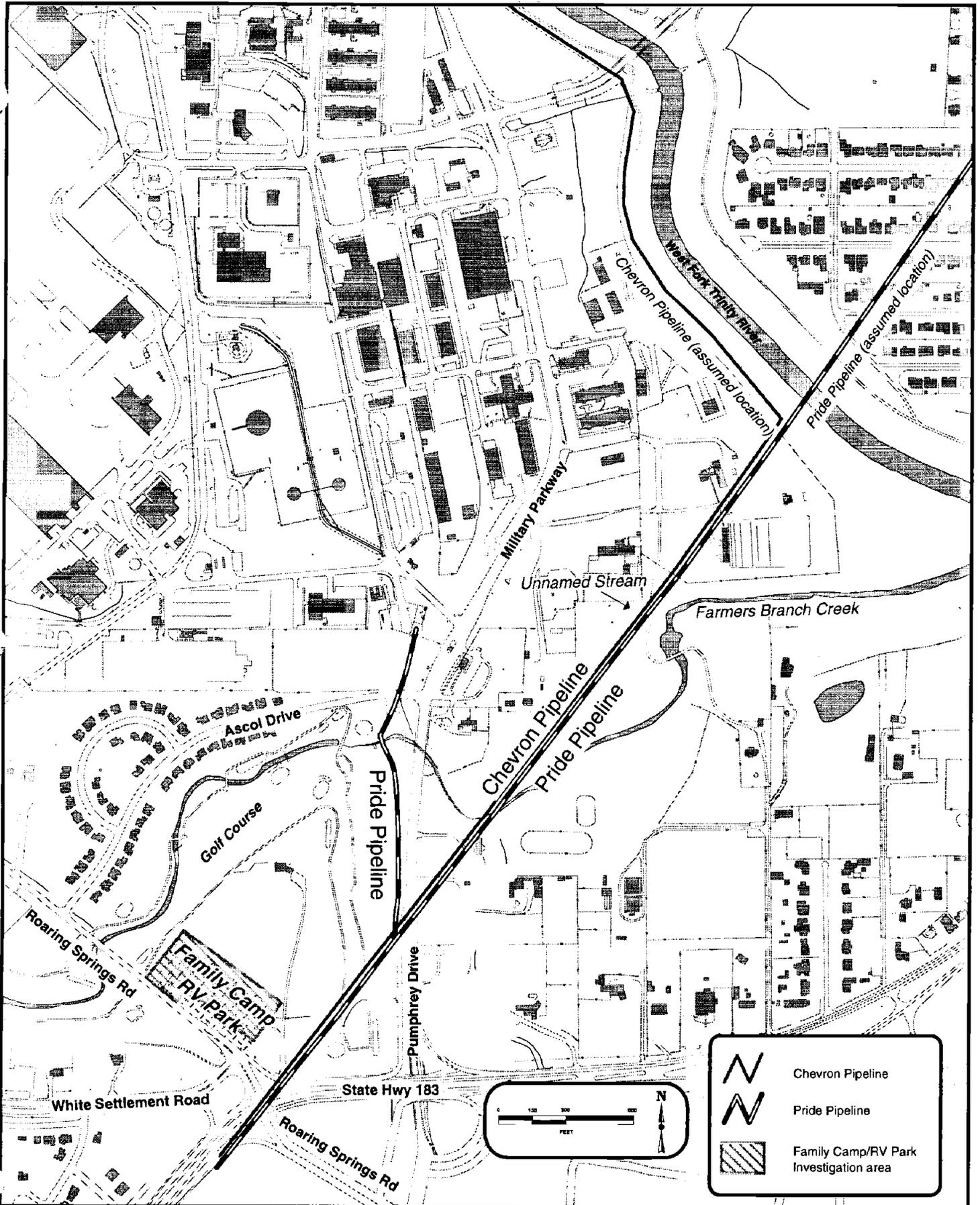
Date: June 1998
 Project Manager: B. Duffner
 Prepared By: W. Mitchell
 Project No.: P-3103

Figure 1-1 -- NAS Fort Worth Vicinity Map



Date: June 1998
 Project Manager: B. Dufner
 Prepared By: W. Mitchell
 Project No: P-3103

Figure 1-2 -- NAS Fort Worth Location Map

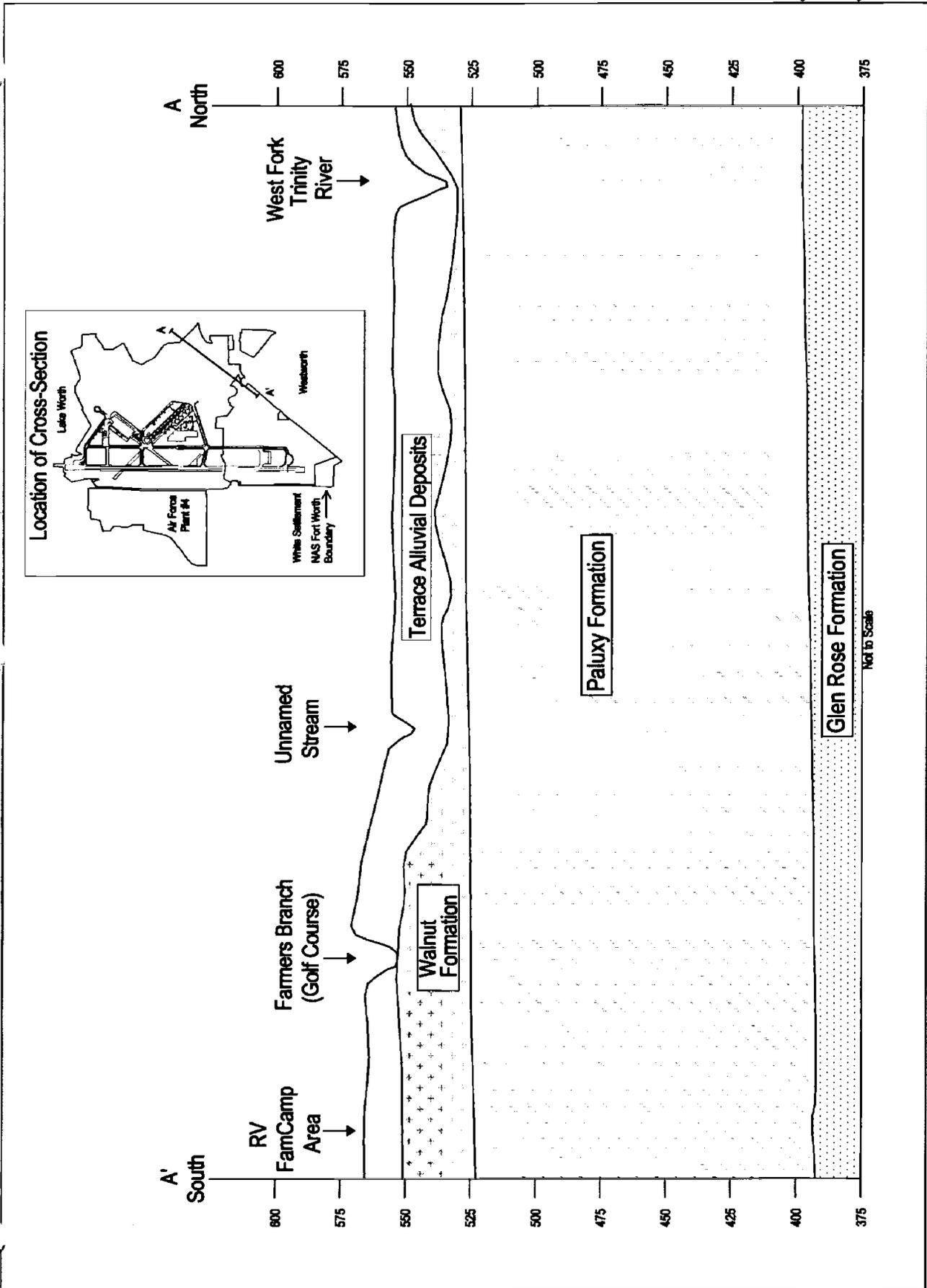


	Chevron Pipeline
	Pride Pipeline
	Family Camp/RV Park Investigation area



Figure 1-3 -- Site Map

Date: June 1998
 Project Manager: B. Duffner
 Prepared By: W. Mitchell
 Project No: P- 3103



Date: March 1998
 Project Manager: B. Duffner
 Prepared By: A. Long
 Project No: P-3103

Figure 1-4
 Generalized Geologic Cross-Section Through
 NAS Fort Worth, Texas



TAB

2

2.0 PROJECT ACTIVITIES

This section provides a synopsis of the objectives, activities, and methods used in the assessment, investigation, and characterization of the RV Fam Camp Investigation Area at NAS Fort Worth. The overall goals for the project are described, as are the phase-specific objectives for each of the potential source areas examined in the field. Also provided is an overall summary of the project field activities, laboratory analytical program, and data evaluation activities and methods. Results of each phase of the project for each of the main study areas are described in Section 3.0.

2.1 PROJECT OBJECTIVES

2.1.1 Overall Objectives and Approach

The overall goal of this project, as defined in the AFCEE Statement of Work (SOW) for Project Number 95-8021 (Contract Number F41624-95-D-8002, Delivery Order Number 3) dated January 25, 1996, is to "determine the presence or absence and nature and extent of contamination in the RV Fam Camp Area at NAS Fort Worth, Texas." To accomplish this goal, TEC was directed to perform a phased evaluation consisting of an SA, SI, and SC.

As the initial steps in planning the project, several delivery order scoping and plan development tasks were performed. To begin with, all available background data pertaining to the study area were compiled and reviewed. Results of this effort, presented in Sections 1.2 through 1.4 of this report, were used to develop a preliminary conceptual model of the study area and its environs to help identify critical decision points and associated data gaps related to the overall project goal. For each gap identified, specific types of information needed to fill the gap were then defined, anticipated uses of the data were described, and media-specific field characterization tasks were developed to ensure that the proper quantity and quality of information were generated to support future decision-making.

The quantity and quality of data required to fill the data gaps and to confidently accomplish the project objectives were determined based primarily on the intended data use(s), expected contaminants and levels of concern, required analytical detection limits, and preferred analytical quality levels. With respect to data quality, AFCEE defines two general data quality levels: screening and definitive. Screening data are generated by rapid methods of analysis with less rigorous sample preparation, calibration, and/or quality control (QC) requirements than are necessary to produce definitive data. Definitive data are produced using rigorous analytical methods, such as EPA reference methods. Definitive data are used in support of decisions of the highest relative importance to the project.

For example, decisions related to actual releases and off-site migration of contaminants, or exposures and risks to receptors, were expected to be of primary concern in the RV Fam Camp investigation project because of the potentially serious consequences associated with making an incorrect decision. Accordingly, chemical data for multimedia samples generally also required a relatively high level of quality. In contrast, data used as indirect indicators of contaminant release and migration potential (i.e., screening data and/or physical data used primarily for site characterization purposes) generally were of lesser quality.

Results of the initial project scoping and planning efforts are documented in TEC's project Work Plan (WP), dated July 1996 (TEC 1996c). Two primary companion documents also were developed and used in conjunction with the WP to implement the RV Fam Camp SC: the Field Sampling Plan (FSP) (TEC 1996a) and the Quality Assurance Project Plan (QAPP) (TEC 1996b). The remainder of Section 2.1 summarizes the specific objectives and approach of each project phase. Project samples, types, numbers, and quality requirements are summarized in Section 2.2.

2.1.2 SA Phase Objectives and Approach

The AFCEE/TEC contract SOW defined three primary goals for the SA phases of the project. They were to:

- Identify all potentially contaminated areas;
- Identify areas that potentially require emergency response; and
- Develop a conceptual site model of the RV Fam Camp investigation area.

Two site assessment field tasks were identified in the WP to satisfy these objectives. These tasks included a land survey and a visual reconnaissance of site conditions. An SI, which consisted of a soil gas survey of the Pipeline Investigation areas (TEC, 1998), was not conducted in the RV Fam Camp area.

2.1.3 SC Phase Objectives and Approach

Results from the SA phase were used to define areas within the RV Fam Camp area that needed further attention during the SC phase. Accordingly, the SC phase was intended to characterize environmental conditions, to define the nature and extent of contamination, and to estimate the risk to human health and the environment through the collection, analysis, and evaluation of site-specific environmental media samples.

To accomplish the SC phase objectives, a geophysical survey was performed in areas targeted for subsurface characterization, and subsurface soil samples were collected for physical/chemical analyses.

2.2 FIELD ACTIVITIES

This section summarizes the field activities performed in both the SA (Section 2.2.1) and SC (Section 2.2.2) phases of the project. Included are brief descriptions of the sample/measurement types, numbers, locations, methods, and rationale. Also included is a brief discussion of the project record keeping procedures (Section 2.2.3), a listing of the major responsibilities of field team members and subcontractors in implementing the field program (Section 2.2.4), a chronology of the field activities (Section 2.2.5), and a synopsis of key aspects of the field quality assessment/quality control (QA/QC) program (Section 2.2.6). Results of the field activities are discussed in Section 3.0.

All field investigative and support activities were performed as outlined in the SOW for Project No. 95-8021 and as described in the TEC WP, FSP, and QAPP (TEC 1996b,c), unless otherwise noted in this report. The work was conducted in accordance with the guidelines provided in the HQ AFCEE *Handbook for the Installation Restoration Program*

(IRP) Remedial Investigations and Feasibility Studies (RI/FS), dated September 1993 (hereafter referred to as the AFCEE Handbook).

The investigation of the RV Fam Camp area was performed to be consistent with Texas Administrative Code (TAC), Title 30, Chapter 335. Chapter 335 was referenced because the site is not regulated as a Leaking Storage Tank Program (LSTP) site, and potential contaminants associated with the area could include hazardous constituents other than those related to petroleum products.

2.2.1 SA Phase Field Program

Two field activities were performed during the SA. These include:

- Land Survey; and
- Site Reconnaissance.

Based on results of these activities, a geophysical survey and subsurface soil characterization were performed in the SC. A geophysical survey was conducted during the SC to aid in identifying the most appropriate locations for soil borings and subsurface soil sampling. Table 2-1 summarizes the data quality objectives (DQOs) for each SA task as presented in the project WP. The locations, types, numbers, and methods of collecting field measurements and samples during each task are described below.

2.2.1.1 Land Survey

A land survey was performed throughout the study area to identify existing easements, property boundaries, and adjacent landowners in anticipation of future field activities. The survey was performed by Baird, Hampton & Brown, Inc. (BHB), a State of Texas-registered land surveyor. BHB field staked and surveyed property boundaries and soil boring locations evaluated during SC activities.

2.2.1.2 Site Reconnaissance

A visual reconnaissance of the overall study area was performed to note areas of stressed vegetation, discolored soils, and/or other indicators of contamination. These observations were used to focus subsurface characterization activities. The visual reconnaissance consisted of a walk-over of key site areas suspected of being actual or potential sources of contamination. Observations of stressed conditions and also of overall site accessibility, use, sampling restrictions, security, and other logistical factors were recorded in the field log books.

2.2.2 SC Phase Field Program

Background research conducted as part of the project scoping activities indicated that, in the early history of the RV Fam Camp area, sewage receptacles reportedly were connected to a septic tank and leach field. However, the precise location of the leach field could not be verified during the SA phase of the investigation. Therefore, it was determined that the RV Fam Camp area needed additional study during the SC phase. Two SC phase field activities were performed:

- Geophysical Study; and
- Subsurface Soil Characterization.

Table 2-2 summarizes the SC DQOs for each task as presented in the project WP. The locations, types, numbers, and methods of collecting SC phase field measurements and samples are described below.

2.2.2.1 Geophysical Survey

A geophysical survey was performed in the RV Fam Camp area to determine if the alleged leach field existed and to confirm the location of underground utilities. The results of the survey were intended to be used to identify appropriate borehole drilling locations for the subsurface soil investigation.

The geophysical survey was performed by ULS Services Company using a combination of analog and digital electromagnetic (EM) techniques, as well as ground penetrating radar (GPR) methods. Analog EM methods included electromagnetic pipe and cable location (EMPCL) and electromagnetic induction metal detection (EMIMD). The EMPCL technique, including passive, ground induction, and connection modes, was used to identify conductive utilities. In addition, the EMIMD technique (air to ground induction mode) was used to detect broad metal mass anomalies that may represent USTs or vaults that were not previously known to exist (ULS 1996). EMIMD was also used to detect high conductive soil or metallic residual soil areas that may be indicative of former UST or septic tank pit areas.

The survey zone measured approximately 35,000 square feet in the RV Fam Camp area. Initially, ULS Services performed analog EM surveys (EMPCL and EMIMD techniques) through the survey zone to detect utilities and possible metallic piping associated with the suspected leach field. A digital EM survey was then performed, using a Geonics EM-31 Terrain Conductivity Meter, along a survey grid with a transect spacing interval of 10 feet. The EM-31 uses an 8-foot coil separation that results in a depth of penetration of approximately 15 to 18 feet.

Survey results were read using a high-watt signal generator with multifrequency receiver and bar-suspended transmitter and receiver type unit. EM line signals representing utilities were marked on the ground surface and field drawings were prepared for the field sampling effort. Digital data were downloaded into Surfer for Windows and Autocad LT software for analysis and presentation. Appendix B presents a copy of the ULS Services letter report, dated November 12, 1996, documenting the objectives, activities, methods, and results of the SC phase geophysical surveys. Appendix B also provides a copy of a site map, prepared by ULS Services, depicting survey results.

2.2.2.2 Subsurface Characterization

Based on the cumulative results of all of the above-noted SA and SC phase activities, a subsurface soil investigation was performed at the RV Fam Camp area to characterize the near-surface lithology, to confirm the presence or absence of a leach field and identify potential contamination associated with the RV Fam Camp area. A total of 8 subsurface soil samples, excluding QA/QC samples, were collected as part of the SC effort. Table 2-3 summarizes the type and number of subsurface soil samples collected and lists the general analytical requirements for each sample type. Appendix C provides a comprehensive summary and cross reference of all sample identification information collected during the SC phase of the project.

Five soil borings were installed in the RV Fam Camp area. Coordinates and elevations of all subsurface soil sampling locations for the project are provided in Appendix D. Figure 2-1 depicts the soil boring locations.

The boreholes were advanced using the hollow-stem auger (HSA) drilling technique by Rone Engineers, Inc. The HSA method offers greater lithologic control during sample collection because sampling tools (e.g., split-spoon sampler) can be inserted while the augers are in place supporting the borehole walls. All drilling activities conformed with state and local regulations and were supervised by a state-licensed geologist/engineer.

All soil borings were drilled to refusal. All borings were properly abandoned according to procedures outlined in the FSP.

The soil samples were collected at approximately 2.5-foot intervals using a 5-foot-long stainless steel, continuous drive, split-spoon sampler. Immediately upon retrieval and opening of the split-spoon, the soils were screened for organic vapors using the photoionization detector (PID) and a lithologic description of the sample was made. Field screening was performed by filling a precleaned glass jar approximately half full with a soil sample, quickly covering the jar top with aluminum foil, and securing the foil seal with the screw cap. The soil samples were then vigorously shaken for approximately 30 seconds and allowed to equilibrate a minimum of 15 minutes and a maximum of 2 hours (120 minutes) to a temperature of approximately 25°C. The jar headspace was then screened for organic vapors by puncturing the foil seal with the PID probe, inserting the tip to a distance approximately one-half the headspace depth, and recording the highest reading displayed on the instrument meter.

All information regarding field headspace screening results, soil texture, density, consistency, and color was recorded on soil boring logs. These logs are presented in Appendix E. PID screening results are discussed in Section 3.0.

One to two samples from each borehole were collected for chemical analysis. The samples generally were collected at intervals that would aid in identifying any potential source and characterizing contamination. Analytical samples were collected from intervals that provided the highest organic vapor readings. Where possible, a final sample was collected from the bottom of the borehole.

Split-spoon soil samples selected for definitive volatile organic compound (VOC) analyses were placed in appropriate sample containers in accordance with procedures defined in the FSP. These containers were filled to minimize headspace, affixed with a completed sample label, placed in a plastic bag, and placed in an iced cooler held at a temperature below 4°C. VOC samples were not composited.

Samples collected for other definitive analyses of other analytical parameters (i.e., semivolatile organic compounds (SVOCs) inorganics, pesticides/polychlorinated biphenyls [PCBs] as shown in Table 2-3) were collected concurrently with the VOC samples. Sample handling, packaging, and shipping procedures were as defined in the FSP. In some cases, composites were formed to provide sufficient sample volume for a particular analysis. The composite procedure involved mixing and homogenizing the soil from two consecutive depth locations in the same borehole using a stainless steel bowl and stainless steel trowel or scoop. The composite sample was then transferred into the appropriate sample container,

sealed, labeled, and placed in an iced cooler at 4 degrees Celsius (°C). Samples were delivered to the laboratory and analyzed for selected compounds (Section 2.3.1).

Throughout the drilling and sampling process, all drilling equipment that contacted samples was decontaminated in a designated decontamination station using procedures outlined in the FSP. The station consisted of a pad that was lined with heavy-gauge plastic sheeting and designed with a collection system to capture decontamination waters. The drilling rigs and associated drilling equipment were steam-cleaned between borings to minimize the potential for cross-contamination. All decontamination fluids were contained and temporarily stored on Carswell AFB property. Other investigation-derived waste included soil cuttings generated during drilling, which were also collected and stored on AFB property. These wastes were characterized and disposed of as non-hazardous wastes in accordance with Texas Natural Resource Conservation Commission (TNRCC) regulations (Appendix N).

2.2.3 General Record Keeping

Field records were maintained in sufficient detail to recreate all sampling and measurement activities and to meet all Installation Restoration Program Information Management System (IRPIMS) data loading and HQ AFCEE requirements. The types of hard copy field records developed included:

- Project log books, including the master Site Log Book, the Health and Safety Log Book, and the Geologic Log Book;
- Field Sampling/Data Forms; and
- Sample Chain-of-Custody forms.

The Site Log Book is the master field investigation document that is a bound book with a hard cover and sequentially numbered pages. The primary objective of the Site Log Book is to maintain, within one document, the actual field data or references to other field documents that contain a specific description of every activity that has occurred in the field on any given day. Any administrative occurrences, conditions, or activities that affected the field work were recorded in the Site Log Book. All field activities entered into the Site Log Book were signed and dated by the responsible party. Other appropriate information, as specified in the FSP, was also recorded in the Site Log Book.

The purpose of the Health and Safety Log Book is to document the proper use, maintenance, and calibration of health and safety instrumentation, record results of regular safety briefings, and describe conditions relating to potential worker and/or site visitor health and safety-related issues during the performance of field work. The Geologic Log Book is used to document drilling procedures, site conditions, lithologic observations, subcontractor performance, and other issues related to the subsurface soil characterization effort.

The log books contain all of the information specified in the FSP, including:

- Location;
- Date and time;
- Persons performing activity;
- Weather conditions;

- Sample type and sampling method;
- Sample identity and depth(s);
- Amount of each sample;
- Sample description (e.g., color, odor, clarity);
- Identification of sampling devices; and
- Identification of conditions that might affect the representativeness of a sample (e.g., refueling operations, damaged casing).

For field measurements, the numerical value and units of each measurement and the identity of and calibration results for each field instrument were also recorded.

In addition to the above-referenced log books, standardized field data forms for all field activities were maintained. As specified in the FSP, the forms consist of the following:

- Boring Log;
- Waste Inventory Tracking Form;
- Field Sampling Report;
- Chain-of-Custody Form;
- Health and Safety Monitoring Sheet;
- Instrument Calibration Log; and
- Equipment Decontamination Log Sheet.

Completed field data forms are presented in Appendix F. Chain-of-Custody forms are provided in Appendix G. Original copies of all field records and project log books are maintained at TEC headquarters in Charlottesville, Virginia. These log books are in an easily accessible form that can be made immediately available to the Air Force upon request.

Procedures for completing and maintaining field records were as specified in the FSP (TEC, 1996a). Records were kept for all field activities as a means to maintain full documentation of project QA/QC procedures and compliance. Errors in records were corrected by crossing them out with a single line and then dating and initialing. The documents used during the SA/SI and SC field investigations remained on-site during the entire effort so that they could be reviewed by interested parties. Forms were organized and kept in a central file also located on-site.

2.2.4 Project Team Members

The site assessment and characterization efforts were performed by TEC personnel, as well as task-specific subcontractor specialists operating under the direct supervision of the

TEC Project Manager. Key project personnel and specialty subcontractors included in this effort are identified below along with their respective project responsibilities.

- Project Director - Jack Wilson, P.E.
- Project Manager - Bob Duffner, P.E.
- Principal Geologist - King Troensegaard, CPG
- Senior Chemist - Glenn Metzler

- Senior Toxicologist - Dawn Nelson
- Surveying Subcontractor - Baird, Hampton and Brown
- Analytical Subcontractor - Inchcape Testing Services
- Drilling Subcontractor - Rone Engineers, Inc.
- Geophysical Subcontractor - ULS Services Company

2.2.5 Chronology of Field Work

Field work associated with the RV Fam Camp Investigation occurred in August and October 1996. The chronology of specific SA and SC phase field tasks is as follows:

- Land Survey - August 14, 1996 to August 16, 1996
- Site Reconnaissance - August 14, 1996 to August 16, 1996
- Geophysical Survey - October 21, 1996
- Subsurface Soil Characterization - October 22, 1996 to October 30, 1996

2.2.6 Field Quality Assurance/Quality Control

To ensure that sampling and monitoring activities regularly meet the prescribed DQOs, TEC maintains a formal, comprehensive field QA/QC program for field measurements and environmental sampling and analysis. Key components of the program include developing a project-specific QA Project Plan in accordance with EPA and AFCEE guidance; establishing DQOs; applying pre-defined standard operating procedures (SOPs) for field sampling, record keeping, and laboratory analysis; conducting multiple levels of technical review of project activities, results, and deliverables; and implementing independent QA audits/corrective actions.

For this project, QC responsibility rested primarily with the project manager and field task leaders. These individuals were closest to the field tasks and were therefore most capable of controlling the overall quality of the work. They implemented their QC responsibility through five primary methods: clear and accurate instructions, integrated planning, close coordination/communication with the client, spot checking of work in progress, and review of all products and deliverables.

QA, in comparison, is oriented toward ensuring that quality products are developed. QA is therefore best applied by personnel who are not directly connected to the specific activities being evaluated. For the RV Fam Camp Investigation, QA was the responsibility of TEC's Project Director. He ensured that all AFCEE policies, procedures, and objectives were met in all project tasks. To accomplish this, he received and reviewed copies of all written correspondence, audited office-based activities as appropriate, documented audit findings, and recommended corrective actions. Additional detail pertaining to specific QA/QC program activities, problems encountered, and corrective actions taken is provided below.

2.2.6.1 Quality Control Activities

To ensure that samples of appropriate quality and reliability were obtained, all RV Fam Camp Investigation field activities included the following QC elements:

- Use of AFCEE- and EPA-approved sample collections, field measurement methods, and containers;
- Use of properly calibrated and maintained field instruments appropriate for the anticipated task and DQO;
- Calibration of field instruments to within acceptable limits according to EPA and/or manufacturers' recommendations before, during, and after use in the field;
- Routine periodic inspection and maintenance of all equipment and instruments in accordance with manufacturer's recommendations;
- Use of EPA-accepted sample-handling, preparation, and preservation methods;
- Collection of all important associated environmental data (e.g., weather conditions, sample location observations, unique or abnormal conditions) using acceptable and applicable methods and equipment;
- Use of Department of Transportation (DOT)-approved sample shipment procedures;
- Use of formal chain-of-custody procedures in the field and during shipment;
- Collection of appropriate numbers and types of field QC samples; and
- Maintenance of adequate records and logs of all field-related activity.

In addition to adhering to well-defined SOPs, a number of equipment and/or field measurement-specific QC checks were performed. These included periodic calibration of field instruments and operational checks performed according to the manufacturer's instrument manuals and the AFCEE IRP *Handbook* (1993).

All field instruments were calibrated on a daily basis while in use. The PID was calibrated at least twice per day. In some instances, calibration was performed more frequently. Calibration, repair, and service records were kept in individual site log books as described above, and on Instrument Calibration Log Sheets (Appendix F). Each instrument's individual identification number was transcribed on field data records when it was used for a sampling event. Calibration data were compared to the manufacturer's equipment calibration control limits. Field equipment that consistently failed to meet calibration standards or exceeded the manufacturer's control limits was promptly repaired or replaced.

Field QC samples included equipment blanks, trip blanks, and ambient blanks. Table 2-3 summarizes the type and number of field QC samples collected. All of the field QC samples were applied to all of the environmental samples collected (Appendix L).

Equipment blanks were collected to assess the effectiveness of equipment decontamination procedures. One equipment blank was collected (Table 2-3) during subsurface characterization activities at the RV Fam Camp area. The equipment blank was created by pouring a sample of American Society of Testing and Materials (ASTM) Type II reagent grade water into or over the decontaminated split spoon sampler, collecting the water in an appropriate sample container, and packaging/transporting the sample to the laboratory for analysis. The equipment blank was analyzed for all laboratory parameters requested for the environmental samples collected at the study area.

Trip blanks were used to assess potential cross contamination of environmental samples during transportation and storage. A total of two trip blanks were submitted (Table 2-3) at the rate of one per cooler of samples sent to the laboratory for analysis of VOCs. The trip blanks consisted

of a VOC sample vial filled in the laboratory with ASTM Type II reagent grade water, transported to the sampling site, handled like an environmental sample, and returned to the laboratory for analysis. Trip blanks were not opened in the field and were prepared only when environmental samples were collected and submitted for VOC analysis. Consequently, trip blank samples were analyzed only for VOC analytes.

Ambient blanks were used to assess the potential introduction of contaminants from ambient sources (e.g., active runways, engine test cells, internal combustion motors in operation) to the samples during collection. A single ambient blank was collected during the SC field investigation at the West Fork of the Trinity River study area. The sample was collected downwind of potential VOC sources that could have impacted the field samples. Furthermore, because the study area is located in a commercial area of the City of Fort Worth, numerous potential sources of airborne contamination are possible. The ambient blank consisted of ASTM Type II reagent grade water poured into a VOC sample vial at the sampling site. It was handled like an environmental sample and transported to the laboratory for VOC analysis.

2.2.6.2 Quality Assurance Activities

Two types of QA audits are typically performed as a part of TEC's overall QA program: generic and project-specific. Generic audits are performed periodically for each engineering or environmental program and technical services area in the company. Their frequency is determined by the results of previous audits, with a minimum of one per environmental program/technical service area per year. The need for more frequent audits is determined based on the following considerations:

- The importance of the activity to the successful completion of stated corporate objectives;
- Significant changes in the functional areas of the quality assurance program, such as significant reorganization or procedural revisions;
- A suspected nonconformance in an item or service; or
- The necessity to verify implementation of required corrective action.

Project-specific audits are performed at a frequency dictated by contractual agreements and as noted in the project QAPPs. No project-specific audit was performed for this investigation.

2.2.6.3 Problems Detected and Corrective Actions Taken

Comparison of equipment calibration records (Appendix F) with manufacturer-specified calibration control limits indicated no significant problems with field equipment and/or instrumentation that required corrective action.

2.3 LABORATORY ANALYSIS

This section describes the analytical program developed to accomplish the objectives of the RV Fam Camp Investigation SA and SC project. Included are brief descriptions of the overall analytical program including the laboratories involved, and the analytical parameters and methods specified, the chronology of the laboratory analyses, and the QA/QC program that supported the analytical program.

2.3.1 Analytical Program

As noted previously, two types of analytical data quality levels were identified for this project: screening and definitive. Screening analytical data included field measurements of organic vapors in the headspace of subsurface soil samples and particle size distributions for subsurface soil samples. Definitive data consisted of chemical characteristics of subsurface soil samples.

The subsurface soil samples collected for definitive characterization were analyzed for TPH, VOCs, SVOCs, inorganic elements, pesticides, and PCBs.

The analytical work was performed utilizing the *United States Environmental Protection Agency (USEPA) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846, Third Edition)*. Appendix H provides a comprehensive list of the analytical parameters and analytical methods for each sample. Table 2-3 summarizes the general analytical requirements for each subsurface soil sample. All laboratory analyses for definitive quality level data were performed by Inchcape Testing Services, Inc. A summary of extraction and analysis dates listed by field sample number and laboratory number is provided in Appendix I. Raw data are provided with the data validation report in Appendix J.

In addition to the above analyses, grain size analyses (Appendix K) were performed on selected samples to provide data regarding contaminant migration potential and to support preliminary development of remedial options.

2.3.2 Chronology of Laboratory Analyses

Environmental sampling during the project occurred in August and October 1996. Appendix I provides a comprehensive chronology of associated laboratory extraction and analysis dates for each field sample.

2.3.3 Quality Assurance/Quality Control Program

For all analytical work, whether carried out in the laboratory or in the field, strict adherence to established analytical program QA/QC is required. Analytical QC checks for both screening and definitive data are defined in the project QAPP and included blank, spike surrogate, replicate, and matrix spike duplicates samples in accordance with a predetermined schedule. The results are tabulated and placed on control charts so that any deviations from routine analytical performance can be identified and rectified. Procedures for routine instrument tuning, calibration, and maintenance are also carefully applied and documented.

Appendix L provides a summary of laboratory QA/QC samples collected for this project. QC procedures for screening samples are summarized in Table 2-4. Laboratory QC results for definitive data are summarized in the quality control report presented in Appendix M. Included are lists of the types of QC samples collected, the frequency of QC sample analyses, problems detected, and corrective actions taken. In addition to laboratory QC actions, results were independently validated. The Data Validation Report is presented in Appendix J and discussed in Section 3.0. The methodology for assessing and validating the data is described in Section 2.4.1.

Technical systems and performance audits were performed as independent assessments of sample collection and analysis procedures. Audit results were used to evaluate the ability of the testing laboratories to produce data that fulfilled the project objectives, comply with the QC

criteria, and identify areas requiring corrective action. A complete description of the audit program is outlined in the QAPP (TEC 1996b).

2.4 DATA EVALUATION

This section briefly discusses the procedures used to identify, validate, reduce, interpret, and use field and analytical data generated during the project. Included are discussions of the methodology for data quality assessment, methodology for risk evaluation, and data analysis and interpretation.

2.4.1 Methodology for Data Quality Assessment

This section briefly summarizes the procedures used to identify valid laboratory analytical data. Soil organic vapor samples were collected for screening purposes only, and therefore a formal validation of the analytical data resulting from those activities was not performed.

The analytical data for the subsurface soil samples were independently validated by ChemWorld Environmental, Inc. The validation process included evaluating the data for acceptability for use in the SC study and identifying deviations in the data in accordance with the QAPP (TEC 1996b); the AFCEE data validation requirements; and the SW-846 Methods, where applicable and relevant. The following criteria were evaluated during the data validation:

- Holding Times;
- Surrogate Recovery;
- Matrix Spikes (MS) and Matrix Spike Duplicates (MSD);
- Laboratory Control Samples (LCS);
- Initial and Continuing Calibration;
- Blanks (Method and Field);
- Gas Chromatography/Mass Spectroscopy (GC/MS) Instrument Performance Check (for GC/MS methods only);
- Internal Standards (for GC/MS methods only);
- Field Duplicates;
- Compound Identification;
- Compound Quantitation and Reported Detection Limits;
- Inductively Coupled Plasma (ICP) Interference Check Sample (for Atomic Absorption (AA) and ICP methods only);
- ICP Serial Dilution (for AA and ICP methods only); and
- Sample Result Verification (for AA and ICP methods only).

The results of the data validation are presented in the Data Validation Report in Appendix J and are discussed in Section 3.0.

2.4.2 Data Analysis and Interpretation

Data collected during the SA phase included background information primarily obtained through a review of existing investigation documents, records, and other undocumented reports. This information was reviewed to identify potential areas of concern associated with the RV Fam Camp area.

The general quality and reliability of these data sources were evaluated through examining items such as the relative age of the data, considering the methods by which the data were obtained, and assessing of the degree of comparability of data from different sources.

As necessary and appropriate, data generated during this project were evaluated by preparing descriptive statistics, charts, graphs, tables, and other interpretive tools, many of which are presented in this report. These included:

- Boring logs;
- Vertical cross sections depicting geologic conditions; and
- Tabulated data summarizing sample physical/chemical evaluations, trends, spatial relationships, and statistics.

Data collected during the SC phase included geophysical survey results, lithologic characteristics, subsurface soil organic vapor readings, and subsurface soil analytical results. Geophysical results were analyzed by comparing instrument readings collected from the investigation area to readings collected from adjacent background areas. Deviations or anomalies in the data were interpreted as indications of potential source areas. Source areas in this context are potential underground utilities, undifferentiated metal mass, and the suspected abandoned leach field. These potential source areas were further investigated during the subsurface soil investigation.

During the SC subsurface soil investigation, samples were collected and characterized with respect to lithology, organic vapors, and chemical constituents. Lithologic data were plotted as geologic cross sections and interpreted with respect to the location of contaminants detected through organic vapors and/or chemical analyses. Chemical data were compared to background levels and screening action levels, developed as part of the risk evaluation (Section 2.4.3). Results of these evaluations, discussed in Section 3.0, were used to refine the conceptual model of the site and to identify potential contaminant release and migration routes (Section 4.0).

Organic vapor readings were analyzed relative to background and ambient conditions. Organic vapor readings of ambient conditions collected by the PID meter were found to be influenced by soil moisture. Subsurface soil organic vapor readings exceeding background and/or ambient conditions were interpreted as indications of contamination. These readings were used directly in selecting samples for chemical characterization as described in Section 2.2.2.2.

2.4.3 Methodology for Risk Evaluation

The risk evaluation for the RV Fam Camp Investigation was performed to meet the objectives of the project, which were to identify the nature and magnitude of contamination associated with the suspected leach field and to evaluate corresponding potential risks. Because of the supporting nature of the SC to other investigations at NAS Fort Worth, a streamlined approach for the risk evaluation was taken in an effort to focus on potential contamination that was not previously identified in the other studies. Human health risks were evaluated for the RV Fam Camp Investigation area through development of health-based action levels (ALs) for subsurface soil. These ALs were compared with the site concentrations to characterize human health risks. Ecological risks were semi-quantitatively evaluated using a conservative screening level

assessment as part of a tiered approach. In this approach, site concentrations were initially compared to established ecological benchmark concentrations to evaluate the potential impact of the detected compounds on ecological receptors. Based on the results of this screening, subsequent tiers, which represent more complex and site-specific assessments, were discussed.

The human health risk evaluation presented in this report is consistent with the approaches and methods outlined in the AFCEE *Handbook* (USAF 1993) and TAC Chapter 335, Subchapter S (TNRCC 1996). Both of these references, as well as this risk evaluation, generally follow standard risk assessment procedures, which include identifying chemicals of potential concern (COPCs), identifying potential receptors and exposure pathways, evaluating the toxicity of the COPCs, and characterizing risks (EPA 1989a). The ecological risk assessment tiered approach is consistent with methods provided in the *Framework for Ecological Risk Assessment* (EPA 1992a) and the *Draft Guidance for Conducting Ecological Risk Assessment Under The Texas Risk Reduction Program* (McBee et al. 1996).

Although the RV Fam Camp area is not currently regulated, potential risks associated with the subsurface soil in this area were evaluated using protocols specified in TAC Chapter 335, Subchapter S, "Risk Reduction Standard Numbers 1 and 2" (RRSN1 and RRSN2). This approach was employed because the site is not regulated as an LSTP site, and potential constituents associated with the area could include those not related to petroleum products.

The Subchapter S methods rely on a two-tiered approach. The first tier is a simple screening evaluation, while the second tier is a site-specific risk assessment. RRSN1 under Subchapter S represents a first-tier assessment, while RRSN2 under Subchapter S represents a second-tier assessment. RRSN1 methods were employed as a screening tool in Section 3.0 to identify chemicals needing further evaluation of their potential human health impacts and eliminate those that would not contribute to overall human health risks. These methods were used to generate screening action levels (SALs) for the RV Fam Camp area (using RRSN1). Chemicals that were not screened out were carried forward in the risk evaluation and development of ALs (Section 5.0). ALs were developed in accordance with methodology provided in RRSN2.

The general purpose of RRSN1 is to clean sites to levels that ensure adequate protection of human health without the use of institutional controls and to provide a mechanism for eliminating a more costly and time-consuming site-specific risk assessment if site concentrations are below the RRSN1 concentrations. RRSN1 provides little flexibility in developing cleanup levels, but eliminates the time and expense needed to conduct a full-scale risk assessment. RRSN2 requires a limited risk assessment for the purpose of developing cleanup levels, but provides more flexibility in the site cleanup and may result in a more focused cleanup effort. Screening procedures in risk assessment are designed to be conservative so that chemicals posing potentially significant risks are not prematurely eliminated. Thus, the SALs developed in the risk evaluation are conservative in light of the actual land use on-site (described in Section 5.1.2).

The methods for developing the SALs are discussed in the section below. Section 2.4.3.2 describes the development of ALs and how ALs were used in the risk evaluation to characterize risk.

2.4.3.1 Screening Action Levels

This section describes the SALs determined for the RV Fam Camp area. Table 2-5 summarizes the SALs for each detected analyte. These SALs were used in Section 3.0 to identify a list of chemicals to be carried forward to the risk evaluation.

The SALs for the RV Fam Camp area were based on upper tolerance limits (UTLs) of distributions of background soil data populations estimated for Carswell AFB in the *Draft NAS Fort Worth JRB, Texas Basewide Background Study Volume 1* (Jacobs 1997). UTLs for some of the metals were subsequently revised when samples were reanalyzed (Jacobs 1998). The UTLs for metals in soil were accepted by TNRCC and can be used in this study (Jacobs 1998). Both surface (defined as Horizon A, ground surface to a depth of 2 feet) and subsurface (defined as Horizon B, second encountered soil type below the organically rich surface soil) soil were sampled and analyzed for inorganic constituents. Jacobs (1997) collected 30 samples from each horizon. The analytical results were used to calculate background concentrations using the tolerance interval method to estimate UTLs with 95 percent confidence and 95 percent coverage (UTL_{95,95}). This value represents a 95 percent confidence that 95 percent of the background population lies below the UTL_{95,95}. A site value greater than the UTL has only a 5 percent probability of being from the background population and therefore may indicate site-related contamination (Jacobs 1997).

2.4.3.2 Action Levels

Although no evidence which indicates the RV Fam Camp is a source of contamination, compounds with site concentrations exceeding SALs were identified as COPCs in order to complete the evaluation. Following standard risk assessment methodology and consistent with RRSN2, the following steps were taken to evaluate human health risks associated with the COPCs: identify potential receptors and exposure pathways, assess the toxicity of the COPCs, and evaluate risks through development of ALs. The exposure and toxicity information compiled in the risk assessment was used to develop the ALs. The RRSN2 protocols rely on a hierarchical approach to developing appropriate values for ALs. Specifically, when available, Texas state or Federal promulgated health-based standards or criteria represent the primary basis for site ALs. When these values were not available for a COPC or they are not sufficiently protective, risk-based concentrations were used as the ALs. These concentrations were derived according to methods outlined for derivation of medium-specific concentrations (MSCs) in RRSN2, as well as using the exposure assumptions, toxicity criteria, and appropriate risk levels identified in the risk assessment. The methods provided in *EPA Region 6 Human Health Media-Specific Screening Levels (MSSLs)* (EPA 1996a) were considered in developing the ALs, particularly if dermal contact was an exposure route of concern.

Maximum site concentrations of COPCs in the study area were compared to the ALs to characterize potential human health risks that may exist in subsurface soil. Chemicals with concentrations exceeding the ALs may need further evaluation. Conversely, chemicals with concentrations below the ALs were determined to be present at levels that are not expected to adversely impact human health. The results of the risk evaluation provided the basis for the recommendations and conclusions presented in Section 6.0.

Table 2-1 SA Phase Data Quality Objectives

Activity	Data Type	Intended Use	Quality Category
Land Survey	State Plane Coordinates	Precisely Locate Easements, Sample Locations	Screening
Site Reconnaissance	Visual Observations	Qualitatively Identify Areas of Stress or Other Abnormalities	Screening

Table 2-2 SC Phase Data Quality Objectives

Activity	Data Type	Intended Use	Quality Category
Utility Location Survey	Geophysical Instrument Readings at Field Reference Points	General Location of Underground Utilities	Screening
Geophysical Survey	Geophysical Instrument Readings at Field Reference Points	General Location of Potential Abandoned Leach Field	Screening
Surface Soil Screen	Photoionization Detector (PID) Measurements	General Presence or Absence of VOCs	Screening
Subsurface Soil Characterization	Physical Parameters	Characterize Geology and Contaminant Migration Potential	Screening
Subsurface Soil Characterization	Chemical Parameters	Magnitude and Extent of Chemical Contamination; Risk Assessment	Definitive

Table 2-3 SC Phase Sample Collection and Analysis Summary

Sample Element	No. of Samples	Number of Analyses						
		VOCs	SVOCs	Inorganics	TPH	Pest./PCBs	Grain Size	
Field Samples	8	8	8	8	8	8	8	2
Duplicates	1	1	1	1	1	1	1	1
Trip Blanks	2	2						
Ambient Blanks	1	1						
Equipment	1	1	1	1	1	1	1	

Note: Only one ambient sample was collected; it applies to all areas.

Table 2-4 Summary of Calibration and QC Procedures for Screening Method

Method	Applicable Parameter	QC Check	Minimum Frequency	Acceptance Criteria	Corrective Action ^a
None	Org. vapor conc. (FID and PID)	2 point calibration	Monthly	Response $\pm 20\%$ of expected value	Recalibrate; replace if necessary
		Calibration and verification and check	Daily at beginning and end of day	Response $\pm 20\%$ of expected value	Correct problem, recalibrate

^a All corrective actions were documented in field records.

Table 2-5 Basis for TNRCC Screening Action Levels (SALs) for the RV Farm Camp Area

Compound	TNRCC Screening Action Level ^a (mg/kg)
Metals	
Aluminum	20,260
Antimony	0.712
Arsenic	6.58
Barium	128.1
Beryllium	1.13
Cadmium	0.59
Calcium	272,000
Chromium	16.31
Cobalt	6.19
Copper	13.72
Iron	17,469
Lead	12.66
Magnesium	2,420
Manganese	351.7
Mercury	0.0350
Nickel	19.76
Potassium	1,717
Sodium	53,200
Selenium	0.313
Silver	0.128
Thallium	1.5
Vanadium	37.4
Zinc	31.3
Volatile Organic Compounds	
Benzene	BND
Toluene	BND
Ethylbenzene	BND
mpXylene	BND
oXylene	BND
Methyl tert-butyl ether	BND
2-Hexanone	BND
Methyl Isobutyl ketone	BND
Semivolatiles	
2-Methylnaphthalene	BND
Phenanthrene	BND
Bis(2-ethylhexyl)phthalate	BND
Naphthalene	BND
2-Methylphenol	BND
4-Methylphenol	BND
Pesticides	
alpha-BHC	BND
Endrin aldehyde	BND
gamma-BHC (Lindane)	BND

BND-background not determined

^a Based on procedures specified in TNRCC Chapter 935, Subchapter S for Risk Reduction Standard Number 1 (TNRCC 1993). Values represent background UTL_{95,95} for Horizon B (> 2 ft bgs) soils determined by Jacobs (1997, 1998).

LEGEND



Base Boundary



Chevron Pipeline



Pride Pipeline



Geophysical Survey Area



Subsurface Soil Sampling Locations

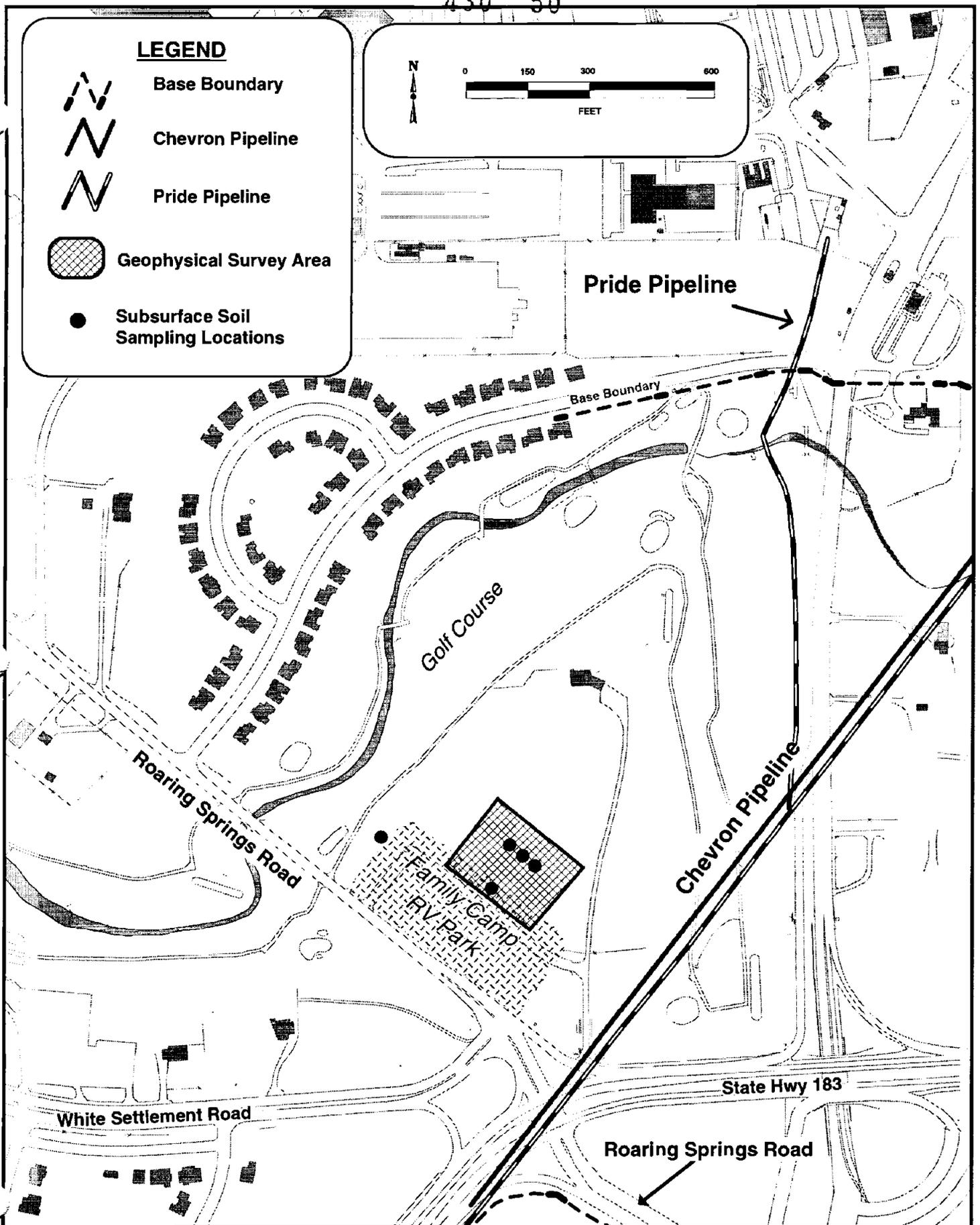
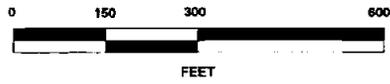


Figure 2-1 -- Site Assessment and Characterization Area

Date: June 1998
Project Manager: B. Duffner
Prepared By: W. Mitchell
Project No: P-3101

TAB

3

3.0 PROJECT INVESTIGATIONS

The sections below present the findings of the project investigations. Findings of the SA were used to define the site environmental setting and identify potentially contaminated areas.

An SC was performed in areas identified in the SA as having potential contamination associated with the suspected leach field. The objective of this phase of the field investigation was to delineate the nature and magnitude of contamination, identify the sources of contamination, and characterize environmental site conditions.

3.1 SITE ASSESSMENT

The SA consisted of two activities. The first activity was a land survey. The land survey reports included a site drawing showing prominent study area features and boundaries, as well as the sampling locations identified above, and tabulated summaries of state plane coordinates for the surveyed features. The site drawing is presented in Appendix D. The site drawing includes information related to the Pipeline Investigation areas, which are described in a separate report (TEC 1998).

The second activity was a walk-through survey of the site to document visual observations of potential contamination of soil. There was no visible evidence of surface soil contamination in the RV Fam Camp area. A background search conducted as part of the project scoping activities indicated that sewage receptacles at the RV Fam Camp area may have been connected to a septic tank and leach field (Long 1996).

3.2 SITE CHARACTERIZATION

Based on the results of the SA, an SC was conducted in areas identified as needing additional investigation. The SC consisted of a subsurface soil investigation performed through the advancement of boreholes and the collection of samples for organic vapor screening, lithologic characterization, and chemical characterization. The section below provides a description of the field and laboratory data, followed by discussions of the SC results. The SC results include a description of the borehole location and lithology, a summary of screening and analytical results of the soil boring sampling, and a comparison of analytical results with screening action levels.

3.2.1 Field and Laboratory Data Quality Assessment

Field and laboratory data quality assessment was performed through an independent validation of the inorganic and organic analyses. A completed data validation report is provided in Appendix J. Included in the data validation summary report is a copy of all analysis data sheets with qualifiers. Qualifier definitions are provided in Table 3-1. Summaries of the data quality assessment for each analysis performed is provided below. Included in the summaries are the results of laboratory method blanks and field blanks (trip, equipment, and ambient). A summary table that identifies individual field samples associated with each blank sample is provided in Appendix L.

3.2.1.1 Volatile Organics

The VOC results obtained by SW-846 Method 8240 are considered invalid due to laboratory-related limitations and are usable only for qualitative purposes in this report (Appendix P). These limitations were identified following completion of the draft investigation report (TEC 1997). The analytical results previously rejected for this analysis are not affected. Data that had been determined to be useable by the data validation process are affected and are marked with an "R" in the qualifier columns of the data summary table (Table 3-6).

Data generated from Method 8240 were treated as qualitative in discussions of potential source areas and migration pathways. Because the primary focus of the SC was to determine whether a source of contamination exists at the RV Fam Camp area, qualitative use of the data was considered sufficient to form conclusions regarding the conditions of the site and the need for further actions. Therefore, the laboratory-related limitations are not expected to significantly affect the Risk Evaluation results or the investigation conclusions.

3.2.1.2 Volatile Hydrocarbons

All the data quality assessment criteria listed in Section 2.4.1 were generated within acceptable QC specifications. All of the data are considered to be valid and usable with appropriate qualifiers, as noted on the analysis data sheets provided in Appendix J.

Positive results were not detected in any of the blank samples.

3.2.1.3 Extractable Hydrocarbons

All the data quality assessment criteria listed in Section 2.4.1 were generated within acceptable QC specifications. All of the data is considered to be valid and usable with appropriate qualifiers, as noted on the analysis data sheets provided in Appendix J.

Positive results of extractable hydrocarbons were not detected in any of the method blank samples. The equipment blank was collected and analyzed for TPH as diesel. A positive result of 77 ug/L was detected in this blank. This result was reported at less than the practical quantitation limit (PQL). The data were not qualified based upon this field blank. A summary of the equipment blank sample analysis identifying positive results is provided in Table 3-2.

3.2.1.4 Semivolatile Organics

All the data quality assessment criteria listed in Section 2.4.1 were generated within acceptable QC specifications.

Positive SVOC results were not detected in any of the method or equipment blank samples.

3.2.1.5 Pesticides/PCBs

All the data quality assessment criteria listed in Section 2.4.1 were generated within acceptable QC specifications. All of the data is considered to be valid and usable with appropriate qualifiers, as noted on the analysis data sheets provided in Appendix J.

One laboratory method blank was analyzed for pesticides/PCBs. Positive results were not detected in the blank sample.

3.2.1.6 Inorganics

All the data quality assessment criteria listed in Section 2.4.1 were generated within acceptable QC specifications. All of the data is considered to be valid and usable with appropriate qualifiers, as noted on the analysis data sheets provided in Appendix J.

Several inorganics were positively identified, but were below respective PQLs in the method blanks. No inorganics were detected above PQLs. A summary of the method blank sample analyses identifying positive results is provided in Table 3-3. One equipment blank was analyzed for inorganics. Positive results were reported for calcium and iron. Several inorganics were reported below PQLs in the equipment blank. A summary of the equipment blank sample analyses identifying positive results is provided in Table 3-2. Calcium and iron were detected in the method blanks.

3.2.2 SC Results

The potential misuse of the sewer receptacles for disposal of hazardous substances, resulting in possible contamination of surrounding subsurface soil, was the basis for conducting a subsurface soil investigation in this area. Prior to drilling boreholes, a geophysical survey was conducted to identify any anomalies in the subsurface that may represent leach field trenches. The findings of the geophysical survey and the soil borehole sampling are discussed in the sections below.

3.2.2.1 Geophysical Survey

After discussions with Carswell AFBCA personnel and surveying the RV Fam Camp area, it was concluded that the area to the northeast provided the only viable space for a leach field (see Appendix B). The area to the southeast was topographically upgradient from the parking areas and offered limited space for leach field drainage. Spaces to the northwest and southwest are also limited, as the surface drops approximately 10 feet in each direction (see Figure 2-1).

EM and GPR methods were used in an area approximately 35,000 square feet in size extending 185 feet along the area's paved road and extending approximately 190 feet to the northwest. A complete report of the geophysical survey, along with a detailed map showing survey area and results, is provided in Appendix B.

The EM method used in the survey located a low-grade high conductive anomaly within the area southwest of the tree hedge, which lies between two graveled RV parking stalls located perpendicular to the paved road (ULS 1996). Although GPR was used to further characterize the anomaly, the reflector data were weak and nonconclusive, likely due to poor soil conductivity conditions. Utilities were detected during the survey and marked for use during drilling of boreholes.

3.2.2.2 Borehole Location and Site-Specific Lithology

Five boreholes (SB-16 through SB-20) were strategically advanced in the RV Fam Camp area to characterize any potential leach field as shown in Figure 3-1. Borehole SB-16 was drilled directly in the subsurface anomaly identified by the geophysical

survey. Boreholes SB-17 through SB-19 were advanced to the northeast to intersect potential leach field discharge from this area.

Drill cuttings at SB-16 indicated the subsurface anomaly identified within the parking area to be shallow soil covering limestone bedrock. No visible signs of a leach field or contamination associated with a leach field were noted during drilling operations at any of the boreholes.

A thin soil profile was also encountered at locations SB-17, SB-18, and SB-19. Refusals against shaley limestone were met at depths between 4 and 7.5 feet. A well-developed organic silty-clay topsoil, typical of prairie grasslands, was encountered in all borings. Beneath it were dry silts containing limestone fragments that became more abundant as bedrock was encountered.

During the SC field investigation, two 6-inch-deep depressions in the surface to the northwest of the area were noted. The depressions were approximately 1 foot wide and 50 feet long. SB-20 was advanced between the depressions in order to characterize this area. Boring SB-20 was advanced in an entirely different soil regime. It was situated on the southeasterly flank of Farmers Branch Creek in alluvial fill deposits. This boring encountered silts and clay-rich silts to a depth of 21 feet, where refusal was met against limestone.

3.2.2.3 Subsurface Soil Screening and Analytical Sample Selection

As shown in Table 3-4, organic vapor soil screening readings remained fairly consistent with ambient conditions throughout soil boreholes SB-16, SB-17, and SB-18. Readings above ambient conditions were recorded at depths of 2 to 4 feet and 5 to 10 feet below ground surface (bgs) in borings SB-19 and SB-20, respectively. Based on this screening, Table 3-5 presents the depths selected for soil boring sample collection and the laboratory analyses specified for each sample. One to two samples were collected from each borehole at depths corresponding to the relatively higher PID readings. One sample in SB-20 was collected below the area of potential contamination to delineate the extent of contamination. A total of eight samples and two duplicates were collected and submitted for laboratory analysis of inorganics, VOCs, SVOCs, TPH, and pesticides/PCBs. Grain size analysis was conducted on two of the samples.

3.2.2.4 Data Summary

A summary of the subsurface soil analytical results of detected compounds for the samples collected in the RV Fam Camp area is presented in Table 3-6. The detected organic compound results are also shown in Figure 3-1. The extractable hydrocarbons and pesticides (alpha-BHC, endrin aldehyde, and lindane) were reported in all samples at concentrations below the PQL, indicating that detected concentrations are estimates associated with uncertainty. Detected VOCs via Method 8240 were limited to 2-hexanone and methyl isobutyl ketone. Several inorganic compounds were detected in all samples. Figure 3-1 does not suggest any pattern in the locations of the detected compounds, except that the levels of extractable hydrocarbons are similar across the boreholes.

Detected concentrations of antimony, calcium, and potassium exceeded SALs. Alpha-BHC, gamma-BHC, and endrin aldehyde were not analyzed for in background samples (Jacobs 1997) and therefore did not have SALs with which to compare (based on RRSN1

procedures). These compounds were automatically carried forward in the risk evaluation. The potential sources and migration pathway of these compounds are discussed in Section 4.0. As discussed in Section 3.2.1.1, data for 2-hexanone and methyl isobutyl ketone, the only VOCs detected in RV Fam Camp samples, are not valid for quantitative use. However, the presence of these compounds is discussed qualitatively in the risk evaluation section, as well as in Section 4.0.

Table 3-1 Data Qualifiers

Qualifier	Definition
Organics	
U	Indicates that the compound was analyzed for, but not detected. The associated numerical value is at or below the Method Detection Limit (MDL).
J	The compound was positively identified. The associated numerical value is an estimated quantity.
UJ	The compound was analyzed for, but not detected. The sample quantitation limit is an estimated quantity due to variance from quality control limits.
F	The compound was positively identified. However, the associated numerical value is below the Practical Quantitation Limit (PQL).
B	The compound was found in the associated blank, as well as in the sample.
M	Designates that a matrix effect may be present due to accuracy and/or precision being generated out of specification for the matrix spike (MS)/MS duplicate (MSD).
E	Reported value is estimated due to quantitation above the calibration range.
D	Reported result taken from diluted sample analysis.
R	Reported value is unusable and rejected due to variance from quality control limits.
R'	Data considered invalid for quantitative purposes due to laboratory limitations.
Inorganics	
U	Indicates that the compound was analyzed for, but not detected. The associated numerical value is at or below the MDL.
J	The analyte was positively identified. The reported value is estimated due to variance from quality control limits.
UJ	The element was analyzed for, but not detected. The sample quantitation limit is an estimated quantity due to variance from quality control limits.
B	The compound was found in the associated blank, as well as in the sample.
M	Designates that a matrix effect may be present due to accuracy and/or precision being generated out of specification for the MS/MSD.
F	The compound was positively identified. However, the associated numerical value is below the PQL.
R	Reported value is unusable and rejected due to variance from quality control limits.

Source: Data Validation Report (Appendix J), based on the project-specific QAPP.

Table 3-2 Summary of Equipment Blank Sample Detected Results For The RV Fam Camp Area

Parameters ^a	PQL	Sample Number ^b	MDL	EB04
Inorganics: ug/L				
Antimony	400.0	2.30		ND
Barium	20.0	0.50		2.37 F ^c
Beryllium	3.0	0.10		ND
Cadmium	40.0	0.50		ND
Calcium	100.0	29.60		302.55
Chromium	70.0	0.86		2.59 F
Copper	60.0	0.47		3.22 F
Iron	70.0	20.10		84.90
Lead	5.0	1.50		ND
Magnesium	300.0	12.10		70.08 F
Manganese	20.0	1.70		ND
Mercury	1.0	0.06		ND
Nickel	150.0	0.93		1.27 F
Sodium	300.0	226.00		ND
Thallium	400.0	3.60		ND
Zinc	20.0	12.50		15.57 F
Extractable Hydrocarbons: (ug/L)				
	1000.0	30.00		77.00 F
Semivolatile Organics: (ug/L)				
Di-n-butylphthalate	10.0	1.60		ND

MDL: Method Detection Limit

ND: Not Detected above the method detection limit

PQL: Practical Quantitation Limit

^aParameters listed include only those detected. See complete parameters list in Appendix H.

^bEB01, EB02, EB03, and EB05 are associated with the Pipeline Investigation areas, which are addressed in a separate report (TEC 1998).

^cSee Table 3-1 for data qualifier definitions.

Table 3-3 Summary of Method Blank Sample Detected Results For The RV Fam Camp Area

Lab Sample ID Number^b: 12170-21 12170-26
 Units: mg/Kg ug/L
 Matrix: Soil Water

Parameters ^a	PQL	MDL
	mg/Kg	mg/Kg
Inorganics:		
Aluminum	50.0	2.05
Antimony	40.0	0.42
Barium	2.0	0.04
Cadmium	4.0	0.03
Calcium	10.0	9.47
Chromium	7.0	0.08
Copper	6.0	0.20
Iron	7.0	1.05
Magnesium	30.0	0.27
Mercury	0.1	0.03
Potassium	500.0	21.15
Zinc	2.0	0.29

MDL: Method Detection Limit

ND: Not Detected above the method detection limit

PQL: Practical Quantitation Limit

^aParameters listed include only those detected in at least one sample. See complete parameters list in Appendix H.

^bSamples 12056-19, 12092-15, and 12092-17 are associated with the Pipeline Investigation areas, which are addressed in a separate report (TEC 1998).

^cSee Table 3-1 for data qualifier definitions.

Table 3-4 Organic Vapor Soil Screening Summary For The RV Fam Camp Area

Location	Analytical Sample Number	Sample Depth Interval (feet)		Relative Moisture Content ^a	Organic Vapor ^b (ppm)
SB-16	NS	0.0	to 2.5	M	0.0
	-01	2.5	to 5.0	D	0.0
	-02	5.0	to 7.2	D	3.4
SB-17	NS	0.0	to 2.5	M	3.6
	-01	2.5	to 5.0	D	3.8
SB-18	NS	0.0	to 2.5	M	1.0
	-01	2.5	to 5.0	D	2.0
	-02	5.0	to 6.0	D	3.4
SB-19	NS	0.0	to 2.2	M	0.0
	-01	2.2	to 4.0	D	11.0
SB-20	NS	0.0	to 2.5	D	9.0
	NS	2.5	to 5.0	D	0.0
	-01	5.0	to 10.0	D	22.4
	NS	10.0	to 12.5	D	4.4
	NS	12.5	to 15.0	M	7.7
	-02	15.0	to 17.5	M	5.0
	NS	17.5	to 20.0	M	6.3

NS: No sample collected for chemical characterization

^aRelative Moisture Content: D=Dry, M=Slightly to very moist.

^bMeasured with a photoionization detector (PID).

Table 3-5 Subsurface Soil Sample Summary for the RV Fam Camp Area

Analytical Sample Number	Sample Depth Interval (feet)	Inorganics	VOCs	SVOCs	TPH		TPH Diesel	Pest./PCBs	Grain Size
					Gasoline				
SB-16 -01	2.5 to 5.0	✓	✓	✓	✓	✓	✓	✓	✓
SB-16 -02	5.0 to 7.2	✓	✓	✓	✓	✓	✓	✓	✓
SB-17 -01	2.5 to 5.0	✓	✓	✓	✓	✓	✓	✓	✓
SB-18 -01	2.5 to 5.0	✓	✓	✓	✓	✓	✓	✓	✓
SB-18 -02	5.0 to 6.0	✓	✓	✓	✓	✓	✓	✓	✓
SB-19 -01	2.2 to 4.0	✓	✓	✓	✓	✓	✓	✓	✓
SB-19 -02 (Dup.)	2.2 to 4.0	✓	✓	✓	✓	✓	✓	✓	✓
SB-20 -01	5.0 to 10.0	✓	✓	✓	✓	✓	✓	✓	✓
SB-20 -02	15.0 to 17.5	✓	✓	✓	✓	✓	✓	✓	✓

Notes:

VOCs: Volatile Organic Compounds

PCBs: Polychlorinated Biphenyls

SVOCs: Semivolatile Organic Compounds

TPH: Total Petroleum Hydrocarbons

Pest.: Pesticides



Table 3-6 Summary of RV Fam Camp Subsurface Soil Sample Detected Results

Parameters ^a	SB16			SB17			TNROC Screening Action Levels ^b (mg/Kg)
	Sample Number: Depth (bgs)	SB16-01 2.5-5.0	SB16-02 5.0-7.2	SB17-01 2.5-5.0	SB17-02 5.0-7.2	SB17-03 2.5-5.0	
Inorganics (mg/Kg)							
Aluminum	50.0	1.96-2.16	4.081.00 M ^c	4.275.39 M	4.089.04 M	20.260.00	
Antimony	40.0	0.49-0.54	1.99 M	1.72 M	1.35 M	0.71	
Barium	2.0	0.04-0.05	24.31	18.09	23.32	128.10	
Beryllium	0.3	0.02	0.23 F	0.25 F	0.28 F	1.13	
Cadmium	4.0	0.03	0.06 M	0.13 M	0.07 M	0.59	
Calcium	10.0	9.07-9.97	628.784.28 M	579.064.14 M	595.258.17 J	272.000.00	
Chromium	7.0	0.07-0.08	4.94 F	6.13 F	6.08 F	16.31	
Cobalt	7.0	0.05-0.06	1.51 F	1.15 F	1.33 F	6.19	
Copper	6.0	0.19-0.21	1.75 F	1.44 F	1.06 F	13.72	
Iron	7.0	1.01-1.11	5.272.79 B	4.571.92 B	4.720.23 B	17.469.00	
Lead	0.5	0.06-0.07	4.64 M	3.61 M	4.27 M	12.66	
Magnesium	30.0	0.26-0.29	1.842.78 M	2.178.44 M	1.624.87 M	2.420.00	
Manganese	2.0	0.40-0.45	100.24	85.45	60.54	351.70	
Mercury	0.1	0.03	ND	0.04 F	0.04 F	0.035U	
Nickel	15.0	0.08-0.10	3.95 M	3.45 M	4.29 M	19.76	
Potassium	500.0	20.25-22.26	680.85 M	867.71 M	531.88 M	1,717.00	
Sodium	30.0	26.90-29.57	96.53 B	126.16 B	122.44 B	53,200.00	
Vanadium	8.0	0.04-0.05	15.09	14.38	12.76	37.40	
Zinc	2.0	0.38-0.42	8.40 M	7.32 M	4.45 M	31.30	
Extractable Hydrocarbons (mg/Kg)							
10.0	2.08-2.28	2.44 F	ND	2.19 F	NA		
Volatile Organics (mg/Kg)							
2-Hexatone	0.053-0.057	0.0030	ND R	ND R	ND R	NDB	
Methyl isobutyl ketone	0.053-0.057	0.0020	ND R	ND R	ND R	NDB	
Pesticides (mg/Kg)							
Alpha - BHC	0.0020	0.0003	ND	ND	ND	NDB	
Endrin aldehyde	0.0020	0.0003	ND	ND	ND	NDB	
Gamma - BHC (Lindane)	0.0030	0.0003	0.0004 F	0.0004 F	ND	NDB	

NA: Not Applicable or Not Available
 ND: Not Detected above the method detection limit
 NDB: Not Determined in Background
 MDL: Method Detection Limit
 PQL: Practical Quantitation Limit
 R: Data considered invalid for quantitative purposes due to laboratory limitations.
^aParameters listed include only those detected in at least one sample. See complete parameters list in Appendix H.
^bFrom Table 2-5.
^cSee Table 3-1 for data qualifier definitions.
 Note: Boxed values indicate exceedances of SAL.

Table 3-6 Summary of RV Farm Camp Subsurface Soil Sample Detected Results (continued)

Parameters*	SB19				TNRC	
	Location:	SB18	SB19	SB19		
Sample Number:	SB18-01	SB18-02	SB19-01	SB19-02	Screening	
Depth (bgs)	2.5-5.0	5.0-6.0	2.2-4.0	2.2-4.0	Action Levels ^b	
PCL	MDL	MDL	DUP	DUP	(mg/Kg)	
Inorganics (mg/Kg)						
Aluminum	50.0	1,868.89 M	3,527.64 M	6,160.51 M	5,777.53 M	20,280.00
Antimony	40.0	0.49-0.54	1.49 M	1.17 M	1.05 M	0.71
Barium	2.0	0.04-0.05	14.71	28.29	27.50	126.10
Beryllium	0.3	0.02	0.23 F	0.33 J	0.30 J	1.13
Cadmium	4.0	0.03	0.18 M	0.09 M	0.08 M	0.59
Calcium	10.0	9.07-9.97	633.823.50 M	584.845.25 M	573,162.94 M	272,000.00
Chromium	7.0	0.07-0.08	3.81 F	4.74 F	7.65 F	16.31
Cobalt	7.0	0.05-0.06	1.08 F	0.93 F	1.65 F	6.19
Copper	6.0	0.19-0.21	0.69 F	0.91 F	1.70 F	13.72
Iron	7.0	1.01-1.11	3,498.73 B	4,823.61 B	5,857.10 B	17,469.00
Lead	0.5	0.06-0.07	5.10 M	4.02 M	4.21 M	12.66
Magnesium	30.0	0.26-0.29	1,877.20 M	1,765.18 M	1,813.02 M	2,420.00
Manganese	2.0	0.40-0.45	100.57	78.42	65.96	351.70
Mercury	0.1	0.03	0.04 F	0.04 F	0.04 F	0.0350
Nickel	15.0	0.09-0.10	2.89 M	3.79 M	5.05 M	19.76
Potassium	500.0	20.25-22.26	324.62 M	540.81 M	1,005.09 M	941.43 M
Sodium	30.0	26.80-29.57	119.94 B	107.62 B	110.13 B	99.72 B
Vanadium	8.0	0.04-0.05	9.72	12.30	18.06	17.91
Zinc	2.0	0.36-0.42	3.58 M	4.54 M	8.42 M	6.97 M
Extractable Hydrocarbons (mg/Kg)						
2-Hexarone	0.053-0.057	0.0030	ND R'	ND R'	ND R'	0.1430 R'
Methyl isobutyl ketone	0.053-0.057	0.0020	ND R'	ND R'	ND R'	0.0388 R'
Pesticides (mg/Kg)						
Alpha-BHC	0.0020	0.0003	ND	ND	ND	ND
Endrin aldehyde	0.0020	0.0003	ND	ND	ND	ND
Gamma-BHC (Lindane)	0.0030	0.0003	ND	ND	ND	ND

NA: Not Applicable or Not Available
 ND: Not Detected above the method detection limit
 NDB: Not Determined in Background
 MDL: Method Detection Limit
 PCL: Practical Quantitation Limit
 R' Data considered invalid for quantitative purposes due to laboratory limitations.
 *Parameters listed include only those detected in at least one sample. See complete parameters list in Appendix H.
^bFrom Table 2-5.
^cSee Table 3-1 for data qualifier definitions.
 Note: Boxed values indicate exceedances of SAL.

Table 3-6 Summary of RV Fam Camp Subsurface Soil Sample Detected Results (continued)

Parameters*	Location:		MDL	SB20		TNROC
	PCL	Sample Number: Depth (bgs)		SB20-01 5.0-10.0	SB20-02 15.0-17.5	
Inorganics (mg/Kg)						
Aluminum	50.0	1.96-2.16	8,169.17 M	8,246.82 M	20,260.00	
Antimony	40.0	0.49-0.54	0.99 M	2.05 M	0.71	
Barium	2.0	0.04-0.05	36.92 F	33.85	128.10	
Beryllium	0.3	0.02	0.40 J	0.54 J	1.13	
Cadmium	4.0	0.03	ND	ND	0.59	
Calcium	10.0	9.07-9.97	401,358.41 M	153,767.12 M	272,000.00	
Chromium	7.0	0.07-0.08	7.83	9.56	16.31	
Cobalt	7.0	0.05-0.06	2.52 F	4.42	6.19	
Copper	6.0	0.19-0.21	3.51 F	7.06	13.72	
Iron	7.0	1.01-1.11	8,499.69 B	12,173.52 B	17,469.00	
Lead	0.5	0.06-0.07	6.12 M	7.19 M	12.66	
Magnesium	30.0	0.26-0.29	1,746.08 M	2,263.36 M	2,420.00	
Manganese	2.0	0.40-0.45	138.98	109.40	351.70	
Mercury	0.1	0.03	ND	0.04 F	0.035U	
Nickel	15.0	0.09-0.10	5.74 M	9.64 M	19.76	
Perassium	500.0	20.25-22.26	1,069.80 M	1,877.63 M	1,717.00	
Sodium	30.0	26.90-29.57	142.58 B	115.32 B	53,200.00	
Vanadium	8.0	0.04-0.05	16.84	14.82	37.40	
Zinc	2.0	0.38-0.42	12.96 M	15.90 M	31.30	
Extractable Hydrocarbons (mg/Kg)						
2-Hexanone	10.0	2.08-2.28	3.43 F	ND	NA	
Volatile Organics (mg/Kg)						
Methyl isobutyl ketone	0.053-0.057	0.0030	ND R	0.0186 R	NDB	
	0.053-0.057	0.0020	ND R	0.0138 R	NDB	
Pesticides (mg/Kg)						
Alpha-BHC	0.0020	0.0003	ND	0.0012 F	NDB	
Endrin aldehyde	0.0020	0.0003	0.0010 F	ND	NDB	
Gamma-BHC (Lindane)	0.0030	0.0003	ND	0.0005 F	NDB	

NA: Not Applicable or Not Available
 ND: Not Detected above the method detection limit
 NDB: Not Determined in Background
 MDL: Method Detection Limit
 PCL: Practical Quantitation Limit
 R: Data considered invalid for quantitative purposes due to laboratory limitations.
 *Parameters listed include only those detected in at least one sample. See complete parameters list in Appendix H.
 †From Table 2-5.
 ‡See Table 3-1 for data qualifier definitions.
 Note: Boxed values indicate exceedances of SAL.

LEGEND

-  Borehole Location
-  Chevron Pipeline
-  Pride Pipeline
-  Geophysical Survey Area

Notes:

All results in mg/kg
 Parameters listed include only organic compounds detected in at least one sample.
 ND Not detected above Method Detection Limit
 F Analytes detected above MDL and below PQL
 R Data considered invalid for quantitative purposes due to laboratory limitations

SB20	
Sample ID:	SB-20-01 SB-20-02
Depth (ft):	5.0-10.0 15.0-17.5
Extractable Hydrocarbons	3.43F ND
2-Hexanone	ND 0.0186 R'
Methyl Isobutyl Ketone	ND 0.0138 R'
Alpha-BHC	ND 0.0012F
Ethin Aldehyde	0.0010F ND
Gamma-BHC (Lindane)	ND 0.0005F

SB19	
Sample ID:	SB-19-01 SB-19-02 (DUP)
Depth (ft):	2.2-4.0 2.2-4.0
Extractable Hydrocarbons	3.07F 3.14F
2-Hexanone	ND 0.143 R'
Methyl Isobutyl Ketone	ND 0.058 R'

SB17	
Sample ID:	SB-17-01
Depth (ft):	2.5-5.0
Extractable Hydrocarbons	2.19F

SB18	
Sample ID:	SB-18-01 SB-18-02
Depth (ft):	2.5-5.0 5.0-6.0
Extractable Hydrocarbons	2.73F ND

SB16	
Sample ID:	SB-16-01 SB-16-02
Depth (ft):	2.5-5.0 5.0-7.2
Extractable Hydrocarbons	2.44F ND
Gamma-BHC (Lindane)	0.0004F 0.0004F

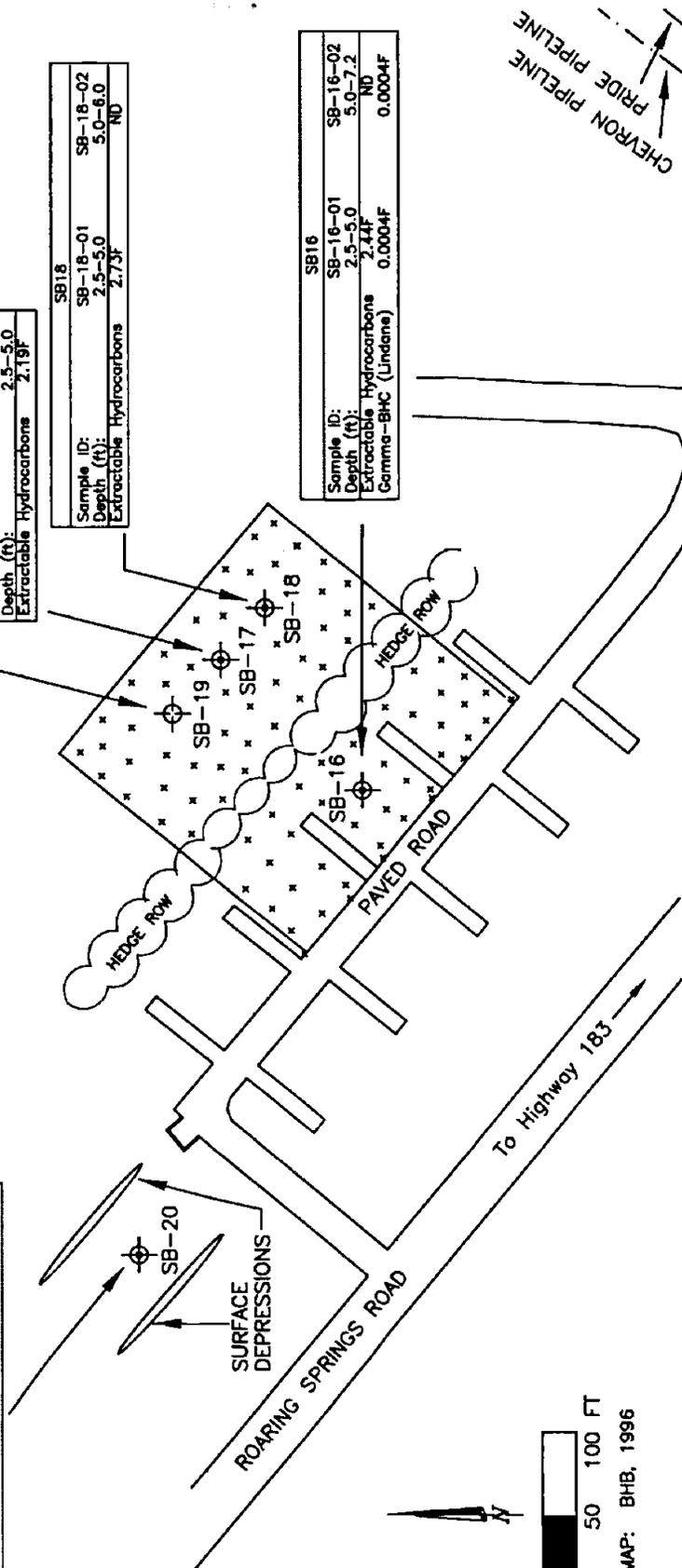


Figure 3-1
 RV Family Camp Area Subsurface Soil Organic Analytical Results
 NAS Fort Worth JRB
 Fort Worth, Texas

The Environmental Company, Inc.

Date: June 1998
 Project Manager: B. Duffner
 Prepared By: L. Myers
 Reviewed By: A. Long
 Project No.: PS103

BASE MAP: BMB, 1996

TAB

4

4.0 POTENTIAL CONTAMINANT SOURCE AND MIGRATION PATHWAYS

The SA and SC results and findings presented in Section 3.0 are interpreted in this section to identify potential sources of the detected constituents in subsurface soil and describe any potential for migration.

No visible signs of a leach field or contamination associated with a leach field were noted during drilling operations at any of the boreholes. The inorganic compounds that exceeded SALs and organics detected in samples collected from the RV Fam Camp area may be a result of above ground activities that were not associated with a leach field, such as application of pesticides in the area or leaks from lawn maintenance machinery. Potential risks associated with these inorganic compounds and detected pesticides are evaluated in Section 5.0.

As discussed in Section 3.3.5.1, groundwater was not encountered in the area. The silty soil layer above limestone varied from 5 feet to 20 feet bgs. The lack of groundwater and low permeability of the soils will limit the migration potential of the site.

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TAB

5

5.0 RISK EVALUATION

Although contaminants reported in Section 3.0 are not believed to be attributable to a RV Fam Camp source such as a leach field, potential risks were evaluated in order to ensure human health and the environment are protected. The risk evaluation focuses on risks associated with subsurface soil in the RV Fam Camp area. The evaluation is divided into the Human Health Evaluation (Section 5.1) and the Ecological Evaluation (Section 5.2). Section 5.1 identifies COPCs and potential human receptor and exposure pathways and develops ALs for protection of human health. Section 5.2 presents the biological resources present in the study area and evaluates potential ecological impact using toxicological benchmarks.

5.1 HUMAN HEALTH EVALUATION

In this section, human health risks are evaluated through the development of health-based ALs (i.e., risk reduction standards under Subchapter S) for the RV Fam Camp Investigation Area, as described in Section 2.4.3. This approach is consistent with the methods and protocols outlined in the AFCEE *Handbook* (USAF 1993) and TAC Chapter 335, Subchapter S (TNRCC 1996). These references generally follow standard risk assessment procedures, which includes identifying COPCs, identifying potential receptors and exposure pathways, evaluating the toxicity of the COPCs, and characterizing risks (EPA 1989a,b).

A human exposure conceptual site model in tabular format is presented in Table 5-1. It summarizes the contaminants, contaminated media, and migration and exposure pathways for the study area based on the findings of the site characterization and risk evaluation.

5.1.1 Identification of Chemicals of Potential Concern

As described in Section 3.0, soil samples were collected at various depths for laboratory analysis according to PID readings. Surface soils were not collected because PID screening indicated a lack of contamination in the top 2 feet of soil in the RV Fam Camp area. Groundwater was not encountered in this area and was therefore not sampled.

The potential for future migration is limited by geological barriers or lack of subsurface contamination. Therefore, the only environmental medium of concern for this risk evaluation is subsurface soil. In Section 3.0, detected site concentrations in subsurface soil were compared with SALs. Chemicals with concentrations exceeding SALs were carried forward in this risk evaluation and refined to produce a list of COPCs for developing action levels.

Exceedances of the SALs are identified with boxes around the concentrations in Table 3-6. Three inorganics and three organics had concentrations exceeding SALs. No petroleum- or leach field-related compounds exceeded SALs.

Antimony concentrations in all samples collected at the RV Fam Camp area (ranging from 0.99 to 2.71 mg/Kg) exceed the SAL, which is the background UTL of 0.712 mg/Kg

calculated in the Jacobs study (Jacobs 1997, 1998). No regional background levels for antimony were available in the EPA (1996a) screening level document. However, based on a communication with the EPA (EPA 1997a), the antimony levels detected in site samples likely represent background for the specific study area because 1) the levels were relatively low compared to typical contamination levels; 2) the variation of concentrations across samples is limited; and 3) natural levels of antimony tend to vary significantly from area to area, suggesting that background levels at the RV Fam Camp area may be naturally higher than those found in the Jacobs study. In addition, the antimony concentrations detected at the area are well within the range of concentrations found in native soils (Dragun 1988). Therefore, the antimony levels observed in subsurface soil sampled at the RV Fam Camp area are considered background for purposes of this risk evaluation. Consequently, antimony was not selected as a COPC.

Table 3-6 shows that calcium detects exceed the SAL (based on the measured background) in all but one sample collected from the RV Fam Camp area. Potassium detects exceed the SAL in one sample collected from this area. The concentrations of these compounds are due to the limestone that was encountered during borehole drilling. Therefore, the concentrations are attributed to localized geological conditions and calcium and potassium were not selected as COPCs. The concentrations of calcium and potassium in soil at this site are not expected to result in adverse human health effects.

Table 5-2 summarizes the COPCs and frequency of SAL exceedances for the RV Fam Camp area. Detected organic compounds were automatically carried forward because either background data were not available for these compounds or they were not detected in background samples. A total of three pesticides were identified as COPCs at the RV Fam Camp area. Although 2-hexanone and methyl isobutyl ketone were detected in site samples, the data are not valid for quantitative use, as discussed in Section 3.2.1.1.

5.1.2 Potential Human Receptors

Potential human receptors present in the vicinity of the RV Fam Camp area are identified in this section. Potential human receptors were identified based on current and future land use, beneficial groundwater use, and the migration potential evaluation (Section 4.0).

As discussed in Section 1.0, the RV Fam Camp area is located on NAS Fort Worth property, which consists of multiple land uses including industrial, commercial, recreational, and residential. A portion of this property will be transferred to the public as part of the NAS Fort Worth property disposal/reuse process. The RV Fam Camp area is located on the portion of property to be transferred. Currently, the RV Fam Camp area, located to the west of the Carswell Golf Club property, is an open area with no development. The property on which the golf club is located is expected to remain a golf club under private ownership after the property transfer. The RV Fam Camp area is expected to be developed as an extension of the golf club (Long 1996).

Although the RV Fam Camp area is not currently being used for its intended purpose, it is accessible to the public. Therefore, current potential human receptors include NAS personnel and residents intermittently using the RV Fam Camp area for recreational purposes. The potential receptors are expected to remain the same after the property transfer, although the individuals using the golf club will likely include non-NAS

residents. Because some development is expected in the portion of the property being transferred (e.g., extension of the golf course), construction workers are also potential future receptors.

Potential beneficial use of the groundwater in the vicinity of the RV Fam Camp area is designated as Category I groundwater by TNRCC because of potential contaminant migration into local surface water (Benson 1997). No receptors are currently using this groundwater as a water supply. There are no known planned uses of the groundwater as a future water supply for domestic or industrial purposes.

5.1.3 Human Exposure Pathway Evaluation

Exposure pathways describe the mechanisms through which chemicals released from the source(s) reach potential receptors. Exposure pathways are defined by the following elements, all of which must be present to have a complete exposure pathway:

- contaminated environmental media;
- receptor;
- point of contact with the contaminated medium; and
- feasible route of exposure at the contact point.

As discussed in the previous section, potential receptors in the study area include:

- current and future recreational visitors to the RV Fam Camp area; and
- future construction workers in the transferred property.

COPCs in the RV Fam Camp area were identified in subsurface soil. No other environmental media have been identified as being contaminated, and future contaminant migration to other media is not expected based on the reasons discussed in Sections 4.0 and 5.1.1. Current visitors to the RV Fam Camp area do not directly contact subsurface contamination because the SC results indicate that the contamination is greater than 2 feet bgs. Therefore, no complete exposure pathways exist for current potential receptors.

Similar to the conditions for the current receptors, future visitors to the golf club are not expected to directly contact the subsurface contamination. However, 15 feet of the soil column represents a reasonable depth above which soil could be excavated and brought to the ground surface during construction and excavation activities. Thus, future receptors in the vicinity of the development of the RV Fam Camp area may be exposed to potential contamination in subsurface soil brought to the ground surface. Future visitors may be exposed to contaminants in subsurface soil brought to the surface via inhalation of volatiles/particulates; they are not expected to directly contact the soil because it will be in a construction zone. Because the future visitor may be a local resident, visitation to the RV Fam Camp area may be long-term. Therefore, the exposures associated with the future visitor are assumed to occur for 30 years, which is the standard default exposure duration for residents. Future construction workers may be exposed to contaminants in subsurface soil via ingestion of and dermal contact with soil and inhalation of volatiles/particulates. Due to the short-term nature of construction work, construction workers are assumed to have an exposure duration of 2 years.

Although groundwater use in these areas is unlikely to occur in the future and contaminant migration is limited, the potential for contaminant migration from soil to groundwater was considered when deriving ALs because the RRSN2 regulation specifies that this pathway must be evaluated for contaminants detected in soil.

As presented in Section 5.1, the human exposure CSM summarizing the exposure information for the RV Fam Camp area is shown in Table 5-1. In summary, the future exposure scenarios used to develop ALs are as follows:

- Recreational visitor to the RV Fam Camp area potentially exposed via inhalation of volatile COPCs and particulates in excavated subsurface soil.
- Construction worker potentially exposed via ingestion of, inhalation of, and dermal contact with COPCs in subsurface soil at the RV Fam Camp area.
- Residents potentially exposed via groundwater ingestion due to contaminants migrating from subsurface soil to groundwater.

5.1.4 Toxicity Assessment

The objective of the toxicity assessment was to compile established toxicity criteria necessary for developing the ALs in Section 5.1.5. These criteria range from toxicity values to weight-of-evidence classifications for carcinogens and are used to establish appropriate risk-based concentrations. The toxicity criteria are divided into two categories, based upon the endpoint of toxicity of a compound. These categories are noncarcinogenic and carcinogenic effects. Some compounds produce effects in both categories.

To establish the toxicity of carcinogens, the EPA uses a weight-of-evidence classification scheme to rate carcinogenic potential. The classifications describe the likelihood, based on scientific evidence, that a chemical will cause cancer in humans according to the strength of the supporting data. The five weight-of-evidence categories for carcinogens are as follows:

- Group A - Human Carcinogen;
- Group B (B1 and B2) - Probable Human Carcinogen;
- Group C - Possible Human Carcinogen;
- Group D - Not Classifiable as to Human Carcinogenicity; and
- Group E - Evidence of Noncarcinogenicity in Humans.

Toxicity values, combined with the exposure assumptions, are used to estimate risks or derive risk-based concentrations. They are dependent upon the dose response relationship of a compound. The cancer slope factor (CSF) describes the dose response relationship for carcinogens, while the reference dose (RfD) describes the relationship for noncarcinogens. The EPA has developed CSFs for compounds classified as A, B, and selected C carcinogens. The CSF is used to estimate the upper bound excess lifetime cancer risk associated with lifetime exposure to a carcinogen.

The EPA develops chronic and subchronic RfDs assuming that a threshold for adverse effects exists. The RfD is developed from the no-observed-adverse-effect-level (NOAEL) for the most sensitive species of the critical toxic effect, and application of uncertainty factors. The chronic RfD is considered to be the level below which

significant adverse health effects are unlikely to occur, assuming a threshold mechanism of action in humans and an exposure period of 7 years to a lifetime. The subchronic RfD assumes an exposure period of less than 7 years.

Toxicity values are available from EPA (1997 b,c) for ingestion and inhalation routes of exposure. Toxicity criteria for both routes of exposure for the COPCs in the RV Fam Camp area are compiled in Table 5-3.

The EPA has not developed toxicity values for dermal exposure because of limited toxicity data. Potential risks associated with this pathway can be evaluated using oral RfDs and CSFs adjusted from administered to absorbed doses. This adjustment is necessary because most EPA toxicity values are based on administered doses (intakes), whereas the calculated dermal exposure represents an absorbed dose. To derive a dermal toxicity factor for noncarcinogenic effects, the oral RfD is multiplied by the gastrointestinal absorption fraction for the chemical of interest. For a dermal CSF, the oral CSF is divided by the gastrointestinal absorption fraction. Gastrointestinal absorption factors may be obtained from literature sources. Table 5-4 presents the derivation of dermal toxicity factors, including the oral toxicity factors and absorption fractions used to calculate the values.

5.1.5 Development of Action Levels

ALs for the RV Fam Camp area were derived according to the methods for RRSN2 (TAC Chapter 335, Subchapter S) and those provided in EPA guidances, per EPA (1996a). The potential receptors identified for this area include future recreational visitors and construction workers who may be exposed to contaminants in subsurface soil brought to the surface by construction-related activities. Given that exposure to contaminants in subsurface soil would be lower for recreational visitors than for construction workers because of the comparative proximity to excavation activities and exposure of workers via more exposure routes, potential risks associated with the construction worker scenario would be higher. Therefore, ALs for recreational visitors were not developed. Although groundwater use is not likely to occur, as indicated earlier, potential future receptors using the groundwater as a domestic (residential) water supply were considered in the development of soil ALs. This approach is consistent with other risk assessments being conducted at the NAS Fort Worth. In the risk assessment of the Abandoned Service Station Site that encompasses the Unnamed Stream area, migration of contaminants from groundwater to surface water and impact of potential potable water is an exposure pathway that was evaluated (Benson 1997). Future industrial use of the groundwater was not considered when deriving the ALs because the exposure frequency and duration, and thus the corresponding risks, would be lower than for residential use.

Table 5-5 presents the two MSCs that were considered as possible ALs and the AL selected for each COPC in the RV Fam Camp area. The MSCs for groundwater protection under a residential scenario were calculated using equations and exposure assumptions for residential ingestion of drinking water provided in Appendix II, Subchapter S (TNRCC 1996). Maximum Contaminant Levels (MCLs) were considered the primary groundwater-specific concentration for deriving groundwater protective ALs, if available; otherwise, risk-based concentrations (RBCs) were derived. The MCL or groundwater RBC was multiplied by 100 to generate a soil concentration protective of groundwater uses. MCLs were available only for endrin (used for endrin aldehyde) and

lindane. For alpha-BHC, RBCs were derived using the equations and exposure assumptions shown in Table 5-6.

The soil contact ALs for the construction worker scenario are based on the equations and exposure assumptions shown in Table 5-7. Equations and assumptions for the particulate emission and volatilization factors are provided in Tables 5-8 and 5-9. The methodologies used are consistent with the most recent EPA guidances (EPA 1992b, 1995, 1996 a,b,c) and RRSN2. ALs estimated for the construction worker scenario include ingestion of, inhalation of, and dermal contact with COPCs in subsurface soil.

The three potential ALs for COPCs with noncarcinogenic effects were adjusted to account for cumulative health effects posed by compounds with similar critical toxicity endpoints. These adjustments ensure that the total potential risks presented by exposures to compounds with the same toxic response do not exceed the acceptable noncarcinogenic risk level (i.e., a hazard quotient of 1). Table 5-3 summarizes the critical toxicity endpoints corresponding to the respective RfDs for each COPC. The COPCs with similar noncancer endpoints are endrin aldehyde and lindane. The common endpoint is hepatotoxicity. The AL for endrin aldehyde was divided by two, yielding a combined hazard index of one. The AL for lindane is based on carcinogenic effects and was, therefore, not divided by two.

The lowest of the two concentrations was selected as the AL (Table 5-5). In all cases, the groundwater protection concentration was the lowest value.

5.1.6 Action Level Comparison

In Table 5-10, COPC concentrations are compared with the selected ALs. Maximum site concentrations, rather than statistically derived exposure concentrations, were used for comparison because of the limited number of subsurface soil samples (i.e., eight samples) collected from the RV Fam Camp area. This approach is consistent with TAC Chapter 335, Subchapter S (TNRCC 1996).

None of the COPC concentrations exceed the ALs and the concentrations are, in fact, several orders of magnitude less than the action levels in the majority of the cases. Although no comparison could be made for 2-hexanone and methyl isobutyl ketone because of the lack of valid data, the presence of these compounds is not considered significant because of the low detection frequency (two out of eight samples) and the lack of an obvious source. They are not related to a leach field. As discussed in Section 4.0, no visible signs of a leach field or contamination associated with a leach field were observed during the SC investigation. The compounds in this risk evaluation may have resulted from above-ground activities not associated with a leach field, such as application of pesticides in the area or machinery use. The metals generally appear to be within normal background ranges.

5.2 ECOLOGICAL EVALUATION

Potential ecological risks were evaluated using a screening level assessment in which site concentrations were compared to established ecological benchmarks. This approach is consistent with methods outlined in the *Framework for Ecological Risk Assessment* (EPA 1992a) and the *Draft Guidance for Conducting Ecological Risk Assessment Under The Texas Risk Reduction Program* (McBee et al. 1996).

The sections below describe the biological resources in the vicinity of the study area, identify potential receptors and exposure pathways, and compare study area concentrations with screening benchmarks.

5.2.1 Biological Resources

Biological resources in the RV Fam Camp area are expected to be limited because of their industrial or disturbed nature. However, vegetated areas within or adjacent to the study area may provide habitat for wildlife.

5.2.1.1 Vegetation

NAS Fort Worth and the study area are located in the Grand Prairie portion of the Black Prairies section of the Central Lowlands Physiographic Province. This province is characterized by broad terraces that slope to the east. The topography in the vicinity of the pipelines is relatively flat.

Vegetated areas in the study area are predominantly mowed grasses and weedy herbaceous species. Most of the native habitat and species have been replaced by introduced ornamental or invasive weedy species. Grasses in the vicinity of the Valve Box area are typical of undeveloped industrial areas. According to ETC (1994), these grasses include little bluestem (*Schizachyrium scoparium*), Indian grass (*Sorghastrum avenaceum*), big bluestem (*Andropogon gerardi*), and buffalo grass (*Buchloe dactyloides*). Grasses along Farmers Branch Creek in the pipeline corridor are Bermuda grass and buffalo grass (Figure 1-3). These species are also found on the golf course. Introduced trees on the golf course include catalpa (*Catalpa bignonioides*) and chinaberry (*Melia azedarach*).

A riparian habitat is located to the east along Farmers Branch Creek (Figure 1-3). Trees and shrubs located in this area include blackjack oak (*Quercus marilandica*), cedar elm (*Ulmus crassifolia*), American elm (*Ulmus americana*), hackberry (*Celtis laevigata*), and sumac (*Rhus* spp.) (ETC, 1994).

Although water periodically flows through nearby Farmers Branch Creek and the golf course contains several small ponds, hydrophytic (wetland) vegetation is limited to a few emergent species such as cattails, sedges (*Carex* spp.), and rushes (*Juncus* spp.).

5.2.1.2 Wildlife

Wildlife in the vicinity of the study area includes a variety of birds, mammals, and reptiles. Wildlife typically found in the grassy areas includes common bird species such as grackle (*Quiscalus quiscula*), starling (*Sturnus vulgaris*), western meadowlark (*Sturnella neglecta*), and mourning dove (*Zenaidura macroura*). Mammals that may use the general area are coyote (*Canis latrans*) and black-tailed hare (*Lepus californicus*). Vegetation along Farmers Branch Creek may provide habitat for Eastern cotton-tailed rabbit (*Sylvilagus floridanus*), fox squirrel (*Sciurus niger*), and opossum (*Didelphis virginiana*). Other mammals that could be found in the study area include raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), nine-banded armadillo (*Dasypus novemcinctus*), red fox (*Vulpes fulva*), and gray fox (*Urocyon cinereargenteus*) (ETC, 1994).

The study area may also provide habitat for reptiles and amphibians. Reptiles may include snakes, including Western cottonmouth (*Agkistrodon piscivorus*), Western diamondback (*Crotalus atrox*), Western milk (*Lampropeltis triangulum gentillis*), and Western ribbon (*Thamnophis proximus proximus*). Bullfrog (*Rana catesbeiana*) and softshell turtle (*Trionyx* spp.) are the dominant water-dependent species known to live in the ponds on the golf course and along the Trinity River (ETC 1994).

Some stretches of the Trinity River contain habitat for waterfowl and shorebirds. Waterfowl known to use the West Fork of the Trinity River and nearby Lake Worth include wood duck (*Aix sponsa*), mallard (*Anas platyphynchos*), pintail (*Anas acuta*), American golden-eye (*Bucephala clangula*), and merganser (*Mergus merganser*) (ETC, 1994). Common shorebirds are the killdeer (*Charadrius vociferus*) and great blue heron (*Ardea herodias*).

5.2.1.3 Threatened and Endangered Species

There are no known Federal or state threatened or endangered plant or wildlife species or sensitive habitats within or adjacent to the RV Fam Camp area. However, NAS Fort Worth is located in the Central North American Migratory Flyway, through which several threatened and endangered species migrate, including the Arctic peregrine falcon (*Falco peregrinus tundrius*), bald eagle (*Haliaeetus*), and whooping crane (*Grus americana*) (ETC, 1994). These species are attracted to Lake Worth, which is located approximately 1.5 miles north of the study area. These species are migratory and are not expected to reside in the vicinity of the study area.

The Silver Creek heron rookery is located along the northeast side of the lake, approximately 5 to 6 miles north of the study area. The rookery is protected as a sensitive wildlife area by the Texas Parks and Wildlife Department.

Two federally listed candidate reptiles may exist in Tarrant County. They are the Texas horned lizard (*Phrynosoma cornutum*) and the Texas garter snake (*Thamnophis sirtalis annectens*). The Texas horned lizard prefers grassy upland areas, while the Texas garter snake prefers seeps and wet grass areas. Either of these species could inhabit the grassy areas surrounding the golf course, along the banks of the Trinity River or in portions of Farmers Branch Creek. However, to date they have not been identified on NAS Fort Worth or in the project vicinity. Suitable habitat in the study area is fragmented and routinely maintained by mowing and herbicides. Therefore, it is not anticipated that these species exist within or adjacent to the study area.

5.2.2 Potential Receptors and Exposure Pathways

Inorganics, VOCs, and one pesticide were detected within the root zone (2.2 to 5 feet bgs) of the RV Fam Camp area. Thus, ecological receptors could potentially contact these chemicals. Ecological receptors could include deep-rooted trees and shrubs if their root systems contact the contaminants. The contaminants are within 5 feet of the ground surface; therefore, burrowing animals such as raccoon, striped skunk, and nine-banded armadillo could potentially contact the contaminants. If the burrowing animals were to contact the contaminants, a predator such as a coyote or raptor foraging on these species could become an ecological receptor for chemicals that bioaccumulate (e.g., lindane). Based on these conditions, potential ecological receptors could be exposed to subsurface

contaminants in the RV Fam Camp area via plant uptake, ingestion, inhalation, and dermal contact.

The mobility of an ecological receptor is typically considered when evaluating its potential for exposure (Will and Suter, 1995). The mobility of a specific receptor is directly correlated to the average foraging range of an individual within the species under consideration (Sample et al. 1996). Flightless invertebrates and vegetation are considered stationary due to the small area they occupy. Small invertebrates such as amphibians, reptiles, small arboreal, and burrowing animals are considered mobile receptors. These mobile receptors can have foraging ranges up to several acres. Transient receptors include larger invertebrates such as coyote, fox, and raccoon, and migratory avifauna or raptors. Foraging ranges for these transient species could cover several square miles, reducing the amount of time spent in the RV Fam Camp area and, therefore, the amount of exposure.

5.2.3 Screening Benchmark Comparison

Maximum concentrations of COPCs for ecological receptors in the RV Fam Camp area were compared to local background levels (Jacobs 1997) and to soil screening benchmarks obtained from McBee et al. (1996), Sample et al. (1996), and ICF (1989). This comparison is shown in Table 5-11. The COPCs for ecological receptors are the chemicals that were detected in the soil above 5 feet, which include lindane and metals.

The wildlife soil benchmarks found for lindane are 2.5 mg/Kg and 20 mg/Kg for maize and general crops, respectively (ICF 1989). For the purposes of this evaluation, these values were adjusted downward by a factor of 130 to account for potential bioaccumulative effects of lindane (TNRCC 1996). The bioaccumulation factor is based on data presented in the EPA's Ambient Water Quality Criteria for lindane. The lowest resulting benchmark was used in the screening. As shown in Table 5-11, the benchmark (0.019 mg/Kg) is one to two orders of magnitude above the AL and detected concentrations of lindane, which are about an order of magnitude lower than the PQL.

No quantitative comparisons could be made for 2-hexanone and methyl isobutyl ketone due to reasons discussed in Section 3.2.1.1. However, these compounds are not persistent and are volatile in the ambient environment, with vapor pressures greater than 1mm Hg at 25°C (McBee et al. 1996). Therefore, ecological receptors are not expected to be exposed to these compounds in the study area at levels that would adversely impact the environment.

Ecological benchmarks based on invertebrates and/or plant toxicity were available for all the metals. The site concentrations of all the metals detected at the RV Fam Camp area are below the screening benchmark and/or background concentrations. No screening benchmarks were available for magnesium, sodium, or potassium, but all had concentrations below background levels. As indicated in Section 5.1.1, the elevated calcium concentrations are naturally occurring limestone and are therefore due to localized geological conditions.

5.2.4 Ecological Evaluation Summary

The RV Fam Camp area has limited habitat for wildlife because the vegetation is regularly maintained by mowing and/or spraying with herbicides. In addition, the area is isolated from other suitable habitat by several secondary roads and a four-lane highway.

The concentrations of compounds detected at the RV Fam Camp area are all below the screening benchmarks and/or background concentrations. The benchmarks used in this screening assessment are designed to be conservative so that chemicals with potential ecotoxicological properties are not prematurely eliminated from the assessment (McBee et al. 1996). Based on this screening evaluation, the compounds detected in subsurface soil at the RV Fam Camp area are not expected to adversely impact wildlife or plants at the site.

5.3 RISK EVALUATION SUMMARY

ALs were developed for COPCs detected in the RV Fam Camp area. Although COPCs were identified for this area, these compounds are not indicative of a contaminant source at the RV Fam Camp such as a leach field (as discussed in Section 4.5).

Concentrations of all the COPCs are below human health ALs, which were based on groundwater protection of residential drinking water (Table 5-10). Similarly, concentrations of the detected compounds in the RV Fam Camp area either are below ecological screening benchmarks, measured background levels, or are not considered of concern to ecological receptors. Therefore, the results of this risk evaluation demonstrate that the concentrations of compounds present in subsurface soil at the RV Fam Camp area are not expected to adversely impact human health or the environment.

The COPCs in the RV Fam Camp area may be a result of above-ground activities not associated with a leach field, such as application of pesticides in the area or machinery use. The metals generally appear to be within normal background ranges.

Table 5-1 Conceptual Site Model Summary

Site Description	Contaminated Media and Detected Compounds	COPCs	Potential Migration Pathway	Potential Receptors	Exposure Pathway
Campground with alleged abandoned peach field	Subsurface soil: metals, 2-hexanone, MIBK, α -BHC, endrin aldehyde, and lindane	α -BHC, endrin aldehyde, and lindane	Not expected	Current and future recreational visitors, future construction workers	Ingestion of and dermal contact with soil; inhalation of particulates/volatiles

α -BHC - alpha benzene hexachloride

COPC - chemical of potential concern; identified through Section 3.0 screening

Table 5-2 Chemicals of Potential Concern (COPCs) for the RV Fam Camp Area

COPC	Frequency of SAL Exceedance ^b
α -BHC	1/8
γ -BHC (lindane)	3/8
Endrin aldehyde	1/8

^aRepresents the number of screening action level exceedances/total number of samples; also represents the number of detects/total number of samples.

BHC = benzene hexachloride (also known as hexachlorocyclohexane)

SAL = screening action level

Table 5-3 Toxicity Criteria for COPCs in the RV Fam Camp Area

Toxicity Criteria ^a	alpha-BHC	Endrin Aldehyde ^b	gamma-BHC (lindane)
For Carcinogenic Effects			
Oral CSF (mg/Kg-d) ⁻¹	6.3	NC	1.3
Inhalation CSF (mg/Kg-d) ⁻¹	6.3	NC	1.3
EPA Weight of Evidence	B2	--	B2
Type of Cancer	Liver	--	Liver
For Noncarcinogenic Effects			
Chronic Exposures			
Chronic Oral RfD (mg/Kg-d)	NA	0.0003	0.0003
Chronic Inhalation RfD (mg/Kg-d)	NA	NA	NA
Critical Endpoint	--	hepatotoxicity, convulsions	hepatotoxicity, nephrotoxicity
UF oral/inhalation	--	100/--	1000/--
Confidence oral/inhalation	--	medium	medium
Subchronic Exposures			
Subchronic Oral RfD (mg/Kg-d)	NA	0.0003	0.003
Subchronic Inhalation RfD (mg/Kg-d)	NA	NA	NA
Critical Endpoint	--	hepatotoxicity, convulsions	hepatotoxicity, nephrotoxicity
UF oral/inhalation	--	100/--	100/--
Confidence oral/inhalation	--	NA	NA

-- - not applicable

BHC - benzene hexachloride (also known as hexachlorocyclohexane)

COPC - chemical of potential concern

CSF - cancer slope factor

NA - not available

NC - not considered carcinogenic

RfD - reference dose

UF/MF - uncertainty factor/modifying factor

^aSources: EPA (1997b,c,d).

^bToxicity criteria are for endrin due to the lack of toxicity data for endrin aldehyde.

Table 5-4 Derivation of Dermal Toxicity Values for the RV Fam Camp COPCs

COPC	Oral Toxicity Values ^a		CSF	Oral Absorption Factor	Dermal Toxicity Values ^b	
	Chronic RfD	Subchronic RfD			Chronic RfD	Subchronic RfD
alpha-BHC	NA	NA	6.3	0.97 ^d	--	6.5
Endrin Aldehyde ^c	0.0003	0.0003	NC	0.1 ^e	0.00003	--
Lindane	0.0003	0.003	1.3	0.99 ^f	0.0003	1.3

-- - not applicable

BHC - benzene hexachloride (also known as hexachlorocyclohexane)

COPC - chemical of potential concern

CSF - cancer slope factor

NA - not available

RfD - reference dose

^aSources: EPA (1997b,c).

^bCalculated by multiplying the oral absorption factor by the oral RfD to yield a dermal RfD and by dividing the oral CSF by the oral absorption factor to yield a dermal CSF, per EPA guidance (EPA 1989a).

^cToxicity criteria are for endrin due to the lack of toxicity data for endrin aldehyde.

^dSource: ATSDR (1994).

^eSource: Hayes and Laws (1991).

Table 5-5 Potential Action Levels for COPCs at the RV Fam Camp Area

COPC	Groundwater Protection ^a (mg/Kg)	Construction Worker Scenario ^b (mg/Kg)	Selected Action Level (mg/Kg)
alpha-BHC	0.0014	11	0.0014
gamma-BHC (lindane)	0.02	55	0.02
Endrin aldehyde	0.1 ^c	296 ^c	0.1

BHC - benzene hexachloride (also known as hexachlorocyclohexane)

COPC - Chemical of Potential Concern

NC - not calculated because of the lack of toxicity criteria

^aBased on 100X medium-specific concentration for residential consumption

of groundwater or 100X the Federal MCL (Subchapter S, Section 335.68, Appendix II).

^bBased on ingestion, inhalation, and dermal contact exposures to COPCs in subsurface soil.

^cAdjusted to account for potential additive noncarcinogenic effects of endrin aldehyde and lindane.

Table 5-6. Algorithms and Exposure Assumptions for Residential Ingestion of Groundwater

For Noncarcinogenic Effects:

$$\text{Groundwater MSC (mg/L)} = \frac{(HQ \times BW \times AT_{nc} \times 365 \text{ days/yr})}{(IR_w \times EF \times ED)} \times RfD_o$$

For Carcinogenic Effects:

$$\text{Groundwater MSC (mg/L)} = \frac{(TRL \times BW \times AT_c \times 365 \text{ days/yr})}{(IR_w \times EF \times ED)} \times \frac{1}{CSF_o}$$

where,

MSC = medium-specific concentration

HQ = hazard quotient (1)

TRL = target risk level (1×10^{-6})

RfD_o = chronic oral reference dose (chemical-specific; see Table 5-3)

CSF_o = oral cancer slope factor (chemical-specific; see Table 5-3)

BW = body weight (70 kg)

AT_{nc} = averaging time for noncarcinogenic effects (30 years)

AT_c = averaging time for carcinogenic effects (70 years)

IR_w = water ingestion rate (2 L/day)

EF = exposure frequency (350 days/year)

ED = exposure duration (30 years)

Table 5-7. Algorithms and Exposure Assumptions for Construction Worker Exposures to COPCs in Soil

For Noncarcinogenic Effects:

$$\text{Soil Contact MSC (mg/kg)} = \frac{(HQ \times BW \times AT_{nc} \times 365 \text{ days/yr} \times 10^6 \text{ mg/kg})}{\left(EF \times ED \times \left[\left(\frac{IR_s}{RfD_{s_o}} \right) + \left(\frac{SA \times AF \times EV \times Abs}{RfD_{s_d}} \right) + \left(\frac{IH \times \left[\frac{1}{VF} + \frac{1}{PEF} \right]}{RfD_{s_i}} \right) \right] \right)}$$

For Carcinogenic Effects:

$$\text{Soil Contact MSC (mg/kg)} = \frac{(TRL \times BW \times AT_c \times 365 \text{ days/yr} \times 10^6 \text{ mg/kg})}{\left(EF \times ED \times \left[(IR_s \times CSF_o) + (SA \times AF \times EV \times Abs \times CSF_d) + \left(IH \times CSF_i \times \left[\frac{1}{VF} + \frac{1}{PEF} \right] \right) \right] \right)}$$

where,

MSC = medium-specific concentration

HQ = hazard quotient (1)

TRL = target risk level (1×10^{-6})

RfD_{s_o} = subchronic oral reference dose (chemical-specific; see Table 5-3)

RfD_{s_d} = subchronic dermal reference dose (chemical-specific; see Table 5-3)

RfD_{s_i} = subchronic inhalation reference dose (chemical-specific; see Table 5-3)

CSF_o = oral cancer slope factor (chemical-specific; see Table 5-3)

CSF_d = dermal cancer slope factor (chemical-specific; see Table 5-3)

CSF_i = inhalation cancer slope factor (chemical-specific; see Table 5-3)

BW = body weight (70 kg)

AT_{nc} = averaging time for noncarcinogenic effects (2 years)

AT_c = averaging time for carcinogenic effects (70 years)

IR_s = soil ingestion rate (480 mg/day)

SA = skin surface area (5,000 cm^2)

AF = adherence factor (0.2 mg/cm^2 -event)

EV = event frequency (1 event/day)

Abs = dermal absorption factor (0.1 for the pesticides [EPA 1995])

IH = inhalation rate (20 m^3/day)

EF = exposure frequency (250 days/year)

ED = exposure duration (2 years)

VF = volatilization factor (chemical-specific; see Table 5-8)

PEF = particulate emission factor ($5.57 \times 10^8 \text{ m}^3/\text{kg}$; see Table 5-9)

Table 5-8 Soil to Air Volatilization Factor (VF)

COPC	Chemical-Specific Parameters Used to Calculate VF ^a						VF ^b (m ³ /kg)
	D _i	D _w	H'	K _{oc}	D _a	K _d	
alpha-BHC	1.42E-02	7.34E-06	4.35E-04	1.23E+03	4.82E-08	7.38E+00	5.10E+05
gamma-BHC (lindane)	1.42E-02	7.34E-06	5.74E-04	1.07E+03	7.07E-08	6.42E+00	4.21E+05
Endrin Aldehyde	1.25E-02	4.74E-06	3.08E-04	1.23E+04	3.06E-09	7.38E+01	2.03E+06

COPC - Chemical of Potential Concern

D_i - diffusivity in air (cm²/sec)

D_w - diffusivity in water (cm²/s)

H' - Henry's Law constant (dimensionless)

K_{oc} - organic carbon partition coefficient (cm³/g)

D_a - apparent diffusivity (cm²/s); calculated

K_d - soil-water partition coefficient (cm³/g); = K_{oc} x OC

^aSource: EPA (1996b).

^bCalculated using Equation (6) and the following site assumptions from EPA (1996b):

Q/C - inverse of the mean conc. at center of square source (g/m ² -s per kg/m ³);	= 61.53
T - exposure interval (s)	= 9.5x10 ⁴
pb - dry soil bulk density (g/cm ³)	= 1.5
ps - soil particle density (g/cm ³)	= 2.65
θ _a - air-filled soil porosity (L _{air} /L _{soil}): = n - θ _w	= 0.28
θ _w - water-filled soil porosity (L _{water} /L _{soil})	= 0.15
n - total soil porosity; = 1 - (pb/ps)	= 0.434
OC - organic carbon content of soil (g/g)	= 0.006

Table 5-9 Particulate Emission Factor (PEF) Parameters

Parameters	Values ^a	Basis
Q/C	61.53	Site-specific from Table 3 of EPA (1996b)
V	2.00E-01	Site-specific; assumed most of site is bare due to construction activities
U _m	4.69	Default (EPA 1996b)
U _t	11.32	Default (EPA 1996b)
F(x)	0.194	Default (EPA 1996b)

PEF ^b (m ³ /kg)	= 5.57E+08
---------------------------------------	------------

^aSource EPA (1996b).

^bCalculated from Equation (10) in EPA (1996b).

Q/C - Inverse of the mean conc. at center of square source (g/m²-s per kg/m³)

V - fraction of vegetative cover (unitless)

U_m - mean annual windspeed (m/s)

U_t - equivalent threshold value of windspeed at 7 m (m/s)

F(x) - function dependent on U_m/U_t derived using Cowherd et al. (1985) (unitless)

Table 5-10 Comparison of RV Fam Camp Area Concentrations with Human Health Action Levels

COPC	Maximum Site Concentration ^a (mg/kg)	Selected Action Level ^b (mg/kg)	Exceedance of Action Level?
alpha - BHC	0.0012	0.0014	No
gamma - BHC (lindane)	0.0005	0.02	No
Endrin Aldehyde	0.001	0.1	No

BHC - benzene hexachloride (also known as hexachlorocyclohexane)

COPC - Chemical of Potential Concern

^aFrom Table 3-6.

^bSee Table 5-5 for basis of action levels.

Table 5-11 Ecological Benchmark Screening for the RV Fam Camp Area

Chemical	Maximum Detected Concentration ^a (mg/Kg)	Background Concentration ^b (mg/Kg)	Ecological Screening Benchmarks ^c (mg/Kg)
Inorganics			
Aluminum	6,160	20,260	600/50
Antimony	2.71	0.712	-/5
Barium	28.29	128.1	3000/500
Beryllium	0.33	1.13	60/-
Cadmium	0.16	0.59	20/3
Calcium	703,817	272,000	NA
Chromium	7.65	16.31	0.4/1
Cobalt	1.76	6.19	1000/20
Copper	1.75	13.72	50/100
Iron	5,857	15,224	200/-
Lead	5.5	12.66	500/50
Magnesium	2,178	2,420	NA
Manganese	100.6	351.7	100/500
Mercury	0.04	NDB	0.1/0.3
Nickel	5.05	19.76	90/30
Potassium	1,005	1,717	NA
Sodium	126	53,200	NA
Vanadium	18.1	37.4	20/2
Zinc	8.42	31.3	100/50
Organics			
Gamma-BHC (Lindane)	0.0005	ND	-/0.019

NA: Not Available

ND: Not Detected

^aFor samples collected < 7ft bgs; table includes only parameters detected in at least one sample. From Table 3-6.^bSource: Jacobs (1997, 1998).^cSource: McBee et al. (1996), Sample et al. (1996), and ICF (1989). The first value is for invertebrates; the second value is for plants.

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6.0 CONCLUSIONS AND RECOMMENDATIONS

The investigation found no evidence indicating that a source of contamination such as a leach field was present at the RV Fam Camp area. However, limited low-level contamination was identified at concentrations below those that would impact human health or the environment based on evaluations using Risk Reduction Standard Number 2 procedures (TAC Chapter 335, Subchapter S).

Three site categories are identified in AFCEE guidance with respect to further action at a site. These categories are defined below.

- Category 1 - No further action because no significant impact to human health or the environment exists.
- Category 2 - Further study is required to categorize the site.
- Category 3 - Remedial action is required.

Based on the results of this investigation, it is recommended that the RV Fam Camp area be managed under Category 1.

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APPENDIX A

RV FAM CAMP UTILITY DRAWING

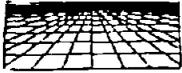
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APPENDIX B

GEOPHYSICAL REPORT

**ULS SERVICES COMPANY**

SPECIALIZED SERVICES FOR ENVIRONMENTAL AND CONSTRUCTION ENGINEERING

November 12, 1996

Mr. Bob Duffner
The Environmental Company, Inc.
24997 S.E. 155 Place S.W.
Issaquah, WA. 98027
PH: (206) 391 - 2785

Subject: Field Documentation - Letter Report
Utility Location Survey-Proposed Borehole Locations
And Leach Field Search and Location (FamCamp Area)
NAS Ft. Worth (Carswell Field)

Reference: TEC Subcontract No. IDIQ9610
Project No. 3103
Subcontract Delivery Order (SDO) 001

Dear Mr. Duffner,

Representatives of ULS Services Corporation were present at the referenced site on the dates of October 21 thru 24, 1996 to perform underground utility location at twenty proposed borehole locations as well as search and location of a reported abandoned sewer leach field at NAS FT. Worth.

METHODS

Analog and Digital Electromagnetic as well as Ground Penetrating Radar (EM) methods were used. Analog EM methods include: Electromagnetic Pipe and Cable Location (EMPCL) and Electromagnetic Induction Metal Detection (EMIMD). Conductive Utility Clearance Work was accomplished utilizing EMPCL methods which include passive, ground induction, and connection modes.

A high watt signal generator with multi-frequency receiver was used. In addition, EMIMD air to ground induction mode was employed to detect broad metal mass anomalies that may be reflective of potential USTs or vaults not reported or known to exist. EMIMD was also utilized to detect high conductive soil or metallic residual soil areas that may be indicative of former UST or septic tank pit areas. A bar suspended transmitter and receiver type unit was utilized. Observed EM line signals (utilities) and metal mass anomalies were painted on the ground surface and field drawings were prepared for TEC crew and for translation into CAD format. Drawings for the utility survey work along the fuel pipeline were not requested.

Digital EM methods include use of a Geonics EM-31 Terrain Conductivity Meter. A survey grid with transect spacing interval of 10 feet was laid out across the reported leach field area designated by TEC field staff. Digital data was collected at 10 foot intervals along each transect line and loaded onto Surfer for Windows Software for analysis as well as Autocad LT Software.

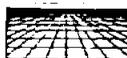
Ground Penetrating Radar (GPR) was also utilized to attempt to identify potential utilities constructed of non-conductive materials and to further characterize EM anomalies found in the reported leach field area.

OBSERVATIONS

Utility Survey

Front Gate Area:

Ground surface consists mostly grass. No obvious surface expressions or USTs are observed. No metal mass anomalies are observed. A total of five Survey Zones were investigated, three on the east side of the creek and two on the west side. A large diameter storm water pump station transfer pipe, appears to trend from west side southwest of vault in a northwest direction towards Base. An EM line signal anomaly (utility) was also observed trending in same direction in the same trench. Actual pipe location was not verified. Location of pipe was confirmed with Base facilities and staff. Ground Penetrating Radar (GPR) pilot tests were performed to determine feasibility. Due to the soil composition or other variables, reflective data was not obtained. Results proved to be non-feasible in this area. Multiple utilities were observed trending in same direction including: Fuel, Natural Gas, Electric and Telephone. One EM signal (utility) was observed on the west side of creek trending east and west through survey zones. EM signal is consistent with reported Fuel line location. One anomaly (utility) possibly telephone was also observed trending in same direction.



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OBSERVATIONS

Utility Survey

Water Fall Area:

Ground surface consists of grass, gravel and heavy brush in places. No obvious surface expressions of USTs are observed. No metal mass anomalies are observed. A total of five Survey Zones were investigated in this area. Two large diameter Fuel lines are exposed crossing a small creek bed that flows into river. Fuel lines are parallel and are trending approximately northeast to southwest through survey zones. One EM signal anomaly (utility) is observed trending east and west at the north end of the survey zones. Observation of the trend appears to originate from a storm drain manhole to another manhole.

Flood Control Area:

Ground surface consists of grass. No obvious surface expressions of USTs are observed. No metal mass anomalies are observed. A total of five Survey Zones were investigated along the West bank of the channel. One EM signal (utility) is observed trending East and West thru all five survey zones. EM signal observed is consistent with reported Fuel line location.

Roaring Spring Road:

A total of two Survey Zones were investigated in this area. Ground surface consists of grass. No obvious surface expressions of USTs are observed. No metal mass anomalies are observed. One EM signal anomaly (utility) is observed trending East and West from a concrete vault. Trend is consistent with reported Fuel line location.

Work was confined to these areas and no intrusive work should be done outside of the marked Survey Zones. Utilities that have been located and identified are marked accordingly in and immediately around the Survey Zones. Areas between ULS Survey Zones have been interpolated based upon trend direction of observed utilities. Detailed utility work has not been performed in these areas, outside of the ULS Survey Zone.



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Leach Field Search

Leach Field Area:

The reported leach field survey area designated by TEC field staff is at an abandoned RV Park referred to locally as FamCamp area. The survey area consists of approximately 35,000 square feet of generally flat low-cut grassy area that is separated by a tree-hedge. The area north of the hedge is a low-cut open grass area with some scattered large trees. The area south of the hedge, also of low-cut grass, lies between two graveled RV parking strip areas located perpendicular to a asphalt road that trends east-west through the RV Park. The northern side of the road (curb) is the southern boundary of the leach field survey zone. Ground surface within the southern half of the survey zone is relatively uneven and hummock and appears to have been disturbed.

A general utility survey was performed through the survey zone to ascertain existence of utilities and possible metallic piping associated with the reported leach and septic system. Results of the EMPCL survey indicates presence of utilities. Two EM signals (utilities) are observed trending east and west parallel with each other approximately five feet apart on the north edge of the asphalt road. One EM signal (utility) is observed on the east edge of Lot #3 trending north forty nine feet then east twenty seven feet to end of signal. Another utility was observed approximately fifty-five feet from the west side of survey zone trending north and south thru the entire zone(Plat 1).

Results of the Leach Field Septic Tank Search and Location work utilizing EMIMD methods indicate the presence of multiple low-grade high conductive anomalies within the area south of the tree hedge. Anomalies form a L-shaped pattern and fall within the hummocky, possibly disturbed ground surface area referenced above. Ground Penetrating Radar (GPR) was utilized to further characterize the EMIMD anomalies, however reflector data obtained was washed out and non-conclusive, probably due to poor soil conductivity conditions (GPR proved non-feasible). Results of the EM-31 survey confirmed the presence of one utility trending north-south through the survey zone, previously found during the EMPCL survey. Conductivity contour maps do not indicate any anomalous features other than the lineated anomaly (utility) referenced above (Plat-2). An overlay of Plats 1 and 2 are shown on Plat 3.

Conclusions

Of the two utilities trending parallel to one another and east to west along north side of the curb, the northern most utility appears to be a natural gas service line as this line traced back to Roaring Springs road where the Gas Company had marked the line. A lateral service pipe, which appears to be in connection with the main pipe, reference above, trends northward into the survey zone, where it is observed to form a 90 degree elbow turn to the south, at which point the lateral terminates, approximately 50 feet east of the disturbed ground and EMIMD anomalies. This termination point may have been a natural gas main location for a former building associated with the reported leach - septic system.



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The EMIMD anomalies and disturbed ground may be associated with the reported former septic tank system. Based on the low-grade strength of these anomalies it does not appear that the septic tank exists, however, the anomalies may be resultant from remnant pieces or residue from demolition and removal. Further historical information may be needed to ascertain the location of this system.

Utility Location

Five proposed borehole locations were designated by TEC field staff based on the results of the Leach Field location work and EMPCL methods were utilized to determine the presence of conductive utilities within these zones. None were observed (Plat 1).

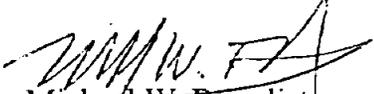
LIMITATIONS

This work was performed to industry standards, however, not all utilities, facilities, and debris, conductive or non-conductive may be detected, observed, and shown due to known or unknown variables. Multiple methods and search sweeps as well as visual methods are employed. Results are very dependent upon surface and subsurface soil conditions and data collected as well as observations may vary. It is not always feasible to obtain useful data. Interpretations made here are based on past experience and typical response to these methods to similar scenarios associated with this work. Other interpretations are always possible and may not be stated.

It is advisable to exhaust all other sources of information before intrusive work begins. This may include and is not limited to additional utility drawing review, historical document- drawing review, facilities-owner review, and public utility notification.

If you have any questions about this report please contact me at (800)528-8206.

Sincerely
ULS SERVICES CORPORATION


Michael W. Benedict
President and Director
Western and Pacific Regions



TAB

C

APPENDIX C

SAMPLE IDENTIFICATION CROSS REFERENCE

SAMPLE IDENTIFICATION CROSS REFERENCE
 FAMILY CAMPGROUND AREA DRILLING PROJECT
 NAS FT WORTH JRB (FORMERLY CARSWELL AFB)

LOCATION ID	SAMPLE DATE	SAMPLE TIME	SAMPLE TYPE	SAMPLE MATRIX	START	END	SAMPLE NO	FIELD CONTROL NO	LABORATORY SAMPLE NO	ANALYTICAL METHOD	LAB LOT CONTROL NO
SB16	25-Oct-1996	0810	N1	SO	2.50	5.00	FC-SB16-01	011A	D96-12170-1	D2216	889074G
SB16	25-Oct-1996	0810	N1	SO	2.50	5.00	FC-SB16-01	011A	D96-12170-1	M8015D	AB925-13
SB16	25-Oct-1996	0810	N1	SO	2.50	5.00	FC-SB16-01	011A	D96-12170-1	M8015V	1031801501
SB16	25-Oct-1996	0810	N1	SO	2.50	5.00	FC-SB16-01	011A	D96-12170-1	SW6010	15053
SB16	25-Oct-1996	0810	N1	SO	2.50	5.00	FC-SB16-01	011A	D96-12170-1	SW7421	1106742101
SB16	25-Oct-1996	0810	N1	SO	2.50	5.00	FC-SB16-01	011A	D96-12170-1	SW7471	1031747101
SB16	25-Oct-1996	0810	N1	SO	2.50	5.00	FC-SB16-01	011A	D96-12170-1	SW8080	AB925-12A
SB16	25-Oct-1996	0810	N1	SO	2.50	5.00	FC-SB16-01	011A	D96-12170-1	SW8240	ITS6-863
SB16	25-Oct-1996	0810	N1	SO	2.50	5.00	FC-SB16-01	011A	D96-12170-1	SW8270	AB925-10
SB16	25-Oct-1996	0825	N1	SO	5.00	7.20	FC-SB16-02	011A	D96-12170-2	D2216	889074G
SB16	25-Oct-1996	0825	N1	SO	5.00	7.20	FC-SB16-02	011A	D96-12170-2	M8015D	AB925-13
SB16	25-Oct-1996	0825	N1	SO	5.00	7.20	FC-SB16-02	011A	D96-12170-2	M8015V	1031801501
SB16	25-Oct-1996	0825	N1	SO	5.00	7.20	FC-SB16-02	011A	D96-12170-2	SW6010	15053
SB16	25-Oct-1996	0825	N1	SO	5.00	7.20	FC-SB16-02	011A	D96-12170-2	SW7421	1106742101
SB16	25-Oct-1996	0825	N1	SO	5.00	7.20	FC-SB16-02	011A	D96-12170-2	SW7471	1031747101
SB16	25-Oct-1996	0825	N1	SO	5.00	7.20	FC-SB16-02	011A	D96-12170-2	SW8080	AB925-12A
SB16	25-Oct-1996	0825	N1	SO	5.00	7.20	FC-SB16-02	011A	D96-12170-2	SW8240	ITS6-863
SB16	25-Oct-1996	0825	N1	SO	5.00	7.20	FC-SB16-02	011A	D96-12170-2	SW8270	AB925-10
SB17	25-Oct-1996	1040	N1	SO	2.50	5.00	FC-SB17-01	011A	D96-12170-3	D2216	889074G
SB17	25-Oct-1996	1040	N1	SO	2.50	5.00	FC-SB17-01	011A	D96-12170-3	M8015D	AB925-13
SB17	25-Oct-1996	1040	N1	SO	2.50	5.00	FC-SB17-01	011A	D96-12170-3	M8015V	1031801501
SB17	25-Oct-1996	1040	N1	SO	2.50	5.00	FC-SB17-01	011A	D96-12170-3	SW6010	15053
SB17	25-Oct-1996	1040	N1	SO	2.50	5.00	FC-SB17-01	011A	D96-12170-3	SW7421	1106742101
SB17	25-Oct-1996	1040	N1	SO	2.50	5.00	FC-SB17-01	011A	D96-12170-3	SW7471	1031747101
SB17	25-Oct-1996	1040	N1	SO	2.50	5.00	FC-SB17-01	011A	D96-12170-3	SW8080	AB925-12A
SB17	25-Oct-1996	1040	N1	SO	2.50	5.00	FC-SB17-01	011A	D96-12170-3	SW8240	ITS6-863
SB17	25-Oct-1996	1040	N1	SO	2.50	5.00	FC-SB17-01	011A	D96-12170-3	SW8270	AB925-10

SAMPLE IDENTIFICATION CROSS REFERENCE
 FAMILY CAMPGROUND AREA DRILLING PROJECT
 NAS FT WORTH JRB (FORMERLY CARSWELL AFB)

LOCATION ID	SAMPLE DATE	SAMPLE TIME	SAMPLE TYPE	SAMPLE MATRIX	SAMPLE START	SAMPLE END	FIELD SAMPLE NO	FIELD CONTROL NO	LABORATORY SAMPLE NO	ANALYTICAL METHOD	LAB LOT CONTROL NO
SB18	25-Oct-1996	10:00	N1	SO	2.50	5.00	FC-SB18-01	011A	D96-12170-4	D2216	889074G
SB18	25-Oct-1996	10:00	N1	SO	2.50	5.00	FC-SB18-01	011A	D96-12170-4	M8015D	AB925-13
SB18	25-Oct-1996	10:00	N1	SO	2.50	5.00	FC-SB18-01	011A	D96-12170-4	M8015V	1031801501
SB18	25-Oct-1996	10:00	N1	SO	2.50	5.00	FC-SB18-01	011A	D96-12170-4	SW6010	15053
SB18	25-Oct-1996	10:00	N1	SO	2.50	5.00	FC-SB18-01	011A	D96-12170-4	SW7421	1106742101
SB18	25-Oct-1996	10:00	N1	SO	2.50	5.00	FC-SB18-01	011A	D96-12170-4	SW7471	1031747101
SB18	25-Oct-1996	10:00	N1	SO	2.50	5.00	FC-SB18-01	011A	D96-12170-4	SW8080	AB925-12A
SB18	25-Oct-1996	10:00	N1	SO	2.50	5.00	FC-SB18-01	011A	D96-12170-4	SW8240	ITS6-863
SB18	25-Oct-1996	10:00	N1	SO	2.50	5.00	FC-SB18-01	011A	D96-12170-4	SW8270	AB925-10
SB18	25-Oct-1996	10:15	N1	SO	5.00	6.00	FC-SB18-02	011A	D96-12170-5	D2216	889074G
SB18	25-Oct-1996	10:15	N1	SO	5.00	6.00	FC-SB18-02	011A	D96-12170-5	M8015D	AB925-13
SB18	25-Oct-1996	10:15	N1	SO	5.00	6.00	FC-SB18-02	011A	D96-12170-5	M8015V	1031801501
SB18	25-Oct-1996	10:15	N1	SO	5.00	6.00	FC-SB18-02	011A	D96-12170-5	SW6010	15053
SB18	25-Oct-1996	10:15	N1	SO	5.00	6.00	FC-SB18-02	011A	D96-12170-5	SW7421	1106742101
SB18	25-Oct-1996	10:15	N1	SO	5.00	6.00	FC-SB18-02	011A	D96-12170-5	SW7471	1031747101
SB18	25-Oct-1996	10:15	N1	SO	5.00	6.00	FC-SB18-02	011A	D96-12170-5	SW8080	AB925-12A
SB18	25-Oct-1996	10:15	N1	SO	5.00	6.00	FC-SB18-02	011A	D96-12170-5	SW8240	ITS6-863
SB18	25-Oct-1996	10:15	N1	SO	5.00	6.00	FC-SB18-02	011A	D96-12170-5	SW8270	AB925-10
SB19	25-Oct-1996	11:10	N1	SO	2.00	4.00	FC-SB19-01	012B	D96-12170-7	D2216	889074G
SB19	25-Oct-1996	11:10	N1	SO	2.00	4.00	FC-SB19-01	012B	D96-12170-7	M8015D	AB925-13
SB19	25-Oct-1996	11:10	N1	SO	2.00	4.00	FC-SB19-01	012B	D96-12170-7	M8015V	1031801501
SB19	25-Oct-1996	11:10	N1	SO	2.00	4.00	FC-SB19-01	012B	D96-12170-7	SW6010	15053
SB19	25-Oct-1996	11:10	N1	SO	2.00	4.00	FC-SB19-01	012B	D96-12170-7	SW7421	1106742101
SB19	25-Oct-1996	11:10	N1	SO	2.00	4.00	FC-SB19-01	012B	D96-12170-7	SW7471	1031747101
SB19	25-Oct-1996	11:10	N1	SO	2.00	4.00	FC-SB19-01	012B	D96-12170-7	SW8080	AB925-12A
SB19	25-Oct-1996	11:10	N1	SO	2.00	4.00	FC-SB19-01	012B	D96-12170-7	SW8240	ITS6-863
SB19	25-Oct-1996	11:10	N1	SO	2.00	4.00	FC-SB19-01	012B	D96-12170-7	SW8270	AB925-10

430 100

SAMPLE IDENTIFICATION CROSS REFERENCE
 FAMILY CAMPGROUND AREA DRILLING PROJECT
 NAS FT WORTH JRB (FORMERLY CARSWELL AFB)

LOCATION ID	SAMPLE DATE	SAMPLE TIME	SAMPLE TYPE	SAMPLE MATRIX	SAMPLE START	SAMPLE END	FIELD SAMP NO	FIELD CONTROL NO	LABORATORY SAMP NO	ANALYTICAL METHOD	LAB LOT CONTROL NO
SB19	25-Oct-1996	1110	FD1	SO	2.00	4.00	FC-SB19-02	012B	D96-12170-8	D2216	889074G
SB19	25-Oct-1996	1110	FD1	SO	2.00	4.00	FC-SB19-02	012B	D96-12170-8	M8015D	AB925-13
SB19	25-Oct-1996	1110	FD1	SO	2.00	4.00	FC-SB19-02	012B	D96-12170-8	M8015V	1031801501
SB19	25-Oct-1996	1110	FD1	SO	2.00	4.00	FC-SB19-02	012B	D96-12170-8	SW6010	15053
SB19	25-Oct-1996	1110	FD1	SO	2.00	4.00	FC-SB19-02	012B	D96-12170-8	SW7421	1106742101
SB19	25-Oct-1996	1110	FD1	SO	2.00	4.00	FC-SB19-02	012B	D96-12170-8	SW7471	1031747101
SB19	25-Oct-1996	1110	FD1	SO	2.00	4.00	FC-SB19-02	012B	D96-12170-8	SW8080	AB925-12A
SB19	25-Oct-1996	1110	FD1	SO	2.00	4.00	FC-SB19-02	012B	D96-12170-8	SW8240	ITS6-863
SB19	25-Oct-1996	1110	FD1	SO	2.00	4.00	FC-SB19-02	012B	D96-12170-8	SW8270	AB925-10
SB20	25-Oct-1996	1210	N1	SO	5.00	10.00	FC-SB20-01	012B	D96-12170-9	D2216	889074G
SB20	25-Oct-1996	1210	N1	SO	5.00	10.00	FC-SB20-01	012B	D96-12170-9	M8015D	AB925-13
SB20	25-Oct-1996	1210	N1	SO	5.00	10.00	FC-SB20-01	012B	D96-12170-9	M8015V	1031801501
SB20	25-Oct-1996	1210	N1	SO	5.00	10.00	FC-SB20-01	012B	D96-12170-9	SW6010	15053
SB20	25-Oct-1996	1210	N1	SO	5.00	10.00	FC-SB20-01	012B	D96-12170-9	SW7421	1106742101
SB20	25-Oct-1996	1210	N1	SO	5.00	10.00	FC-SB20-01	012B	D96-12170-9	SW7471	1031747101
SB20	25-Oct-1996	1210	N1	SO	5.00	10.00	FC-SB20-01	012B	D96-12170-9	SW8080	AB925-12A
SB20	25-Oct-1996	1210	N1	SO	5.00	10.00	FC-SB20-01	012B	D96-12170-9	SW8240	ITS6-863
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SB20	25-Oct-1996	1356	N1	SO	15.00	17.50	FC-SB20-02	012B	D96-12170-10	D2216	889074G
SB20	25-Oct-1996	1356	N1	SO	15.00	17.50	FC-SB20-02	012B	D96-12170-10	M8015D	AB925-13
SB20	25-Oct-1996	1356	N1	SO	15.00	17.50	FC-SB20-02	012B	D96-12170-10	M8015V	1031801501
SB20	25-Oct-1996	1356	N1	SO	15.00	17.50	FC-SB20-02	012B	D96-12170-10	SW6010	15053
SB20	25-Oct-1996	1356	N1	SO	15.00	17.50	FC-SB20-02	012B	D96-12170-10	SW7421	1106742101
SB20	25-Oct-1996	1356	N1	SO	15.00	17.50	FC-SB20-02	012B	D96-12170-10	SW7471	1031747101
SB20	25-Oct-1996	1356	N1	SO	15.00	17.50	FC-SB20-02	012B	D96-12170-10	SW8080	AB925-12A
SB20	25-Oct-1996	1356	N1	SO	15.00	17.50	FC-SB20-02	012B	D96-12170-10	SW8240	ITS6-863
SB20	25-Oct-1996	1356	N1	SO	15.00	17.50	FC-SB20-02	012B	D96-12170-10	SW8270	AB925-10

SAMPLE IDENTIFICATION CROSS REFERENCE
 FAMILY CAMPGROUND AREA DRILLING PROJECT
 NAS FT WORTH JRB (FORMERLY CARSWELL AFB)

LOCATION ID	SAMPLE DATE	SAMPLE TIME	SAMPLE TYPE	SAMPLE MATRIX	START	END	FIELD SAMPLE NO	FIELD LOT CONTROL NO	LABORATORY SAMPLE NO	ANALYTICAL METHOD	LAB LOT CONTROL NO
SB20	25-Oct-1996	1356	MS1	SO	15.00	17.50	FC-SB20-02	012B	D96-12170-23	SW6010	15053
SB20	25-Oct-1996	1356	MS1	SO	15.00	17.50	FC-SB20-02	012B	D96-12170-23	M8015D	AB925-13
SB20	25-Oct-1996	1356	MS1	SO	15.00	17.50	FC-SB20-02	012B	D96-12170-23	M8015V	1031801501
SB20	25-Oct-1996	1356	MS1	SO	15.00	17.50	FC-SB20-02	012B	D96-12170-23	SW7421	1106742101
SB20	25-Oct-1996	1356	MS1	SO	15.00	17.50	FC-SB20-02	012B	D96-12170-23	SW7471	1031747101
SB20	25-Oct-1996	1356	MS1	SO	15.00	17.50	FC-SB20-02	012B	D96-12170-23	SW8080	AB925-12A
SB20	25-Oct-1996	1356	MS1	SO	15.00	17.50	FC-SB20-02	012B	D96-12170-23	SW8240	ITS6-863
SB20	25-Oct-1996	1356	MS1	SO	15.00	17.50	FC-SB20-02	012B	D96-12170-23	SW8270	AB925-10
SB20	25-Oct-1996	1356	SD1	SO	15.00	17.50	FC-SB20-02	012B	D96-12170-24	SW6010	15053
SB20	25-Oct-1996	1356	SD1	SO	15.00	17.50	FC-SB20-02	012B	D96-12170-24	M8015D	AB925-13
SB20	25-Oct-1996	1356	SD1	SO	15.00	17.50	FC-SB20-02	012B	D96-12170-24	M8015V	1031801501
SB20	25-Oct-1996	1356	SD1	SO	15.00	17.50	FC-SB20-02	012B	D96-12170-24	SW7421	1106742101
SB20	25-Oct-1996	1356	SD1	SO	15.00	17.50	FC-SB20-02	012B	D96-12170-24	SW7471	1031747101
SB20	25-Oct-1996	1356	SD1	SO	15.00	17.50	FC-SB20-02	012B	D96-12170-24	SW8080	AB925-12A
SB20	25-Oct-1996	1356	SD1	SO	15.00	17.50	FC-SB20-02	012B	D96-12170-24	SW8240	ITS6-863
SB20	25-Oct-1996	1356	SD1	SO	15.00	17.50	FC-SB20-02	012B	D96-12170-24	SW8270	AB925-10
FIELDQC	25-Oct-1996	1530	EB1	WQ	0.00	0.00	FC-WQ-EB-04	012B	D96-12170-12	M8015D	AB925-19
FIELDQC	25-Oct-1996	1530	EB1	WQ	0.00	0.00	FC-WQ-EB-04	012B	D96-12170-12	M8015V	1101801501
FIELDQC	25-Oct-1996	1530	EB1	WQ	0.00	0.00	FC-WQ-EB-04	012B	D96-12170-12	SW6010	103180100S
FIELDQC	25-Oct-1996	1530	EB1	WQ	0.00	0.00	FC-WQ-EB-04	012B	D96-12170-12	SW7421	1105742101
FIELDQC	25-Oct-1996	1530	EB1	WQ	0.00	0.00	FC-WQ-EB-04	012B	D96-12170-12	SW7470	1030747001
FIELDQC	25-Oct-1996	1530	EB1	WQ	0.00	0.00	FC-WQ-EB-04	012B	D96-12170-12	SW8240	1031824001
FIELDQC	25-Oct-1996	1530	EB1	WQ	0.00	0.00	FC-WQ-EB-04	012B	D96-12170-12	SW8270	AB925-18
FIELDQC	25-Oct-1996	1530	TB1	WQ	0.00	0.00	FC-WQ-TB-05	011A	D96-12170-6	SW8240	1031824001
FIELDQC	25-Oct-1996	1600	TB2	WQ	0.00	0.00	FC-WQ-TB-06	012B	D96-12170-11	SW8240	1031824001

TAB

D

APPENDIX D

SURVEYING DATA

Coordinates and Elevations

Site Drawing

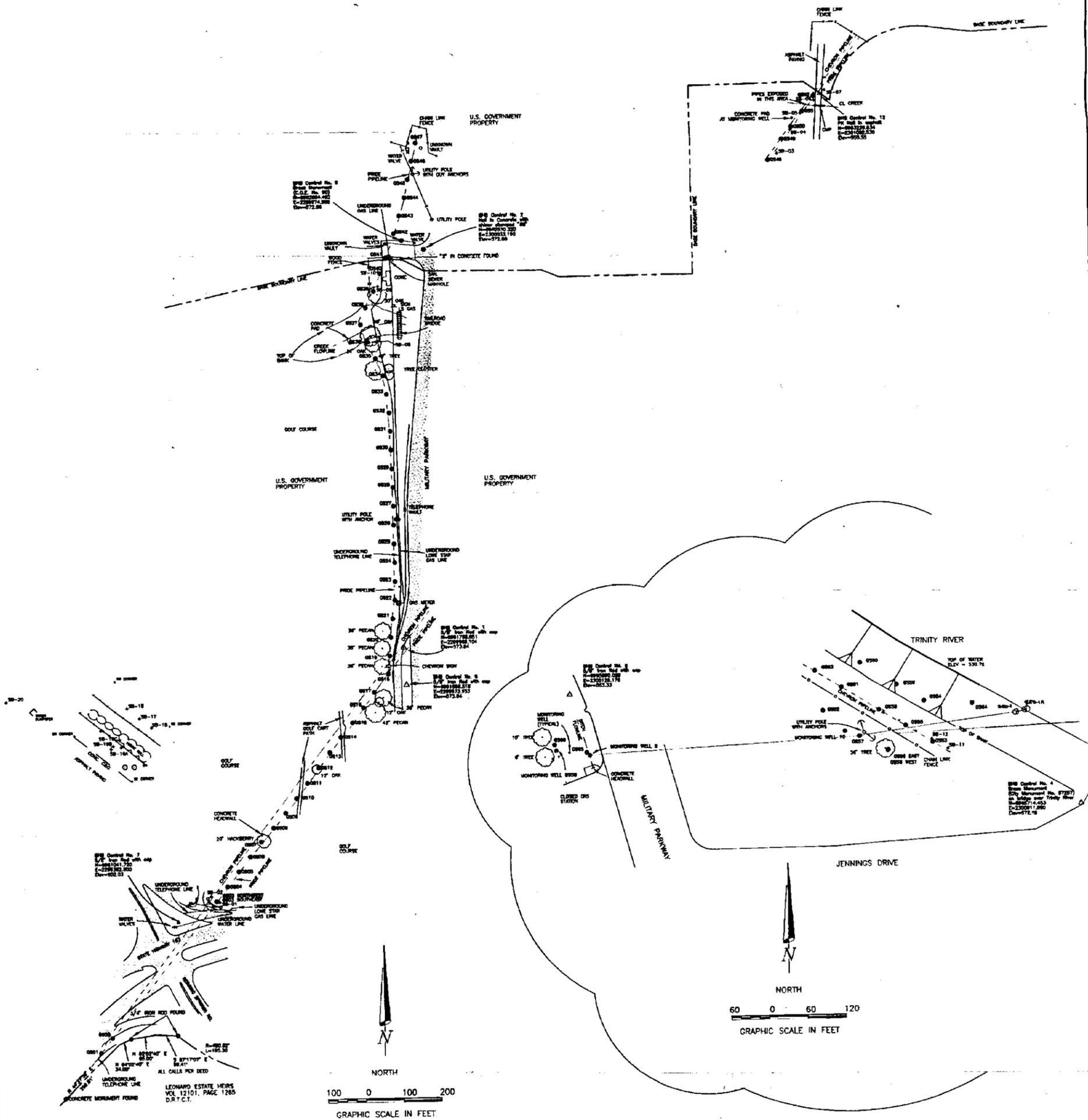
Coordinates and Elevations

Soil Borehole Coordinates and Elevations

Location	Northing	Easting	Elevation (ft)
SB-16A	6961506.09	2299191.68	601.61
SB-17	6961587.62	2299268.95	600.09
SB-18	6961562.30	2299299.32	598.89
SB-19	6961615.30	2299236.88	601.09
SB-20	6961635.23	2298918.58	599.67

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Site Drawing



COORDINATE VALUE & ELEVATION OF SOL BORE STATIONS

Northing	Eastng	Elevation	Description
888100.23	228473.27	884.08	SB-01
888100.22	228473.08	883.29	SB-02
888100.21	228472.89	882.50	SB-03
888100.20	228472.70	881.71	SB-04
888100.19	228472.51	880.92	SB-05
888100.18	228472.32	880.13	SB-06
888100.17	228472.13	879.34	SB-07
888100.16	228471.94	878.55	SB-08
888100.15	228471.75	877.76	SB-09
888100.14	228471.56	876.97	SB-10
888100.13	228471.37	876.18	SB-11
888100.12	228471.18	875.39	SB-12
888100.11	228470.99	874.60	SB-13
888100.10	228470.80	873.81	SB-14
888100.09	228470.61	873.02	SB-15
888100.08	228470.42	872.23	SB-16
888100.07	228470.23	871.44	SB-17
888100.06	228470.04	870.65	SB-18
888100.05	228469.85	869.86	SB-19
888100.04	228469.66	869.07	SB-20
888100.03	228469.47	868.28	SB-21
888100.02	228469.28	867.49	SB-22
888100.01	228469.09	866.70	SB-23
888099.99	228468.90	865.91	SB-24
888099.98	228468.71	865.12	SB-25
888099.97	228468.52	864.33	SB-26
888099.96	228468.33	863.54	SB-27
888099.95	228468.14	862.75	SB-28
888099.94	228467.95	861.96	SB-29
888099.93	228467.76	861.17	SB-30
888099.92	228467.57	860.38	SB-31
888099.91	228467.38	859.59	SB-32
888099.90	228467.19	858.80	SB-33
888099.89	228467.00	858.01	SB-34
888099.88	228466.81	857.22	SB-35
888099.87	228466.62	856.43	SB-36
888099.86	228466.43	855.64	SB-37
888099.85	228466.24	854.85	SB-38
888099.84	228466.05	854.06	SB-39
888099.83	228465.86	853.27	SB-40
888099.82	228465.67	852.48	SB-41
888099.81	228465.48	851.69	SB-42
888099.80	228465.29	850.90	SB-43
888099.79	228465.10	850.11	SB-44
888099.78	228464.91	849.32	SB-45
888099.77	228464.72	848.53	SB-46
888099.76	228464.53	847.74	SB-47
888099.75	228464.34	846.95	SB-48
888099.74	228464.15	846.16	SB-49
888099.73	228463.96	845.37	SB-50

COORDINATE VALUE & ELEVATION OF GB MONITORING STATIONS

Northing	Eastng	Elevation	Description	Northing	Eastng	Elevation	Description
888100.23	228473.27	884.08	GB-01	888100.23	228473.27	884.08	GB-01
888100.22	228473.08	883.29	GB-02	888100.22	228473.08	883.29	GB-02
888100.21	228472.89	882.50	GB-03	888100.21	228472.89	882.50	GB-03
888100.20	228472.70	881.71	GB-04	888100.20	228472.70	881.71	GB-04
888100.19	228472.51	880.92	GB-05	888100.19	228472.51	880.92	GB-05
888100.18	228472.32	880.13	GB-06	888100.18	228472.32	880.13	GB-06
888100.17	228472.13	879.34	GB-07	888100.17	228472.13	879.34	GB-07
888100.16	228471.94	878.55	GB-08	888100.16	228471.94	878.55	GB-08
888100.15	228471.75	877.76	GB-09	888100.15	228471.75	877.76	GB-09
888100.14	228471.56	876.97	GB-10	888100.14	228471.56	876.97	GB-10
888100.13	228471.37	876.18	GB-11	888100.13	228471.37	876.18	GB-11
888100.12	228471.18	875.39	GB-12	888100.12	228471.18	875.39	GB-12
888100.11	228470.99	874.60	GB-13	888100.11	228470.99	874.60	GB-13
888100.10	228470.80	873.81	GB-14	888100.10	228470.80	873.81	GB-14
888100.09	228470.61	873.02	GB-15	888100.09	228470.61	873.02	GB-15
888100.08	228470.42	872.23	GB-16	888100.08	228470.42	872.23	GB-16
888100.07	228470.23	871.44	GB-17	888100.07	228470.23	871.44	GB-17
888100.06	228470.04	870.65	GB-18	888100.06	228470.04	870.65	GB-18
888100.05	228469.85	869.86	GB-19	888100.05	228469.85	869.86	GB-19
888100.04	228469.66	869.07	GB-20	888100.04	228469.66	869.07	GB-20
888100.03	228469.47	868.28	GB-21	888100.03	228469.47	868.28	GB-21
888100.02	228469.28	867.49	GB-22	888100.02	228469.28	867.49	GB-22
888100.01	228469.09	866.70	GB-23	888100.01	228469.09	866.70	GB-23
888099.99	228468.90	865.91	GB-24	888099.99	228468.90	865.91	GB-24
888099.98	228468.71	865.12	GB-25	888099.98	228468.71	865.12	GB-25
888099.97	228468.52	864.33	GB-26	888099.97	228468.52	864.33	GB-26
888099.96	228468.33	863.54	GB-27	888099.96	228468.33	863.54	GB-27
888099.95	228468.14	862.75	GB-28	888099.95	228468.14	862.75	GB-28
888099.94	228467.95	861.96	GB-29	888099.94	228467.95	861.96	GB-29
888099.93	228467.76	861.17	GB-30	888099.93	228467.76	861.17	GB-30
888099.92	228467.57	860.38	GB-31	888099.92	228467.57	860.38	GB-31
888099.91	228467.38	859.59	GB-32	888099.91	228467.38	859.59	GB-32
888099.90	228467.19	858.80	GB-33	888099.90	228467.19	858.80	GB-33
888099.89	228467.00	858.01	GB-34	888099.89	228467.00	858.01	GB-34
888099.88	228466.81	857.22	GB-35	888099.88	228466.81	857.22	GB-35
888099.87	228466.62	856.43	GB-36	888099.87	228466.62	856.43	GB-36
888099.86	228466.43	855.64	GB-37	888099.86	228466.43	855.64	GB-37
888099.85	228466.24	854.85	GB-38	888099.85	228466.24	854.85	GB-38
888099.84	228466.05	854.06	GB-39	888099.84	228466.05	854.06	GB-39
888099.83	228465.86	853.27	GB-40	888099.83	228465.86	853.27	GB-40
888099.82	228465.67	852.48	GB-41	888099.82	228465.67	852.48	GB-41
888099.81	228465.48	851.69	GB-42	888099.81	228465.48	851.69	GB-42
888099.80	228465.29	850.90	GB-43	888099.80	228465.29	850.90	GB-43
888099.79	228465.10	850.11	GB-44	888099.79	228465.10	850.11	GB-44
888099.78	228464.91	849.32	GB-45	888099.78	228464.91	849.32	GB-45
888099.77	228464.72	848.53	GB-46	888099.77	228464.72	848.53	GB-46
888099.76	228464.53	847.74	GB-47	888099.76	228464.53	847.74	GB-47
888099.75	228464.34	846.95	GB-48	888099.75	228464.34	846.95	GB-48
888099.74	228464.15	846.16	GB-49	888099.74	228464.15	846.16	GB-49
888099.73	228463.96	845.37	GB-50	888099.73	228463.96	845.37	GB-50

NOTE:
 All coordinate values are NAD83 SPC, NCG.
 Combined scale factor of 0.99985748.
 Vertical control utilizing GPS technology and
 verified using City of Fort Worth vertical
 monument network.
 Baird, Hampton & Brown, Inc. master control
 established August, 14, 1996 utilizing real
 time GPS technology provided by Sempco, Inc.



NAS FORT WORTH JRB
 ENVIRONMENTAL MONITORING WELL
 LOCATIONS

BHB Baird, Hampton & Brown, Inc.
 Engineering & Surveying
2000 Ross Street, Suite 200 Fort Worth, Texas 76108 (817) 331-1211 Fax (817) 331-1212

TARRANT COUNTY, TEXAS

JOB # 9806.30 AUGUST 22, 1998 SHEET NO:
 DRAWN BY: JPB REVISED NOVEMBER 5, 1998
 CHECKED BY: UKU

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TAB

E

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APPENDIX E

BOREHOLE LOGS

GEOLOGIC BOREHOLE LOG

Borehole (Location) ID: SB16

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Page 1 of 1

CRSWL				State ID		Location Type				Borehole (BH)	
Location Description Family Campground											
Establishing Company The Environmental Co				Geologist K. Troensegaard		Drilling Company Rone Engineers, Inc.					
Logging Foreman Tim Branco				Ground Surface Elevation 601.61 ft		Datum Mean Sea Level					
Sampling Device Split Spoon (5 ft)				Borehole Diameter (inches) 7		Total Depth (Feet) 7.2					
Date/Time Drilling Started 10/25/96 07:55						Date/Time Total Depth Reached 10/25/96 08:25					
Depth (feet)	Sampling				USCS	ASTM CCDE	Lithologic Codes	Lithology Description SOIL TYPE, modifiers/grain size, sorting, color, cement/lithification, moisture content, porosity, permeability/fracturing	Strat-order	Remarks: Drilling Problems, Equipment, Water levels, Weather, Time, Samples	
	Recov (feet)	Sample Depth	Blow Counts	PI							
0-2.5	2.5	0-2.5		0	OL	STCL	0-1.7' <u>Topsoil</u> : medium brown mixed silt and clay with limestone chips, soft, slightly moist, slightly plastic, 5 YR 4/1		Cloudy, misty, cool, ~50 deg. F		
2.5-5	2.5	2.5-5		0	ML	SILT	1.7-6.5' <u>Silt</u> : chalk silt, light yellow, firm, dry, friable, probably decomposed limestone, 2.5 Y 2/8		FC-SB16-01 2.5-5': VOA, SVOA TPH-D, TPH-G, inorganics, pesticides/PCB's 8:10		
5-7.2	1.3	5-7.2		3.4							
6.5-7.2					CM	LS	6.5-7.2' <u>Limestone</u> : light gray chalky limestone		8:25		
7.2-20							Refusal at 7.2' against limestone Note: Rig was moved 8 feet N25E and a second attempt made. Refusal was met at 4 feet. This hole was labeled SB16B--no samples were collected. Rig was then moved 24 feet N46E and a third attempt made. Refusal was met at 7 feet. This hole was labeled SB16C--no samples were collected.		FC-SB16-02 5-7.2': VOA, SVOA TPH-D, TPH-G, inorganics, pesticides/PCB's, grain size analysis No water in boring		

Borehole (Location) ID: SB20

AFID		CRSWL		StatID		Location Type		Borehole (BH)											
Location Description																			
Family Campground, west of campground, behind dumpster enclosure																			
Establishing Company			The Environmental Co			Geologist		K. Troensegaard		Drilling Company		Rone Engineers, Inc.							
Drilling Foreman			Tim Branco			Ground Surface Elevation		599.67 ft		Datum		Mean Sea Level							
Sampling Device			Split Spoon (5 ft)			Borehole Diameter (inches)		7		Total Depth (Feet)		21.0							
Date/Time Drilling Started					10/25/96 11:30					Date/Time Total Depth Reached					10/25/96 14:40				
Depth (feet)	Sampling				USCS	ASTM CODE	Lithologic Codes	Lithology Description SOIL TYPE, modifiers/grain size, sorting, color, cement lithification, moisture content, porosity, permeability/fracturing	Strat- order	Remarks: Drilling Problems, Equipment, Water levels, Weather, Time, Samples									
	% Recov	Sample Depth	Blow Counts	PD															
	1.0	No Sample		6.9		ML	SILT	20-21' As above		14:40									
22								Refusal at 21.0' against limestone		No water in boring									
24																			
26																			
28																			
30																			
32																			
34																			
36																			
38																			
40																			

TAB

F

APPENDIX F

FIELD DATA FORMS

Waste Inventory Tracking Forms

Field Sampling Reports

Health and Safety Monitoring Sheets

Instrument Calibration Logs

Equipment Decontamination Log Sheet

Waste Inventory Tracking Forms

WASTE INVENTORY TRACKING FORM

LOCATION: NAS Fort Worth JRB Campwell Field, TXPROJECT NAME: RV Fam Camp AREAACTIVITIES: Soil Borings 10/22/96 - 10/26/96

Date Waste Generated	Activity Generating Waste (borehole # / well #)	Description of Waste	Field Evidence of Contamination	Estimated Volume Gal.	All 55 Gall Type of Container (storage ID#) D:U:MS	Location of Container	Waste Characterization	Comments
10/22/96	SB01 SB02	Soil	NONE	20	FC-D-1	On 11 SITE		SB01 75% SB02 25%
10/22/96	SB01 SB02	"	odor	50	FC-D-2	"		20% SB01 SB02 80%
10/23/96	SB03	"	odor	50	FC-D-3	"		SB03 100%
10/23/96	SB04 SB05	"	odor	50	FC-D-4	"		SB04 20% SB05 80%
10/23/96	SB06	"	NONE	50	FC-D-5	"		SB06 100%
10/24/96	SB07 SB08	"	NONE	30	FC-D-6	"		SB07 40% SB08 60%
10/24/96	SB09 SB10	"	NONE	50	FC-D-7	"		SB09 50% SB10 50%
10/25/96	SB16A- SB20	"	NONE	40	FC-D-8 55641	"		SB16-19 5% SB20 50%
10/26/96	SB-11 SB-12	"	PET Odor	55	FC-D-9	"		SB 11 - 75% SB 12 - 25%
10/26/96	SB12	"	Odor	20	FC-D-10	"		SB12 100%
10/25/96	DECON SB-01- SB10	WATER	NONE	30	FC-D-11	"		SB1 thru SB10
10/26/96	DECON SB11 & 12	WATER	NONE	10	FC-D-12	"		SB 11 & SB 12

Note: Describe whether soil or water samples have been collected for waste characterization, include date, if known.

KW Troonsegand Site Geologist

Signature: KW Troonsegand 10/24/96Soils collected as 3 composites 10/28/96
ONE WATER composite collected 10/28/96

Field Sampling Reports

FIELD SAMPLING REPORT

LOCATION: Field QC PROJECT: _____
 SITE: _____

SAMPLE INFORMATION

MATRIX WQ SAMPLE ID: FC-WQ-EB-01
 SAMPLING METHOD NA DUP/REP. OF: _____
 BEGINNING DEPTH Ø MATRIX SPIKE/MATRIX SPIKE DUPLICATE
 END DEPTH Ø YES () NO (X)
 GRAB () COMPOSITE () DATE: 10/22/96 TIME: 12:45

CONTAINER		PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE	#				
	2	Ice	5030A	8240B	Volatile organics
	2	Ice	5030	8015 mod	TPH-Gasoline
	1	Ice	3015 3015	6010A	Inorganic metals
			3020 3020	7421/7420A	Lead/Mercury
	1	HCL	3550A	8270B	Semivolatile organics
	1	HCL	3550A	8015	TPH-Diesel

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st	COLOR:	
2nd	ODOR:	
	OTHER:	

GENERAL INFORMATION

WEATHER: SUN/CLEAR _____ OVERCAST/RAIN _____ WIND DIRECTION _____ AMBIENT TEMP _____
 SHIPMENT VIA: FED-X _____ HAND DELIVER _____ COURIER _____ OTHER _____
 SHIPPED TO: Inchcape Testing Services
 COMMENTS: Equipment Blank #1, Lot Control # 011B
 SAMPLER: B. Duffner OBSERVER: K. Troensegaard

MATRIX TYPE CODES		SAMPLING METHOD CODES	
DC=DRELL CUTTINGS	SL=SLUDGE	B=BAILER	G=GRAB
WG=GROUND WATER	SO=SOIL	BR=BRASS RING	HA=HAND AUGER
LH=HAZARDOUS LIQUID WASTE	GS=SOIL GAS	CS=COMPOSITE SAMPLE	H=HOLLOW STEM AUGER
SH=HAZARDOUS SOLID WASTE	WS=SURFACE WATER	C=CONTINUOUS FLIGHT AUGER	HP=HYDRO PUNCH
SE=SEDIMENT	SW=SWAB W/PE	DT=DRIVEN TUBE	SS=SPLIT SPOON
		W=SWAB W/PE	SP=SUBVERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: <u>Field QC</u>		PROJECT: _____			
SITE: _____					
SAMPLE INFORMATION					
MATRIX <u>WQ</u>		SAMPLE ID: <u>FC-WQ-EB-02</u>			
SAMPLING METHOD <u>NA</u>		DUP./REP. OF: _____			
BEGINNING DEPTH <u>0</u>		MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES () NO (X)			
END DEPTH <u>0</u>					
GRAB () COMPOSITE ()		DATE: <u>10/23/96</u> TIME: _____			
CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
	2	Ice	5030A	8240B	Volatile organics
	2	Ice	5030	8015 mod	TPH - Gasoline
	1	Ice	3015	6010A	Inorganic metals
	1		3020A/-	7421/7420A	Lead/Mercury
	1	HCL	3550A	8270B	Semi-volatile organics
	1	HCL	3550A	8015	TPH - Diesel
NOTABLE OBSERVATIONS					
PID READINGS		SAMPLE CHARACTERISTICS		MISCELLANEOUS	
1st		COLOR:			
2nd		ODOR:			
		OTHER:			
GENERAL INFORMATION					
WEATHER: SUN/CLEAR _____ OVERCAST/RAIN _____ WIND DIRECTION _____ AMBIENT TEMP _____					
SHIPMENT VIA: FED-X _____ HAND DELIVER _____ COURIER _____ OTHER _____					
SHIPPED TO: <u>Inchcape Testing Services</u>					
COMMENTS: <u>Equipment Blank #2, Lot Control # 0118A</u>					
SAMPLER: <u>S. Biley</u> OBSERVER: <u>K. Troensegaard</u>					
MATRIX TYPE CODES			SAMPLING METHOD CODES		
DC=DRILL CUTTINGS	SL=SLUDGE	B=BAILER	G=GRAB		
WG=GROUND WATER	SO=SOIL	BR=BRASS RING	HA=HAND AUGER		
LH=HAZARDOUS LIQUID WASTE	GS=SOIL GAS	CS=COMPOSITE SAMPLE	H=HOLLOW STEM AUGER		
SH=HAZARDOUS SOLID WASTE	WS=SURFACE WATER	C=CONTINUOUS FLIGHT AUGER	HP=HYDRO PUNCH		
SE=SEDIMENT	SW=SWAB/TIPE	DT=DRIVEN TUBE	SS=SPLIT SPOON		
		W=SWAB/TIPE	SP=SUBMERSIBLE PUMP		

FIELD SAMPLING REPORT

LOCATION: <u>Field QC</u>		PROJECT: _____			
SITE: _____					
SAMPLE INFORMATION					
MATRIX <u>WQ</u>		SAMPLE ID: <u>FC-WQ-EB-03</u>			
SAMPLING METHOD <u>NA</u>		DUP/REP. OF: _____			
BEGINNING DEPTH <u>Ø</u>		MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES () NO (X)			
END DEPTH <u>Ø</u>					
GRAB () COMPOSITE ()		DATE: <u>10/24/96</u> TIME: <u>16:15</u>			
CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
	2	Ice	5030A	8240B	Volatile organics
	2	Ice	5030	8015 mod	TPH-Gasoline
	1	Ice	3015	6010A	Inorganic metals
			3020A	7421/7470A	Lead/Mercury
	1	HCL	3550A	8240B	Semi-volatile organics
	1	HCL	3550A	8015	TPH-Diesel
NOTABLE OBSERVATIONS					
PID READINGS		SAMPLE CHARACTERISTICS		MISCELLANEOUS	
1st		COLOR:			
2nd		ODOR:			
		OTHER:			
GENERAL INFORMATION					
WEATHER: SUN/CLEAR _____ OVERCAST/RAIN _____ WIND DIRECTION _____ AMBIENT TEMP _____					
SHIPMENT VIA: FED-X _____ HAND DELIVER _____ COURIER _____ OTHER _____					
SHIPPED TO: <u>Inchoape Testing Services</u>					
COMMENTS: <u>Equipment Blank #3, Lot Control # 011A</u>					
SAMPLER: <u>S. Bliley</u> OBSERVER: <u>K. Troensegaard</u>					
MATRIX TYPE CODES			SAMPLING METHOD CODES		
DC-DRILL CUTTINGS	SL-SLUDGE	B-BAILER	G-GRAB		
WG-GROUND WATER	SO-SOIL	ER-BRASS RING	HA-HAND AUGER		
LH-HAZARDOUS LIQUID WASTE	GS-SOIL GAS	CS-COMPOSITE SAMPLE	H-HOLLOW STEM AUGER		
SH-HAZARDOUS SOLID WASTE	WS-SURFACE WATER	C-CONTINUOUS FLIGHT AUGER	HP-HYDRO PUNCH		
SE-SEDIMENT	SW-SWAP WIFE	DT-DRIVEN TEE	SS-SPLIT SPOON		
		W-SWAB WIFE	SP-SUBMERSIBLE PUMP		

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FIELD SAMPLING REPORT

LOCATION: Field QC PROJECT: _____
 SITE: _____

SAMPLE INFORMATION

MATRIX WQ SAMPLE ID: FC-WQ-EB-04
 SAMPLING METHOD NA DUP/REP. OF: _____
 BEGINNING DEPTH ∅ MATRIX SPIKE/MATRIX SPIKE DUPLICATE
 END DEPTH ∅ YES () NO (X)
 GRAB () COMPOSITE () DATE: 10/25/96 TIME: 15:30

CONTAINER		PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE	#				
	2	Ice	5030A	8240B	volatile organics
	2	Ice	5030	8015 mod	TPH - gasoline
	1	Ice	3015	6010A	Inorganic metals
			3020A/-	7421/7470A	Lead / Mercury
	1	HCL	3550A	8270B	Semivolatile organics
	1	HCL	3550A	8015	TPH - Diesel

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st	COLOR:	
2nd	ODOR:	
	OTHER:	

GENERAL INFORMATION

WEATHER: SUN/CLEAR _____ OVERCAST/RAIN _____ WIND DIRECTION _____ AMBIENT TEMP _____
 SHIPMENT VIA: FED-X _____ HAND DELIVER _____ COURIER _____ OTHER _____
 SHIPPED TO: Inchcape Testing Services
 COMMENTS: Equipment Blank #4, Lot Control # 012B
 SAMPLER: B. Duffner OBSERVER: K. Troensegaard
S. Bliley

MATRIX TYPE CODES		SAMPLING METHOD CODES	
DC-DRILL CUTTINGS	SL-SLUDGE	B-BAILER	G-GRAB
WG-GROUND WATER	SO-SOIL	BR-BRASS RING	HA-HAND AUGER
LH-HAZARDOUS LIQUID WASTE	GS-SOIL GAS	CS-COMPOSITE SAMPLE	H-HOLLOW STEM AUGER
SH-HAZARDOUS SOLID WASTE	WS-SURFACE WATER	C-CONTINUOUS FLIGHT AUGER	HP-HYDRO PUNCH
SE-SEDIMENT	SW-SWAB/TAPE	DT-DRIVEN TUBE	SS-SPLT SPOON
		W-SWAB/TAPE	SP-SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: Field QC PROJECT: _____
 SITE: _____

SAMPLE INFORMATION

MATRIX WQ SAMPLE ID: FC-WQ-EB-05
 SAMPLING METHOD NA DUP./REP. OF: _____
 BEGINNING DEPTH Ø MATRIX SPIKE/MATRIX SPIKE DUPLICATE
 END DEPTH Ø YES () NO (X)
 GRAB () COMPOSITE () DATE: 10/26 TIME: 12:45

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
	2	Ice	5030A	8240B	Volatile organics
	2	Ice	5030	8015 md	TPH - Gasoline
	1	Ice	3015	6010 A	Inorganic metals
			3020 A/-	7421/7470A	Lead/Mercury
	1	HCL	3550A	8270B	Semivolatile organics
	1	HCL	3550A	8015	TPH - Diesel

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st	COLOR:	
2nd	ODOR:	
	OTHER:	

GENERAL INFORMATION

WEATHER: SUN/CLEAR _____ OVERCAST/RAIN _____ WIND DIRECTION _____ AMBIENT TEMP _____
 SHIPMENT VIA: FED-X _____ HAND DELIVER _____ COLLECTOR _____ OTHER _____
 SHIPPED TO: Inchcape Testing Services
 COMMENTS: Equipment Blank #5, Lot Control # 011A
 SAMPLER: B. Daffner (LHM) OBSERVER: K. Troensegaard
S: Bliley

MATRIX TYPE CODES		SAMPLING METHOD CODES	
DC-DRELL CUTTINGS	SL-SLUDGE	B-BAILER	G-GRAB
WG-GROUND WATER	SO-SOIL	BR-BRASS RING	HA-HAND AUGER
LH-HAZARDOUS LIQUID WASTE	GS-SOIL GAS	CS-COMPOSITE SAMPLE	H-HOLLOW STEM AUGER
SH-HAZARDOUS SOLID WASTE	WS-SURFACE WATER	C-CONTINUOUS FLIGHT AUGER	HP-HYDRO PUNCH
SE-SEDIMENT	SW-SWAB WIPE	DT-DRIVEN TLEE	SS-SPLIT SPOON
		W-SWAB WIPE	SP-SUBMERSIBLE PUMP

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FIELD SAMPLING REPORT

LOCATION: Field QC PROJECT: _____
 SITE: _____

SAMPLE INFORMATION

MATRIX WR SAMPLE ID: FC-WR-TB-01
 SAMPLING METHOD NA DUP/REP. OF: _____
 BEGINNING DEPTH Ø MATRIX SPIKE/MATRIX SPIKE DUPLICATE
 END DEPTH Ø YES () NO (X)

GRAB () COMPOSITE () DATE: 10/22/96 TIME: 22:18

CONTAINER		PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE	#				
Vial	2	Ice	5030R	8240B	Volatiles organics

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st	COLOR:	
2nd	ODOR:	
	OTHER:	

GENERAL INFORMATION

WEATHER: SUN/CLEAR _____ OVERCAST/RAIN _____ WIND DIRECTION _____ AMBIENT TEMP _____
 SHIPMENT VIA: FED-X _____ HAND DELIVER _____ COURIER _____ OTHER _____
 SHIPPED TO: Inhcape Testing Services
 COMMENTS: Trip Blank #1, Lot Control # 011B
 SAMPLER: B. Duffner OBSERVER: K. Troensegaard

MATRIX TYPE CODES		SAMPLING METHOD CODES	
DC-DRILL CUTTINGS	SL-SLUDGE	B-BAILER	G-GRAB
WG-GROUND WATER	SO-SOIL	BR-BRASS RING	HA-HAND AUGER
LH-HAZARDOUS LIQUID WASTE	GS-SOIL GAS	CS-COMPOSITE SAMPLE	H-HOLLOW STEM AUGER
SH-HAZARDOUS SOLID WASTE	WS-SURFACE WATER	C-CONTINUOUS FLIGHT AUGER	HP-HYDRO PUNCH
SE-SEDIMENT	SW-SWAB W/PE	DT-DRIVEN TUBE	SS-SPLIT SPOON
		W-SWAB W/PE	SP-SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: <u>Fieldgc</u>		PROJECT: _____			
SITE: _____					
SAMPLE INFORMATION					
MATRIX <u>WQ</u>		SAMPLE ID: <u>FC-WQ-TB-02</u>			
SAMPLING METHOD <u>NA</u>		DUP/REP. OF: _____			
BEGINNING DEPTH <u>0</u>		MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES () NO (X)			
END DEPTH <u>0</u>					
GRAB () COMPOSITE ()		DATE: <u>10/22/96</u> TIME: <u>22:20</u>			
CONTAINER		PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE	#				
<u>Vial</u>	<u>2</u>	<u>Ice</u>	<u>5030A</u> <input checked="" type="checkbox"/>	<u>8240B</u>	<u>Volatiles organics</u>
NOTABLE OBSERVATIONS					
PID READINGS		SAMPLE CHARACTERISTICS		MISCELLANEOUS	
1st		COLOR:			
2nd		ODOR:			
		OTHER:			
GENERAL INFORMATION					
WEATHER: SUN/CLEAR _____ OVERCAST/RAIN _____ WIND DIRECTION _____ AMBIENT TEMP _____					
SHIPMENT VIA: FED-X _____ HAND DELIVER _____ COURIER _____ OTHER _____					
SHIPPED TO: <u>Inchcape Testing Services</u>					
COMMENTS: <u>Trip Blank #2, Lot Control # 012A</u>					
SAMPLER: <u>B. Duffner</u> OBSERVER: <u>K. Troensegaard</u>					
MATRIX TYPE CODES			SAMPLING METHOD CODES		
DC-DRILL CUTTINGS	SL-SLUDGE	BR-BRASS RING	G-GRAB	HA-HAND AUGER	
WG-GROUND WATER	SO-SOIL	CS-COMPOSITE SAMPLE	H-HOLLOW STEM AUGER	HP-HYDRO PUNCH	
LH-HAZARDOUS LIQUID WASTE	GS-SOIL GAS	C-CONTINUOUS FLIGHT AUGER	SP-SPLIT SPOON	SS-SUBMERSIBLE PUMP	
SH-HAZARDOUS SOLID WASTE	WS-SURFACE WATER	DT-DRIVEN TUBE	W-SWAB WIFE		
SE-SEDIMENT	SW-SWAB WIFE				

FIELD SAMPLING REPORT

LOCATION: <u>Field QC</u>		PROJECT: _____		
SITE: <u>Ø</u>				
SAMPLE INFORMATION				
MATRIX <u>WQ</u>		SAMPLE ID: <u>FC-WQ-TB-04</u>		
SAMPLING METHOD <u>NA</u>		DUP./REP. OF: _____		
BEGINNING DEPTH <u>Ø</u>		MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES () NO (X)		
END DEPTH <u>Ø</u>				
GRAB () COMPOSITE ()		DATE: <u>10/24/96</u> TIME: <u>16:05</u>		
CONTAINER	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE #				
	<u>2 Ice</u>	<u>5030A</u>	<u>8240B</u>	<u>Volatile organics</u>
NOTABLE OBSERVATIONS				
PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS		
1st:	COLOR:			
2nd:	ODOR:			
	OTHER:			
GENERAL INFORMATION				
WEATHER: SUN/CLEAR _____ OVERCAST/RAIN _____ WIND DIRECTION _____ AMBIENT TEMP _____				
SHIPMENT VIA: FED-X _____ HAND DELIVER _____ COURIER _____ OTHER _____				
SHIPPED TO: <u>Inchcape Testing Services</u>				
COMMENTS: <u>Trip Blank #4 for project, lot control</u> #011A				
SAMPLER: <u>B. Duffner</u> OBSERVER: <u>K. Troensegaard</u>				
MATRIX TYPE CODES		SAMPLING METHOD CODES		
DC=DRILL CUTTINGS	SL=SLUDGE	B=BAILER	G=GRAB	
WG=GROUND WATER	SO=SOIL	BR=BRASS RING	HA=HAND AUGER	
LH=HAZARDOUS LIQUID WASTE	GS=SOIL GAS	CS=COMPOSITE SAMPLE	H=HOLLOW STEM AUGER	
SH=HAZARDOUS SOLID WASTE	WS=SURFACE WATER	C=CONTINUOUS FLIGHT AUGER	HP=HYDRO PUNCH	
SE=SEDIMENT	SW=SWAB TYPE	DT=DRIVEN TUBE	SS=SPLIT SPOON	
		W=SWAB TYPE	SP=SUBMERSIBLE PUMP	

FIELD SAMPLING REPORT

LOCATION: Field QC PROJECT: _____
 SITE: _____

SAMPLE INFORMATION

MATRIX WQR SAMPLE ID: FC-WQR-TB-05
 SAMPLING METHOD NA DUP./REP. OF: _____
 BEGINNING DEPTH Ø MATRIX SPIKE/MATRIX SPIKE DUPLICATE
 END DEPTH Ø YES () NO (X)
 GRAB () COMPOSITE () DATE: 10/25/96 TIME: 15:30

CONTAINER		PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE	#				
	2	Ice	5030A	8240B	Volatile organics

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st	COLOR:	
2nd	ODOR:	
	OTHER:	

GENERAL INFORMATION

WEATHER: SUN/CLEAR _____ OVERCAST/RAIN _____ WIND DIRECTION _____ AMBIENT TEMP _____

SHIPMENT VIA: FED-X _____ HAND DELIVER _____ COURIER _____ OTHER _____

SHIPPED TO: Inchcape Testing Services

COMMENTS: Trip Blank #5 for project, lot control #

SAMPLER: B. Duffner OBSERVER: K. Troensegaard

011A

MATRIX TYPE CODES

- DC-DRILL CUTTINGS
- WG-GROUND WATER
- LH-HAZARDOUS LIQUID WASTE
- SH-HAZARDOUS SOLID WASTE
- SE-SEDIMENT
- SL-SLUDGE
- SO-SOIL
- GS-SOIL GAS
- WS-SURFACE WATER
- SW-SWAB/WIPE

SAMPLING METHOD CODES

- B-BAILER
- BR-BRASS RING
- CS-COMPOSITE SAMPLE
- C-CONTINUOUS FLIGHT AUGER
- DT-DRIVEN TUBE
- W-SWAB/WIPE
- G-GRAB
- HA-HAND AUGER
- H-HOLLOW STEM AUGER
- HP-HYDRO PUNCH
- SS-SPLIT SPOON
- SP-SUBMERSIBLE PUMP

430 141

FIELD SAMPLING REPORT

LOCATION: Field QC PROJECT: _____
 SITE: _____

SAMPLE INFORMATION

MATRIX WQ SAMPLE ID: FC-WQ-TB-06
 SAMPLING METHOD NA DUP./REP. OF: _____
 BEGINNING DEPTH Ø MATRIX SPIKE/MATRIX SPIKE DUPLICATE
 YES () NO
 END DEPTH Ø
 GRAB () COMPOSITE () DATE: 10/25/96 TIME: 16:00

CONTAINER		PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE	#				
	2	Ice.	5030A	8240B	Volatile Organics

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st	COLOR:	
2nd	ODOR:	
	OTHER:	

GENERAL INFORMATION

WEATHER: SUN/CLEAR _____ OVERCAST/RAIN _____ WIND DIRECTION _____ AMBIENT TEMP _____
 SHIPMENT VIA: FED-X _____ HAND DELIVER _____ COURIER _____ OTHER _____
 SHIPPED TO: Inchcape Testing Services
 COMMENTS: Trip Blank #6 for project, Lot Control # 012B
 SAMPLER: B. Duffner OBSERVER: K. Troensegaard

MATRIX TYPE CODES		SAMPLING METHOD CODES	
DC=DRILL CUTTINGS	SL=SLUDGE	B=BAILER	G=GRAB
WG=GROUND WATER	SO=SOIL	BR=BRASS RING	HA=HAND AUGER
LH=HAZARDOUS LIQUID WASTE	GS=SOIL GAS	CS=COMPOSITE SAMPLE	H=HOLLOW STEM AUGER
SH=HAZARDOUS SOLID WASTE	WS=SURFACE WATER	C=CONTINUOUS FLIGHT AUGER	HP=HYDRO PUNCH
SE=SEDIMENT	SW=SWAB W/PE	DT=DRIVEN TUBE	SS=SPLIT SPOON
		W=SWAB W/PE	SP=STRENGTHENABLE PUMP

FIELD SAMPLING REPORT

LOCATION: Field QC PROJECT: _____
 SITE: _____

SAMPLE INFORMATION

MATRIX WQ SAMPLE ID: FC-WQ-TB-07
 SAMPLING METHOD NA DUP/REP. OF: _____
 BEGINNING DEPTH Ø MATRIX SPIKE/MATRIX SPIKE DUPLICATE
 END DEPTH Ø YES () NO (X)

GRAB () COMPOSITE () DATE: 10/26/96 TIME: 12:45

CONTAINER		PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE	#				
	<u>2</u>	<u>Ice</u>	<u>5030A</u>	<u>8240B</u>	<u>Volatile Organics</u>

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st	COLOR:	
2nd	ODOR:	
	OTHER:	

GENERAL INFORMATION

WEATHER: SUN/CLEAR _____ OVERCAST/RAIN _____ WIND DIRECTION _____ AMBIENT TEMP _____
 SHIPMENT VIA: FED-X _____ HAND DELIVER _____ COURIER _____ OTHER _____
 SHIPPED TO: Inchcape Testing Services
 COMMENTS: Trip Blank #7 for project, Lot Control # 01 1A
 SAMPLER: B. Duffner OBSERVER: K. Troensegaard

MATRIX TYPE CODES		SAMPLING METHOD CODES	
DC-DRILL CUTTINGS	SL-SLUDGE	B-BAILER	G-GRAB
WG-GROUND WATER	SO-SOIL	BR-BRASS RING	HA-HAND AUGER
LH-HAZARDOUS LIQUID WASTE	GS-SOIL GAS	CS-COMPOSITE SAMPLE	H-HOLLOW STEM AUGER
SH-HAZARDOUS SOLID WASTE	WS-SURFACE WATER	C-CONTINUOUS FLIGHT AUGER	HP-HYDRO PUNCH
SE-SEDIMENT	SW-SWAMP TYPE	DT-DRIVEN TUBE	SS-SPLIT SPOON
		W-SWAMP TYPE	SP-SUBMERSIBLE PUMP

FIELD SAMPLING REPORT

LOCATION: SB/6A PROJECT: _____
 SITE: _____

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: FC-SB/6-01
 SAMPLING METHOD SS DUP./REP. OF: _____
 BEGINNING DEPTH 2.5' MATRIX SPIKE/MATRIX SPIKE DUPLICATE
 YES () NO (X)
 END DEPTH 5'
 GRAB (X) COMPOSITE () DATE: 10/25/96 TIME: 8:10

CONTAINER		PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
4oz Jar	1	Ice	5030A	8240B	Volatile Organics
4oz Jar	1	Ice	5030	8015 med	TPH - Gasoline
32oz Jar	1	Ice	3550A	8270B	Semi-volatile organics
		Ice	3550A	8015	TPH - Gasoline Diesel
		Ice ^{WM}	3550A	8080	Pesticide / PCB's
8oz Jar	1	Ice ⁽³⁰⁵¹⁾	3075	6010A	Inorganic Metals

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st: \emptyset	COLOR: <u>light yellow</u>	
2nd:	ODOR: <u>none</u>	
	OTHER:	

GENERAL INFORMATION

WEATHER: SUN/CLEAR _____ OVERCAST/RAIN WIND DIRECTION S AMBIENT TEMP 65°F
 SHIPMENT VIA: FED-X _____ HAND DELIVER COURIER _____ OTHER _____
 SHIPPED TO: Inchcape Testing Services
 COMMENTS: Field Lot Control # 011A
 SAMPLER: L. Myers OBSERVER: K. Troensegaard

MATRIX TYPE CODES		SAMPLING METHOD CODES	
DC-DRILL CUTTINGS	SL-SLUDGE	B-BAJLER	G-GRAB
WG-GROUND WATER	SO-SOIL	BR-BRASS RING	HA-HAND AUGER
LH-HAZARDOUS LIQUID WASTE	GS-SOIL GAS	CS-COMPOSITE SAMPLE	H-HOLLOW STEM AUGER
SH-HAZARDOUS SOLID WASTE	WS-SURFACE WATER	C-CONTINUOUS FLIGHT AUGER	HP-HYDRO PUNCH
SE-SEDIMENT	SW-SWAP W/PE	DT-DRIVEN TUBE	SS-SPLIT SPOON
		W-SWAB W/PE	SP-SUBMERSIBLE PUMP

AFCEE FORM SR.0

~~3020A~~ 7421/7471A Lead/Mercury
 (WM) 3051/NONE

FIELD SAMPLING REPORT

LOCATION: SB16A PROJECT: _____
 SITE: _____

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: FC-SB16-02
 SAMPLING METHOD SS DUP./REP. OF: _____
 BEGINNING DEPTH 5' MATRIX SPIKE/MATRIX SPIKE DUPLICATE
 END DEPTH 7.2' YES () NO
 GRAB COMPOSITE () DATE: 10/25/96 TIME: 8:25

CONTAINER	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
4oz Jar 1	Ice	5030A	8240B	Volatile Organics
4oz Jar 1	Ice	5030	8015 mod	TPH - Gasoline
32oz Jar 1	Ice	3550A	8270B	Semi-volatile Organics
	Ice	3550A	8015	TPH - Diesel
	Ice ^{um}	3550A	8080	Pesticide / PCB's
8oz Jar 1	Ice ^{um}	3015	6010A	Inorganic Metals

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st 3.4	COLOR: <u>light Gray</u>	* Grain Size
2nd	ODOR: <u>none</u>	Analysis also
	OTHER: <u>limestone</u>	requested

GENERAL INFORMATION

WEATHER: SUN/CLEAR _____ OVERCAST/RAIN WIND DIRECTION S AMBIENT TEMP 65°F
 SHIPMENT VIA: FED-X _____ HAND DELIVER COURIER _____ OTHER _____
 SHIPPED TO: Inchcape Testing Services
 COMMENTS: Field hot Control # 011A
 SAMPLER: L. Myers OBSERVER: K. Troensegaard

MATRIX TYPE CODES	SAMPLING METHOD CODES
DC-DRILL CUTTINGS WG-GROUND WATER LH-HAZARDOUS LIQUID WASTE SH-HAZARDOUS SOLID WASTE SE-SEDIMENT	B-BAILER BR-BRASS RING CS-COMPOSITE SAMPLE C-CONTINUOUS FLIGHT AUGER DT-DRIVEN TUBE W-SWABWIPE
SL-SLUDGE SO-SOIL GS-SOIL GAS WS-SURFACE WATER SW-SWABWIPE	G-GRAB HA-HAND AUGER H-HOLLOW STEM AUGER HP-HYDRO PUNCH SS-SPLIT SPOON SP-SUBMERSIBLE PUMP

AFCEE FORM SR.0

~~3030A~~ 7421/7471A Lead/Mercury
 (UM) 3051/NONE

430 145
FIELD SAMPLING REPORT

LOCATION: SB17 PROJECT: _____
 SITE: _____

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: FC-SB17-01
 SAMPLING METHOD SS DUP/REP. OF: _____
 BEGINNING DEPTH 2.5' MATRIX SPIKE/MATRIX SPIKE DUPLICATE
 YES () NO
 END DEPTH 5'
 GRAB COMPOSITE () DATE: 10/25/96 TIME: 10:40

CONTAINER SIZE/TYPE	#	PRESERVATIVE/PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
4oz Jar	1	Ice	5030A	8240B	Volatile Organics
4oz Jar	1	Ice	5030	8015 mod	TPH - Gasoline
32oz Jar	1	Ice	3550A	8270B	Semi-volatile organics
		Ice	3550A	8015	TPH - Diesel
		Ice ^{LM}	3550A	8080	Pesticide/PCB's
8oz Jar	1	Ice ⁽³⁰⁵¹⁾	3015	6010A	Inorganic Metals

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st <u>3.8</u>	COLOR: <u>10 YR 7/2</u>	
2nd	ODOR: <u>none</u>	
	OTHER:	

GENERAL INFORMATION

WEATHER: SUN/CLEAR _____ OVERCAST/RAIN WIND DIRECTION S AMBIENT TEMP 65°F
 SHIPMENT VIA: FED-X _____ HAND DELIVER COURIER _____ OTHER _____
 SHIPPED TO: Inchcape Testing Services
 COMMENTS: Field Lot Control # 011A
 SAMPLER: L. Myers OBSERVER: K. Troensegaard

MATRIX TYPE CODES		SAMPLING METHOD CODES	
DC=DRILL CUTTINGS	SL=SLUDGE	B=BAILER	G=GRAB
WG=GROUND WATER	SO=SOIL	BR=BRASS RING	HA=HAND AUGER
LH=HAZARDOUS LIQUID WASTE	GS=SOIL GAS	CS=COMPOSITE SAMPLE	H=HOLLOW STEM AUGER
SH=HAZARDOUS SOLID WASTE	WS=SURFACE WATER	C=CONTINUOUS FLIGHT AUGER	HP=HYDRO PUNCH
SE=SEDIMENT	SW=SWAMP TYPE	DT=DRIVEN TUBE	SS=SPLIT SPOON
		W=SWAB TYPE	SP=SUBMERSIBLE PUMP

AFCEE FORM SR.0

~~3020 A~~
 (LM) 3051/NONE 7421/7471A Lead/Mercury

430 146

FIELD SAMPLING REPORT

LOCATION: SB18 PROJECT: _____
 SITE: _____

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: FC-SB18-01
 SAMPLING METHOD SS DUP./REP. OF: _____
 BEGINNING DEPTH 2.5' MATRIX SPIKE/MATRIX SPIKE DUPLICATE
 YES () NO (X)
 END DEPTH 5'
 GRAB (X) COMPOSITE () DATE: 10/25/96 TIME: 10:00

CONTAINER SIZE/TYPE #	PRESERVATIVE/PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
4oz Jar 1	Ice	5030R	8240B	Volatile Organics
4oz Jar 1	Ice	5030	8015 md	TPH - Gasoline
32oz Jar 1	Ice	3550A	8270B	Semi-volatile organics
	Ice	3550A	8015	TPH - Diesel
	Ice	400 3550A	8080	Pesticide / PCB's
8oz Jar 1	Ice	3051	6010A	Inorganic Metals

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st 2	COLOR: <u>chalky white</u>	
2nd	ODOR: <u>None</u>	
	OTHER: <u>limestone, d silt</u>	

GENERAL INFORMATION

WEATHER: SUN/CLEAR _____ OVERCAST/RAIN WIND DIRECTION S AMBIENT TEMP 65°F
 SHIPMENT VIA: FED-X _____ HAND DELIVER COURIER _____ OTHER _____
 SHIPPED TO: Inchcape Testing Services
 COMMENTS: Field Lot Control # 011A
 SAMPLER: Lo Myers OBSERVER: K. Troensegaard

MATRIX TYPE CODES	SAMPLING METHOD CODES
DC-DRILL CUTTINGS WG-GROUND WATER LH-HAZARDOUS LIQUID WASTE SH-HAZARDOUS SOLID WASTE SE-SEDIMENT	B-BAILER BR-BRASS RING CS-COMPOSITE SAMPLE C-CONTINUOUS FLIGHT AUGER DT-DRIVEN TUBE W-SWAB/WIPE
SL-SLUDGE SO-SOIL GS-SOIL GAS WS-SURFACE WATER SW-SWAB/WIPE	G-GRAB HA-HAND AUGER H-HOLLOW STEM AUGER HP-HYDRO PUNCH SS-SPLIT SPOON SP-SUBMERSIBLE PUMP

AFCEE FORM SR.0

→ ~~3020A~~ 7421/7471A Lead/Mercury
 (LLM) 3051/NONE

430 147
FIELD SAMPLING REPORT

LOCATION: <u>SB18</u>		PROJECT: _____			
SITE: _____					
SAMPLE INFORMATION					
MATRIX <u>SO</u>		SAMPLE ID: <u>FC-SB18-02</u>			
SAMPLING METHOD <u>SS</u>		DUP/REP. OF: _____			
BEGINNING DEPTH <u>5'</u>		MATRIX SPIKE/MATRIX SPIKE DUPLICATE YES () NO (X)			
END DEPTH <u>6'</u>					
GRAB (X) COMPOSITE ()		DATE: <u>10/25/96</u>		TIME: <u>10:15</u>	
CONTAINER SIZE/TYPE	#	PRESERVATIVE/PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
4oz Jar	1	Ice	5030A	8240B	Volatile Organics
4oz Jar	1	Ice	5030	8015 mod	TPH - Gasoline
32oz Jar	1	Ice	3550A	8270B	Semi-volatile organics
		Ice	3550A	8015	TPH - Diesel
		Ice ^{lum}	3550A	8080	Pesticide / PCB's
8oz Jar	1	Ice ⁽³⁰⁵⁾	3015	6010A	Inorganic Metals
NOTABLE OBSERVATIONS					
PID READINGS		SAMPLE CHARACTERISTICS		MISCELLANEOUS	
1st	<u>3.4</u>	COLOR:	<u>Chalky white</u>		
2nd		ODOR:	<u>none</u>		
		OTHER:	<u>limestone d silt</u>		
GENERAL INFORMATION					
WEATHER: SUN/CLEAR _____		OVERCAST/RAIN <input checked="" type="checkbox"/>		WIND DIRECTION <u>S</u> AMBIENT TEMP <u>65°F</u>	
SHIPMENT VIA: FED-X _____		HAND DELIVER <input checked="" type="checkbox"/>		COURIER _____ OTHER _____	
SHIPPED TO: <u>Inchcape Testing Services</u>					
COMMENTS: <u>Field Lot Control # 011A</u>					
SAMPLER: <u>L. Myers</u>			OBSERVER: <u>K. Troersegard</u>		
MATRIX TYPE CODES			SAMPLING METHOD CODES		
DC-DRILL CUTTINGS	SL-SLUDGE	B-BAILER	G-GRAB		
WG-GROUND WATER	SO-SOIL	BR-BRASS RING	HA-HAND AUGER		
LH-HAZARDOUS LIQUID WASTE	GS-SOIL GAS	CS-COMPOSITE SAMPLE	H-HOLLOW STEM AUGER		
SH-HAZARDOUS SOLID WASTE	WS-SURFACE WATER	C-CONTINUOUS FLIGHT AUGER	HP-HYDRO PUNCH		
SE-SEDIMENT	SW-SWAB/WIPE	DT-DRIVEN TUBE	SS-SPLIT SPOON		
		W-SWAB/WIPE	SP-SUBMERSIBLE PUMP		

AFCEE FORM SR.0

~~3001A~~
7421/7471A
Lead/Mercury
(lum) 3051/NONE

FIELD SAMPLING REPORT

LOCATION: SB19 PROJECT: _____
 SITE: _____

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: FC-SB19-01
 SAMPLING METHOD SS DUP./REP. OF: _____
 BEGINNING DEPTH 2' MATRIX SPIKE/MATRIX SPIKE DUPLICATE
 END DEPTH 4' YES () NO (X)

GRAB (X) COMPOSITE () DATE: 10/25/96 TIME: 11:10

CONTAINER SIZE/TYPE	#	PRESERVATIVE/PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
4oz Jar	1	Ice	5030A	8240B	Volatile Organics
4oz Jar	1	Ice	5030	8015 mod	TPH - Gasoline
32oz Jar	1	Ice	3550A	8270B	Semi-volatile organics
		Ice	3550A	8015	TPH - Diesel
		Ice	with 3550A	8080	Pesticide / PCB's
8oz Jar	1	Ice	3051 3055	6010A	Inorganic Metals

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st 11	COLOR: 2.54 8/2	
2nd	ODOR: none	
	OTHER:	

GENERAL INFORMATION

WEATHER: SUN/CLEAR _____ OVERCAST/RAIN WIND DIRECTION S AMBIENT TEMP 65°F
 SHIPMENT VIA: FED-X _____ HAND DELIVER COURIER _____ OTHER _____
 SHIPPED TO: Inchoape Testing Services
 COMMENTS: Field Lot Control # 012B
 SAMPLER: L. Myers OBSERVER: K. Troensegaard

MATRIX TYPE CODES	SAMPLING METHOD CODES
DC-DRELL CUTTINGS WG-GROUND WATER LH-HAZARDOUS LIQUID WASTE SH-HAZARDOUS SOLID WASTE SE-SEDIMENT	B-BAILER BR-BRASS RING CS-COMPOSITE SAMPLE C-CONTINUOUS FLIGHT AUGER DT-DRIVEN TUBE W-SWAB/WIPE
SL-SLUDGE SO-SOIL GS-SOIL GAS WS-SURFACE WATER SW-SWAB/WIPE	G-GRAB HA-HAND AUGER H-HOLLOW STEM AUGER HP-HYDRO PUNCH SS-SPLIT SPOON SP-SUBMERSIBLE PUMP

AFCEE FORM SR.0

~~3020A~~ 7421/7471 A Lead/Mercury
 (LHM) 3051/NONE

FIELD SAMPLING REPORT

LOCATION: SB19 PROJECT: _____
 SITE: _____

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: FC-SB19-02
 SAMPLING METHOD SS DUP./REP. OF: FC-SB19-01
 BEGINNING DEPTH 2' MATRIX SPIKE/MATRIX SPIKE DUPLICATE
 YES () NO
 END DEPTH 4'
 GRAB COMPOSITE () DATE: 10/25/96 TIME: 11:10

CONTAINER		PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
4oz Jar	1	Ice	5030R	8240B	Volatile Organics
4oz Jar	1	Ice	5030	8015 mod	TPH - Gasoline
32oz Jar	1	Ice	3550A	8270B	Semi-volatile organics
		Ice	3550A	8015	TPH - Diesel
		Ice	3550A	8080	Pesticide / PCB's
8oz Jar	1	Ice	3550A	6010A	Inorganic metals

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st <u>11</u>	COLOR: <u>2.5 y 8/2</u>	
2nd	ODOR: <u>none</u>	
	OTHER:	

GENERAL INFORMATION

WEATHER: SUN/CLEAR _____ OVERCAST/RAIN WIND DIRECTION S AMBIENT TEMP 65°F
 SHIPMENT VIA: FED-X _____ HAND DELIVER COURIER _____ OTHER _____
 SHIPPED TO: Inchcape Testing Services
 COMMENTS: Field hot Control # 012B
 SAMPLER: L. Myers OBSERVER: K. Troensegaard

MATRIX TYPE CODES		SAMPLING METHOD CODES	
DC=DRILL CUTTINGS	SL=SLUDGE	B=BAILER	G=GRAB
WG=GROUND WATER	SO=SOIL	BR=BRASS RING	HA=HAND AUGER
LH=HAZARDOUS LIQUID WASTE	GS=SOIL GAS	CS=COMPOSITE SAMPLE	H=HOLLOW STEM AUGER
SH=HAZARDOUS SOLID WASTE	WS=SURFACE WATER	C=CONTINUOUS FLIGHT AUGER	HP=HYDRO PUNCH
SE=SEDIMENT	SW=SWAB/WIPE	DT=DRIVEN TUBE	SS=SPLIT SPOON
		W=SWAB/WIPE	SP=SUBMERSIBLE PUMP

AFCEE FORM SR.0

~~3020A~~ - 7421/7471A lead/Mercury
 3051/NONE

FIELD SAMPLING REPORT

LOCATION: SB20 PROJECT: _____
 SITE: _____

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: ~~SB~~^{LLM} FC-SB20-01
 SAMPLING METHOD SS DUP./REP. OF: _____
 BEGINNING DEPTH 5' MATRIX SPIKE/MATRIX SPIKE DUPLICATE
 END DEPTH 10' YES () NO (X)
 GRAB (X) COMPOSITE () DATE: 10/25/96 TIME: 12:10

CONTAINER		PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
4oz Jar	1	Ice	5030A	8240B	Volatiles Organics
4oz Jar	1	Ice	5030	8015 mod	TPH - Gasoline
32oz Jar	1	Ice	3550A	8270B	Semi-volatile organics
		Ice	3550A	8015	TPH - Diesel
		Ice ^{WM}	3550A	8080	Pesticide/PCB's
8oz Jar	1	Ice (3051)	3051	6010A	Inorganic Metals

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st <u>22.4</u>	COLOR: <u>yellow-brown</u>	
2nd	ODOR: <u>none</u>	
	OTHER:	

GENERAL INFORMATION

WEATHER: SUN/CLEAR _____ OVERCAST/RAIN WIND DIRECTION S AMBIENT TEMP 70°F
 SHIPMENT VIA: FED-X _____ HAND DELIVER CARRIER _____ OTHER _____
 SHIPPED TO: Inchcape Testing Services
 COMMENTS: Field lot Control # 012B
 SAMPLER: L. Myers OBSERVER: K. Troensegaard

MATRIX TYPE CODES		SAMPLING METHOD CODES	
DC=DRELL CUTTINGS	SL=SLUDGE	B=BAILER	G=GRAB
WG=GROUND WATER	SO=SOIL	BR=BRASS RING	HA=HAND AUGER
LH=HAZARDOUS LIQUID WASTE	GS=SOIL GAS	CS=COMPOSITE SAMPLE	H=HOLLOW STEM AUGER
SH=HAZARDOUS SOLID WASTE	WS=SURFACE WATER	C=CONTINUOUS FLIGHT AUGER	HP=HYDRO PUNCH
SE=SEDIMENT	SW=SWAMP/PIPE	DT=DRIVEN TUBE	SS=SPLIT SPOON
		W=SWAB/WIPE	SP=SUBMERSIBLE PUMP

AFCEE FORM SR.0

→ ~~3020A~~ 7421/7471A Lead/Mercury
 (LLM) 3051/NONE

FIELD SAMPLING REPORT

LOCATION: SB20 PROJECT: _____
 SITE: _____

SAMPLE INFORMATION

MATRIX SO SAMPLE ID: FC-SB20-02
 SAMPLING METHOD SS DUP./REP. OF: _____
 BEGINNING DEPTH 15' MATRIX SPIKE/MATRIX SPIKE DUPLICATE
 YES (X) NO ()
 END DEPTH 17.5'
 GRAB (X) COMPOSITE () DATE: 10/25/96 TIME: 13:56

CONTAINER SIZE/TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
4oz Jar	1	Ice	5030A	8240B	Volatile Organics
4oz Jar	1	Ice	5030	8015 mod.	TPH - Gasoline
32oz Jar	1	Ice	3550A	8270B	Semi-volatile organics
		Ice	3550A	8015	TPH - Diesel
		Ice	UM 3550A	8080	Pesticide/PCB's
8oz Jar	1	Ice	3051 3051	6010A	Inorganic Metals

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st <u>5.0</u>	COLOR: <u>yellowish brown</u>	* Grain size
2nd	ODOR: <u>none</u>	analysis also
	OTHER:	requested

GENERAL INFORMATION

WEATHER: SUN/CLEAR _____ OVERCAST/RAIN WIND DIRECTION 5 AMBIENT TEMP 70°F
 SHIPMENT VIA: FED-X _____ HAND DELIVER _____ COURIER _____ OTHER _____
 SHIPPED TO: Inchcape Testing Services
 COMMENTS: Field Lot Control # 012B
 SAMPLER: L. Myers OBSERVER: K. Troensegaard

MATRIX TYPE CODES		SAMPLING METHOD CODES	
DC=DRELL CUTTINGS	SL=SLUDGE	B=BAILER	G=GRAB
WG=GROUND WATER	SO=SOIL	BR=BRASS RING	HA=HAND AUGER
LH=HAZARDOUS LIQUID WASTE	GS=SOIL GAS	CS=COMPOSITE SAMPLE	H=HOLLOW STEM AUGER
SH=HAZARDOUS SOLID WASTE	WS=SURFACE WATER	C=CONTINUOUS FLIGHT AUGER	HP=HYDRO PUNCH
SE=SEDIMENT	SW=SWAP W/PE	DT=DRIVEN TUBE	SS=SPLIT SPOON
		W=SWAB/WIPE	SP=SUBMERSIBLE PUMP

AFCEE FORM SR.0

~~3020A~~ 7421/7471A Lead / Mercury
 3051/NONE

Health and Safety Monitoring Sheets

Instrument Calibration Logs



430 160

Equipment Decontamination Log Sheet

EQUIPMENT DECONTAMINATION LOG SHEET

EQUIPMENT NUMBER: N/A

Page 1 of 3

EQUIPMENT DESCRIPTION: 5 Foot Split Barrel Sampler - 2 Stainless Steel Bowls

DATE	TIME	DETERGENT WASH	TAP WATER RINSE	SOLVENT RINSE (TYPE)	WATER RINSE (TYPE)	AIR DRY	TYPE OF WRAPPING	RINSE SAMPLE ID	OPERATOR SIGNATURE	COMMENTS
22oct	0900	✓	✓	Methanol Hexane	Deionized	✓	N/A		SAB	
"	0930	✓	✓			✓	N/A		"	
"	1000	✓	✓			✓	N/A		"	
"	1045	✓	✓			✓	N/A		"	
"	1120	✓	✓			✓	N/A	* FLOW- CB-01	"	
"	1145	✓	✓			✓	N/A		"	
"	1335	✓	✓			✓	N/A		"	
"	1410	✓	✓			✓	N/A		"	
"	1450	✓	✓			✓	N/A		"	
"	1600	✓	✓			✓	N/A		"	
"	1645	✓	✓			✓	N/A		"	
ITEM		MANUFACTURER		LOT NUMBERS	EXP. DATE					
DETERGENT	Alconox	Alconox Inc.		AS66	N/A					
SOLVENT	Methanol	Burdick & Jackson		BN204	N/A					
WATER	Alconox I	RICCA Chem		G201	Aug-97					

Pentane Burdick & Jackson Bimbol N/A

EQUIPMENT DECONTAMINATION LOG SHEET

Page 2 of 5

EQUIPMENT NUMBER: N/A
 EQUIPMENT DESCRIPTION: 5 Feet Split Barrel Sampler & Two Stainless Steel Bowls

DATE	TIME	DETERGENT WASH	TAP WATER RINSE	SOLVENT RINSE (TYPE)	WATER RINSE (TYPE)	AIR DRY	TYPE OF WRAPPING	RINSEATE SAMPLE ID	OPERATOR SIGNATURE	COMMENTS
22 Oct	1735	✓	✓	Acetone ✓ Residue	ASTM Type 2	✓	N/A		SAB	
"	1810	✓	✓	✓	✓	✓	N/A		SAB	
23 Oct	0830	✓	✓	✓	✓	✓	N/A		SAB	
"	0900	✓	✓	✓	✓	✓	N/A		SAB	
"	1010	✓	✓	✓	✓	✓	N/A		SAB	
"	1040	✓	✓	✓	✓	✓	N/A		SAB	
"	1120	✓	✓	✓	✓	✓	N/A		SAB	
"	1145	✓	✓	✓	✓	✓	N/A		SAB	
"	1215	✓	✓	✓	✓	✓	N/A		SAB	
"	1400	✓	✓	✓	✓	✓	N/A		SAB	
"	1445	✓	✓	✓	✓	✓	N/A		SAB	
ITEM	MANUFACTURER		LOT NUMBERS		EXP. DATE					
CELESTENT	ALCONOX		ASGG		N/A					
SOLVENT	MOTOMAN		BN244		N/A					
WATER	ASTMI		G-281		Aug 97					

Pentane Burbuck's Jackson Bm801 N/A



EQUIPMENT DECONTAMINATION LOG SHEET

EQUIPMENT NUMBER: N/A

Page 3 of 5

EQUIPMENT DESCRIPTION: 5 Foot Split Barrel Sinker in Two Stainless Steel Bards

DATE	TIME	DETERGENT WASH	TAP WATER RINSE	SOLVENT RINSE (TYPE)	WATER RINSE (TYPE)	AIR DRY	TYPE OF WRAPPING	RINSE SAMPLE ID	OPERATOR SIGNATURE	COMMENTS
2300	1500	✓	✓	METHANOL HEXANE	✓	✓	N/A	FC-WR EB-02	SABLEY	
"	1555	✓	✓	✓	✓	✓	"		"	
2400	0840	✓	✓	✓	✓	✓	"		"	
"	0705	✓	✓	✓	✓	✓	"		"	
"	1150	✓	✓	✓	✓	✓	"		"	
"	1345	✓	✓	✓	✓	✓	N/A		"	
"	1410	✓	✓	✓	✓	✓	N/A		"	
"	1440	✓	✓	✓	✓	✓	N/A		"	
"	1510	✓	✓	✓	✓	✓	N/A		"	
"	1530	✓	✓	✓	✓	✓	N/A	*R-WR EB-03	"	
2500	0815	✓	✓	✓	✓	✓	N/A		SABLEY	
ITEM		MANUFACTURER	LOT NUMBERS	EXP. DATE						
DETERGENT	Alconox	Alconox Inc	ASG66	N/A						
SOLVENT	Wetland	Paichels Jackson	DN-244	N/A						
WATER	ASTM	BICIA Chem Corp	G-281	Aug 91						

Pentane Paichels Jackson BM 801 N/A

EQUIPMENT DECONTAMINATION LOG SHEET

Page 4 of 5

EQUIPMENT NUMBER: N/A
 EQUIPMENT DESCRIPTION: 5 foot Split Barrel Sprayer & 2 Stainless Steel Bands

DATE	TIME	DETERGENT WASH	TAP WATER RINSE	SOLVENT RINSE (TYPE)	WATER RINSE (TYPE)	AIR DRY	TYPE OF WRAPPING	RINSEATE SAMPLE ID	OPERATOR SIGNATURE	COMMENTS
25 Oct	0835	✓	✓	None ✓ Hexane	ASTM ✓	✓	N/A		J. Beck	
"	0930	✓	✓	✓	✓	✓	N/A		"	
"	1030	✓	✓	✓	✓	✓	N/A		"	
"	1100	✓	✓	✓	✓	✓	N/A		"	
"	1120	✓	✓	✓	✓	✓	N/A		"	
"	1150	✓	✓	✓	✓	✓	N/A		"	
"	1210	✓	✓	✓	✓	✓	N/A		"	
"	1330	✓	✓	✓	✓	✓	N/A		"	
"	1415	✓	✓	✓	✓	✓	N/A		"	
"	1450	✓	✓	✓	✓	✓	N/A	FC-WR EB-04	"	
26 Oct	0815	✓	✓	✓	✓	✓	N/A		"	
ITEM		MANUFACTURER	LOT NUMBERS	EXP. DATE						
DETERGENT	Alconox	Alconox Inc	A566	N/A						
SOLVENT	Methanol	Bushnets Jackson	BN-244	N/A						
WATER	ASTM I	Ricca Chem Corp	G281	Aug 97						

Pentane Bushnets Jackson BM801 N/A

EQUIPMENT DECONTAMINATION LOG SHEET

EQUIPMENT NUMBER: N/A

Page 5 of 5

EQUIPMENT DESCRIPTION: SFOOT Split Barrel Sample's 2 14 in base Steel Drums

DATE	TIME	DETERGENT WASH	TAP WATER RINSE	SOLVENT RINSE (TYPE)	WATER RINSE (TYPE)	AIR DRY	TYPE OF WRAPPING	RINSEATE SAMPLE ID	OPERATOR SIGNATURE	COMMENTS
2604	0845	✓	✓	Methanol Hexane	✓	✓	N/A		SK Blaney	
21	0915	✓	✓	✓	✓	✓	N/A		"	
11	0940	✓	✓	✓	✓	✓	N/A		"	
11	1000	✓	✓	✓	✓	✓	N/A		"	
11	1050	✓	✓	✓	✓	✓	N/A		"	
11	1110	✓	✓	✓	✓	✓	N/A		"	
11	1135	✓	✓	✓	✓	✓	N/A		"	
11	1155	✓	✓	✓	✓	✓	N/A		"	
11	1230	✓	✓	✓	✓	✓	N/A	FC-WR 2B-05	"	
ITEM		MANUFACTURER		LOT NUMBERS	EXP. DATE					
DETERGENT	Alconox	Alconox Inc		AS-66	N/A					
SOLVENT	Methanol	Beckman's Johnson		DN-244	N/A					
WATER	ASTM	RICA Corp		G-281	Aug 97					

Pentane Beckman's Johnson Bm-801 N/A

TAB

G

APPENDIX G

CHAIN-OF-CUSTODY FORMS

TAB

H

APPENDIX H

SOIL BOREHOLE SAMPLING ANALYTE LIST

Soil Borehole Sample Analyte List

Inorganics by Inductively Coupled Plasma (ICP), Method 6010A;
Atomic Absorption (AA)

Aluminum	Magnesium
Antimony	Manganese
Arsenic	Mercury (Method 7471, by cold vapor)
Barium	Nickel
Beryllium	Potassium
Cadmium	Selenium
Calcium	Silver
Chromium	Sodium
Cobalt	Thallium
Copper	Vanadium
Iron	Zinc
Lead (Method 7421)	

Volatile Organics by GC/MS, Method 8240B

1,1,1-Trichloroethane	Chlorobenzene
1,1,2,2-Tetrachloroethane	Chloroethane
1,1,2-Trichloroethane	Chloroform
1,1-Dichloroethane	Chloromethane
1,1-Dichloroethene	cis 1,2-Dichloroethene
1,2,3-Trichloropropane	cis 1,3-Dichloropropene
1,2-Dichloroethane	Chlorodibromomethane
1,2-Dichloropropane	Ethylbenzene
Methyl ethyl ketone	Methylene chloride
2-Chloroethyl vinyl ether	Styrene
2-Hexanone	Trichloroethene
Methyl isobutyl ketone	Tetrachloroethene
Acetone	Toluene
Benzene	trans 1,2-Dichloroethene
Bromodichloromethane	trans 1,3-Dichloropropene
Bromoform	Vinyl acetate
Bromomethane	Vinyl chloride
Carbon disulfide	m,p-Xylene
Carbon tetrachloride	o-Xylene

TPH Extractable Hydrocarbons as Diesel by GC, Method 8015M

TPH Volatile Hydrocarbons as Gasoline, by GC, Method 8015M

Soil Borehole Sample Analyte List

Base/Neutral and Acid Extractable Organics by GC/MS, Method 8270B

1,2,4-Trichlorobenzene	Dibenz (a,h)anthracene
1,2-Dichlorobenzene	Dibenzofuran
1,3-Dichlorobenzene	Diethyl phthalate
1,4-Dichlorobenzene	Dimethyl phthalate
2,4-Dinitrotoluene	Fluoranthene
2,6-Dinitrotoluene	Fluorene
2-Chloronaphthalene	Hexachlorobenzene
2-Methylnaphthalene	Hexachlorobutadiene
2-Nitroaniline	Hexachlorocyclopentadiene
3-Nitroaniline	Hexachloroethane
3,3'-Dichlorobenzidine	Indeno (1,2,3-cd) pyrene
4-Bromophenyl phenyl ether	Isophorone
4-Chloroaniline	N-Nitrosodiephenylamine
4-Chlorophenyl phenyl ether	N-Nitrosodi-n-propylamine
4-Nitroaniline	Naphthalene
Acenaphthylene	Nitrobenzene
Acenaphthene	Phenanthrene
Anthracene	Pyrene
Benzo (a) anthracene	2,4,5-Trichlorophenol
Benzo (a) pyrene	2,4,6-Trichlorophenol
2,4-Dichlorophenol	2,4-Dimethylphenol
Benzo (b) fluoranthene	2,4-Dinitrophenol
Benzo (k) fluoranthene	2-Chlorophenol
Benzo (g,h,i) perylene	2-Methylphenol
Benzyl alcohol	2-Nitrophenol
Bis (2-chloroethyl) ether	4,6-Dinitro-2-methylphenol
Bis (2-chloroethoxy) methane	4-Chloro-3-methylphenol
Bis (2-chloroisopropyl) ether	4-Methylphenol
Bis (2-ethylhexyl) phthalate	4-Nitrophenol
Butyl benzyl phthalate	Benzoic acid
Chrysene	Pentachlorophenol
Di-n-butylphthalate	Phenol
Di-n-octylphthalate	

Pesticides by GC, Method 8080A

Alpha-BHC	Endrin
Beta-BHC	Endosulfan II
Delta-BHC	4,4'-DDD
Gamma-BHC (Lindane)	Endosulfan sulfate
Heptachlor	4,4'-DDT
Aldrin	Methoxychlor
Heptachlor epoxide	Endrin aldehyde
Endosulfan I	Toxaphene
Dieldrin	Chlordane
4,4'-DDE	

NOTE: See Appendix M for MDL and PQL values associated with these parameters.

Soil Borehole Sample Analyte List

PCBs by GC, Method 8080A

Aroclor	1016
Aroclor	1221
Aroclor	1232
Aroclor	1242
Aroclor	1248
Aroclor	1254
Aroclor	1260

NOTE: See Appendix M for MDL and PQL values associated with these parameters.

APPENDIX I

SUMMARY OF EXTRACTION AND ANALYSIS TIME

SUMMARY OF EXTRACTION AND ANALYSIS DATES
 FAMILY CAMPGROUND DRILLING PROJECT
 NAS FT WORTH JRB (FORMERLY CARSWELL AFB)

LOCATION	FIELD	LABORATORY	SAMPLE MATRIX	SAMPLE TYPE	ANALYSIS METHOD	SAMPLE DATE	EXTRACTION DATE	ELAPSED TIME (DAYS)	ANALYSIS DATE	ELAPSED TIME (DAYS)
SB16	FC-SB16-01	D96-12170-1	SO	N1	D2216	25-Oct-1996	04-Nov-1996	10	04-Nov-1996	0
SB16	FC-SB16-02	D96-12170-2	SO	N1	D2216	25-Oct-1996	04-Nov-1996	10	04-Nov-1996	0
SB17	FC-SB17-01	D96-12170-3	SO	N1	D2216	25-Oct-1996	04-Nov-1996	10	04-Nov-1996	0
SB18	FC-SB18-01	D96-12170-4	SO	N1	D2216	25-Oct-1996	04-Nov-1996	10	04-Nov-1996	0
SB18	FC-SB18-02	D96-12170-5	SO	N1	D2216	25-Oct-1996	04-Nov-1996	10	04-Nov-1996	0
SB19	FC-SB19-01	D96-12170-7	SO	N1	D2216	25-Oct-1996	04-Nov-1996	10	04-Nov-1996	0
SB19	FC-SB19-02	D96-12170-8	SO	FD1	D2216	25-Oct-1996	04-Nov-1996	10	04-Nov-1996	0
SB20	FC-SB20-01	D96-12170-9	SO	N1	D2216	25-Oct-1996	04-Nov-1996	10	04-Nov-1996	0
SB20	FC-SB20-02	D96-12170-10	SO	N1	D2216	25-Oct-1996	04-Nov-1996	10	04-Nov-1996	0
SB16	FC-SB16-01	D96-12170-1	SO	N1	M8015D	25-Oct-1996	29-Oct-1996	4	30-Oct-1996	1
SB16	FC-SB16-02	D96-12170-2	SO	N1	M8015D	25-Oct-1996	29-Oct-1996	4	30-Oct-1996	1
SB17	FC-SB17-01	D96-12170-3	SO	N1	M8015D	25-Oct-1996	29-Oct-1996	4	30-Oct-1996	1
SB18	FC-SB18-01	D96-12170-4	SO	N1	M8015D	25-Oct-1996	29-Oct-1996	4	30-Oct-1996	1
SB18	FC-SB18-02	D96-12170-5	SO	N1	M8015D	25-Oct-1996	29-Oct-1996	4	30-Oct-1996	1
SB19	FC-SB19-01	D96-12170-7	SO	N1	M8015D	25-Oct-1996	29-Oct-1996	4	30-Oct-1996	1
SB19	FC-SB19-02	D96-12170-8	SO	FD1	M8015D	25-Oct-1996	29-Oct-1996	4	30-Oct-1996	1
SB20	FC-SB20-01	D96-12170-9	SO	N1	M8015D	25-Oct-1996	29-Oct-1996	4	30-Oct-1996	1
SB20	FC-SB20-02	D96-12170-10	SO	N1	M8015D	25-Oct-1996	29-Oct-1996	4	30-Oct-1996	1
SB20	FC-SB20-02	D96-12170-23	SO	MS1	M8015D	25-Oct-1996	29-Oct-1996	4	30-Oct-1996	1
SB20	FC-SB20-02	D96-12170-24	SO	SD1	M8015D	25-Oct-1996	29-Oct-1996	4	30-Oct-1996	1
FIELDQC	FC-WQ-EB-04	D96-12170-12	WQ	EB1	M8015D	25-Oct-1996	30-Oct-1996	5	31-Oct-1996	1
SB16	FC-SB16-01	D96-12170-1	SO	N1	M8015V	25-Oct-1996	31-Oct-1996	6	31-Oct-1996	0
SB16	FC-SB16-02	D96-12170-2	SO	N1	M8015V	25-Oct-1996	31-Oct-1996	6	31-Oct-1996	0
SB17	FC-SB17-01	D96-12170-3	SO	N1	M8015V	25-Oct-1996	31-Oct-1996	6	31-Oct-1996	0
SB18	FC-SB18-01	D96-12170-4	SO	N1	M8015V	25-Oct-1996	31-Oct-1996	6	31-Oct-1996	0
SB18	FC-SB18-02	D96-12170-5	SO	N1	M8015V	25-Oct-1996	31-Oct-1996	6	31-Oct-1996	0
SB19	FC-SB19-01	D96-12170-7	SO	N1	M8015V	25-Oct-1996	31-Oct-1996	6	31-Oct-1996	0
SB19	FC-SB19-02	D96-12170-8	SO	FD1	M8015V	25-Oct-1996	31-Oct-1996	6	31-Oct-1996	0
SB20	FC-SB20-01	D96-12170-9	SO	N1	M8015V	25-Oct-1996	31-Oct-1996	6	31-Oct-1996	0

SUMMARY OF EXTRACTION AND ANALYSIS DATES
 FAMILY CAMPGROUND DRILLING PROJECT
 NAS FT WORTH JRB (FORMERLY CARSWELL AFB)

LOCATION	FIELD	LABORATORY	SAMPLE MATRIX	SAMPLE TYPE	ANALYSIS METHOD	SAMPLE DATE	EXTRACTION DATE	ELAPSED TIME (DAYS)	ANALYSIS DATE	ELAPSED TIME (DAYS)
SB20	FC-SB20-02	D96-12170-10	SO	N1	M8015V	25-Oct-1996	31-Oct-1996	6	31-Oct-1996	0
SB20	FC-SB20-02	D96-12170-23	SO	MS1	M8015V	25-Oct-1996	31-Oct-1996	6	31-Oct-1996	0
SB20	FC-SB20-02	D96-12170-24	SO	SD1	M8015V	25-Oct-1996	31-Oct-1996	6	31-Oct-1996	0
FIELDQC	FC-WQ-EB-04	D96-12170-12	WQ	EB1	M8015V	25-Oct-1996	01-Nov-1996	7	01-Nov-1996	0
SB16	FC-SB16-01	D96-12170-1	SO	N1	SW6010	25-Oct-1996	30-Oct-1996	5	20-Nov-1996	21
SB16	FC-SB16-02	D96-12170-2	SO	N1	SW6010	25-Oct-1996	30-Oct-1996	5	20-Nov-1996	21
SB17	FC-SB17-01	D96-12170-3	SO	N1	SW6010	25-Oct-1996	30-Oct-1996	5	20-Nov-1996	21
SB18	FC-SB18-01	D96-12170-4	SO	N1	SW6010	25-Oct-1996	30-Oct-1996	5	20-Nov-1996	21
SB18	FC-SB18-02	D96-12170-5	SO	N1	SW6010	25-Oct-1996	30-Oct-1996	5	20-Nov-1996	21
SB19	FC-SB19-01	D96-12170-7	SO	N1	SW6010	25-Oct-1996	30-Oct-1996	5	20-Nov-1996	21
SB19	FC-SB19-02	D96-12170-8	SO	FD1	SW6010	25-Oct-1996	30-Oct-1996	5	20-Nov-1996	21
SB20	FC-SB20-01	D96-12170-9	SO	N1	SW6010	25-Oct-1996	30-Oct-1996	5	20-Nov-1996	21
SB20	FC-SB20-02	D96-12170-10	SO	N1	SW6010	25-Oct-1996	30-Oct-1996	5	20-Nov-1996	21
SB20	FC-SB20-02	D96-12170-23	SO	MS1	SW6010	25-Oct-1996	30-Oct-1996	5	20-Nov-1996	21
SB20	FC-SB20-02	D96-12170-24	SO	SD1	SW6010	25-Oct-1996	30-Oct-1996	5	20-Nov-1996	21
FIELDQC	FC-WQ-EB-04	D96-12170-12	WQ	EB1	SW6010	25-Oct-1996	31-Oct-1996	6	04-Dec-1996	34
SB16	FC-SB16-01	D96-12170-1	SO	N1	SW7421	25-Oct-1996	06-Nov-1996	12	07-Nov-1996	1
SB16	FC-SB16-02	D96-12170-2	SO	N1	SW7421	25-Oct-1996	06-Nov-1996	12	07-Nov-1996	1
SB17	FC-SB17-01	D96-12170-3	SO	N1	SW7421	25-Oct-1996	06-Nov-1996	12	07-Nov-1996	1
SB18	FC-SB18-01	D96-12170-4	SO	N1	SW7421	25-Oct-1996	06-Nov-1996	12	07-Nov-1996	1
SB18	FC-SB18-02	D96-12170-5	SO	N1	SW7421	25-Oct-1996	06-Nov-1996	12	07-Nov-1996	1
SB19	FC-SB19-01	D96-12170-7	SO	N1	SW7421	25-Oct-1996	06-Nov-1996	12	07-Nov-1996	1
SB19	FC-SB19-02	D96-12170-8	SO	FD1	SW7421	25-Oct-1996	06-Nov-1996	12	07-Nov-1996	1
SB20	FC-SB20-01	D96-12170-9	SO	N1	SW7421	25-Oct-1996	06-Nov-1996	12	07-Nov-1996	1
SB20	FC-SB20-02	D96-12170-10	SO	N1	SW7421	25-Oct-1996	06-Nov-1996	12	06-Nov-1996	0
SB20	FC-SB20-02	D96-12170-23	SO	MS1	SW7421	25-Oct-1996	06-Nov-1996	12	07-Nov-1996	1
SB20	FC-SB20-02	D96-12170-24	SO	SD1	SW7421	25-Oct-1996	06-Nov-1996	12	07-Nov-1996	1
FIELDQC	FC-WQ-EB-04	D96-12170-12	WQ	EB1	SW7421	25-Oct-1996	05-Nov-1996	11	06-Nov-1996	1

SUMMARY OF EXTRACTION AND ANALYSIS DATES
FAMILY CAMPGROUND DRILLING PROJECT
NAS FT WORTH-JRB (FORMERLY CARSWELL AFB)

LOCATION D	FIELD	LABORATORY SAMPLE NO	SAMPLE MATRIX	SAMPLE TYPE	ANALYSIS METHOD	SAMPLE DATE	EXTRACTION DATE	ELAPSED TIME (DAYS)	ANALYSIS DATE	ELAPSED TIME (DAYS)
FIELDQC	FC-WQ-EB-04	D96-12170-12	WQ	EB1	SW7470	25-Oct-1996	30-Oct-1996	5	31-Oct-1996	1
SB16	FC-SB16-01	D96-12170-1	SO	N1	SW7471	25-Oct-1996	31-Oct-1996	6	01-Nov-1996	1
SB16	FC-SB16-02	D96-12170-2	SO	N1	SW7471	25-Oct-1996	31-Oct-1996	6	01-Nov-1996	1
SB17	FC-SB17-01	D96-12170-3	SO	N1	SW7471	25-Oct-1996	31-Oct-1996	6	01-Nov-1996	1
SB18	FC-SB18-01	D96-12170-4	SO	N1	SW7471	25-Oct-1996	31-Oct-1996	6	01-Nov-1996	1
SB18	FC-SB18-02	D96-12170-5	SO	N1	SW7471	25-Oct-1996	31-Oct-1996	6	01-Nov-1996	1
SB19	FC-SB19-01	D96-12170-7	SO	N1	SW7471	25-Oct-1996	31-Oct-1996	6	01-Nov-1996	1
SB19	FC-SB19-02	D96-12170-8	SO	FD1	SW7471	25-Oct-1996	31-Oct-1996	6	01-Nov-1996	1
SB20	FC-SB20-01	D96-12170-9	SO	N1	SW7471	25-Oct-1996	31-Oct-1996	6	01-Nov-1996	1
SB20	FC-SB20-02	D96-12170-10	SO	N1	SW7471	25-Oct-1996	31-Oct-1996	6	01-Nov-1996	1
SB20	FC-SB20-02	D96-12170-23	SO	MS1	SW7471	25-Oct-1996	31-Oct-1996	6	01-Nov-1996	1
SB20	FC-SB20-02	D96-12170-24	SO	SD1	SW7471	25-Oct-1996	31-Oct-1996	6	01-Nov-1996	1
SB16	FC-SB16-01	D96-12170-1	SO	N1	SW8080	25-Oct-1996	29-Oct-1996	4	05-Nov-1996	7
SB16	FC-SB16-02	D96-12170-2	SO	N1	SW8080	25-Oct-1996	29-Oct-1996	4	05-Nov-1996	7
SB17	FC-SB17-01	D96-12170-3	SO	N1	SW8080	25-Oct-1996	29-Oct-1996	4	05-Nov-1996	7
SB18	FC-SB18-01	D96-12170-4	SO	N1	SW8080	25-Oct-1996	29-Oct-1996	4	05-Nov-1996	7
SB18	FC-SB18-02	D96-12170-5	SO	N1	SW8080	25-Oct-1996	29-Oct-1996	4	05-Nov-1996	7
SB19	FC-SB19-01	D96-12170-7	SO	N1	SW8080	25-Oct-1996	29-Oct-1996	4	05-Nov-1996	7
SB19	FC-SB19-02	D96-12170-8	SO	FD1	SW8080	25-Oct-1996	29-Oct-1996	4	05-Nov-1996	7
SB20	FC-SB20-01	D96-12170-9	SO	N1	SW8080	25-Oct-1996	29-Oct-1996	4	05-Nov-1996	7
SB20	FC-SB20-02	D96-12170-10	SO	N1	SW8080	25-Oct-1996	29-Oct-1996	4	05-Nov-1996	7
SB20	FC-SB20-02	D96-12170-23	SO	MS1	SW8080	25-Oct-1996	29-Oct-1996	4	05-Nov-1996	7
SB20	FC-SB20-02	D96-12170-24	SO	SD1	SW8080	25-Oct-1996	29-Oct-1996	4	05-Nov-1996	7
SB16	FC-SB16-01	D96-12170-1	SO	N1	SW8240	25-Oct-1996	30-Oct-1996	5	30-Oct-1996	0
SB16	FC-SB16-02	D96-12170-2	SO	N1	SW8240	25-Oct-1996	30-Oct-1996	5	30-Oct-1996	0
SB17	FC-SB17-01	D96-12170-3	SO	N1	SW8240	25-Oct-1996	30-Oct-1996	5	30-Oct-1996	0
SB18	FC-SB18-01	D96-12170-4	SO	N1	SW8240	25-Oct-1996	30-Oct-1996	5	30-Oct-1996	0
SB18	FC-SB18-02	D96-12170-5	SO	N1	SW8240	25-Oct-1996	30-Oct-1996	5	30-Oct-1996	0

SUMMARY OF EXTRACTION AND ANALYSIS DATES
 FAMILY CAMPGROUND DRILLING PROJECT
 NAS FT WORTH JRB (FORMERLY CARSWELL AFB)

LOCATION	FIELD	LABORATORY	SAMPLE NO	SAMPLE MATRIX	SAMPLE TYPE	ANALYSIS METHOD	SAMPLE DATE	EXTRACTION DATE	ELAPSED TIME (DAYS)	ANALYSIS DATE	ELAPSED TIME (DAYS)
SB19	FC-SB19-01	D96-12170-7	SO	N1	SW8240	25-Oct-1996	30-Oct-1996	5	30-Oct-1996	0	
SB19	FC-SB19-02	D96-12170-8	SO	FD1	SW8240	25-Oct-1996	30-Oct-1996	5	30-Oct-1996	0	
SB20	FC-SB20-01	D96-12170-9	SO	N1	SW8240	25-Oct-1996	30-Oct-1996	5	30-Oct-1996	0	
SB20	FC-SB20-02	D96-12170-10	SO	N1	SW8240	25-Oct-1996	30-Oct-1996	5	30-Oct-1996	0	
SB20	FC-SB20-02	D96-12170-23	SO	MS1	SW8240	25-Oct-1996	30-Oct-1996	5	30-Oct-1996	0	
SB20	FC-SB20-02	D96-12170-24	SO	SD1	SW8240	25-Oct-1996	30-Oct-1996	5	30-Oct-1996	0	
FELDOCC	FC-WQ-EB-04	D96-12170-12	WQ	EB1	SW8240	25-Oct-1996	31-Oct-1996	6	31-Oct-1996	0	
FELDOCC	FC-WQ-TB-05	D96-12170-6	WQ	TB1	SW8240	25-Oct-1996	31-Oct-1996	6	31-Oct-1996	0	
FELDOCC	FC-WQ-TB-06	D96-12170-11	WQ	TB2	SW8240	25-Oct-1996	31-Oct-1996	6	31-Oct-1996	0	
SB16	FC-SB16-01	D96-12170-1	SO	N1	SW8270	25-Oct-1996	29-Oct-1996	4	01-Nov-1996	3	
SB16	FC-SB16-02	D96-12170-2	SO	N1	SW8270	25-Oct-1996	29-Oct-1996	4	01-Nov-1996	3	
SB17	FC-SB17-01	D96-12170-3	SO	N1	SW8270	25-Oct-1996	29-Oct-1996	4	01-Nov-1996	3	
SB18	FC-SB18-01	D96-12170-4	SO	N1	SW8270	25-Oct-1996	29-Oct-1996	4	01-Nov-1996	3	
SB18	FC-SB18-02	D96-12170-5	SO	N1	SW8270	25-Oct-1996	29-Oct-1996	4	01-Nov-1996	3	
SB19	FC-SB19-01	D96-12170-7	SO	N1	SW8270	25-Oct-1996	29-Oct-1996	4	01-Nov-1996	3	
SB19	FC-SB19-02	D96-12170-8	SO	FD1	SW8270	25-Oct-1996	29-Oct-1996	4	07-Nov-1996	9	
SB20	FC-SB20-01	D96-12170-9	SO	N1	SW8270	25-Oct-1996	29-Oct-1996	4	07-Nov-1996	9	
SB20	FC-SB20-02	D96-12170-10	SO	N1	SW8270	25-Oct-1996	29-Oct-1996	4	01-Nov-1996	3	
SB20	FC-SB20-02	D96-12170-23	SO	MS1	SW8270	25-Oct-1996	29-Oct-1996	4	01-Nov-1996	3	
SB20	FC-SB20-02	D96-12170-24	SO	SD1	SW8270	25-Oct-1996	29-Oct-1996	4	01-Nov-1996	3	
FELDOCC	FC-WQ-EB-04	D96-12170-12	WQ	EB1	SW8270	25-Oct-1996	30-Oct-1996	5	30-Oct-1996	0	

TAB

J

APPENDIX J

INDEPENDENT DATA VALIDATION REPORT

DATA VALIDATION REPORT

ORGANIC AND INORGANIC ANALYSES

Recreation Vehicle (RV) and Family Camping (FAM CAMP) Area Project

Naval Air Station Fort Worth
Carswell Field, Texas

AFCEE Analytical Batch Numbers:

V12170, V12092, V12056, 1029802001, 1101802001, 1031802001, 1031801501, 1101801501,
1029801501, 1028801501, 1101801502, AB903-85, AB903-91, AB903-96, AB925-19, AB925-13,
AB903-84, AB925-42, AB925-10, AB925-18, AB925-4, AB903-98, AB925-12, 1030601001,
1028601001, 1027601002, 1106742101, 1027742101, 1031601001, 1210601001, 1119601003,
1028747101, 1029747001, 1031747101, 1105742101, and 1030747001

Sampling Dates of October 22 - 26, 1996

VOLUME 1 of 2

PREPARED FOR:

The Environmental Company, Inc.
710 N.W. Juniper Street
Suite 208
Issaquah, Washington 98027

February 1997

PREPARED BY:

ChemWorld Environmental, Inc.
14 Orchard Way North
Rockville, Maryland 20854

(301) 294 - 6144

ChemWorld Environmental, Inc.

RV and FAM CAMP Project
Data Validation Report: Organic and Inorganic Analyses

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Environmental Consultants

February 18, 1997

Mr. Robert M. Duffner, P.E.
The Environmental Company, Inc.
710 NW Juniper Street
Suite 208
Issaquah, Washington 98027

RE: Data Validation Report - Organic and Inorganic Analyses
RV and FAM CAMP Project, Carswell Field, Texas

Dear Mr. Duffner:

ChemWorld Environmental, Inc. is pleased to provide The Environmental Company, Inc. with the enclosed Data Validation Report for Organic and Inorganic Analyses for the RV and FAM CAMP Project, Carswell Field, Texas. The analytical work was performed by Inchcape Testing Services. An original report is provided at this time. In addition, a disk deliverable is included for the text portion of the report in Microsoft WORD, Version 7.0.

Please contact me at 301-294-6144, should you require additional information or clarification regarding the enclosed.

Sincerely,

Andrea P. Schuessler, CHMM
ChemWorld Environmental, Inc.

Enclosures
c: TC-9701 file



RV and FAM CAMP Project
Data Validation Report: Organic and Inorganic Analyses

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- G Case Narratives
- H Chain-of-Custody Forms

DATA VALIDATION SUMMARY: ORGANIC AND INORGANIC ANALYSES

RV and FAM CAMP
Naval Air Station Forth Worth
Carswell Field, Texas

AFCEE Analytical Batch Numbers:

V12170, V12092, V12056, 1029802001, 1101802001, 1031802001, 1031801501, 1101801501, 1029801501, 1028801501, 1101801502, AB903-85, AB903-91, AB925-19, AB925-13, AB903-84, AB925-42, AB925-10, AB925-18, AB925-4, AB903-98, AB925-12, 1030601001, 1028601001, 1027601002, 1106742101, 1027742101, 1031601001, 1210601001, 1119601003, 1028747101, 1029747101, 1031747101, 1105742101, and 1030747001

Sampling Dates of October 22 - 26, 1996

INTRODUCTION

This Data Validation Summary report for Organic and Inorganic analyses was generated for 12 water samples, 40 soil samples, and the associated quality control samples for the Air Force Center for Environmental Excellence (AFCEE) Analytical Batch (AAB) Nos. referenced above. Sampling activities were conducted in support of the field investigation for the Recreational Vehicle (RV) and Family Camping (FAM CAMP) Project for the Naval Air Station Fort Worth, Carswell Field, Texas. The analytical laboratory work was performed by Inchcape Testing Services.

The analytical testing consisted of Volatile Organic analyses by Gas Chromatography/Mass Spectroscopy (GC/MS), Method 8240B; Volatile Aromatics by GC, Method 8020A; Total Petroleum Hydrocarbons (TPH) as Gasoline by GC, Method 8015M; and TPH as Diesel by GC, Method 8015M. Base/Neutral and Acid Extractable Organics by GC/MS, Method 8270B, and Pesticides and Polychlorinated Biphenyls (PCBs) by GC Method, 8080A, were also analyzed for selected samples. In addition, selected samples were analyzed for Inorganics by Inductively Coupled Plasma (ICP), Method 6010A; Atomic Absorption (AA), Lead by Method 7421; and Mercury by Cold Vapor, Method 7471. The analytical work was performed utilizing the United States Environmental Protection Agency (USEPA) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846, Third Edition).

This report provides a summary of data acceptability and deviations in accordance with the site-specific Quality Assurance Project Plan (QAPP) for Site Assessment, Investigation, and Characterization of the RV and FAM CAMP Areas, Naval Air Station, Fort Worth, Joint Reserve Base, Carswell Field, Texas (July 1996); the AFCEE data validation requirements; and the SW-846 Methods, where applicable and relevant. The validation report pertains to the following samples:

AAB No. V12170, Method 8240B

FC-SB16-01	FC-SB20-01
FC-SB16-02	FC-SB20-02
FC-SB17-01	FC-WQ-TB-06 (Trip Blank 10/25/96)
FC-SB18-01	FC-WQ-EB-04 (Equipment blank 10/25/96)
FC-SB18-02	FC-SB11-03
FC-WQTB-05 (Trip Blank 10/25/96)	FC-WQ-TB-07 (Trip Blank 10/26/96)
FC-SB19-01	FC-WQ-EB-05 (Equipment Blank 10/26/96)
FC-SB19-02 (Duplicate of FC-SB19-01)	FC-SB12-03

AAB No. V12092, Method 8240B

FC-WQ-EB-01 (Equipment Blank 10/22/96)
 FC-WQ-TB-01 (Trip Blank 10/22/96)
 FC-WQ-TB-02 (Trip Blank 10/22/96)
 FC-WQ-EB-02 (Equipment Blank 10/23/96)
 FC-WQ-TB-03 (Trip Blank 10/23/96)

FC-WQ-EB-03 (Equipment Blank 10/24/96)
 FC-WQ-TB-04 (Trip Blank 10/24/96)
 FC-SB08-01
 FC-SB07-01N2

AAB No. V12056, Method 8240B

FC-SB03-02
 FC-SB01-02N2

FC-SB04-02
 FC-SB05-02

AAB No. 10298029001, Method 8020A

FCSB0301
 FCSB0303
 FCSB0101
 FCSB0103
 FCSB0201
 FCSB0202
 FCSB0203

FCSB0401
 FCSB0501
 FCSB0503
 FCSB0504 (Duplicate of FCSB0501)
 FCSB0601
 FCSB0602
 FCSB0603

AAB No. 1101802001, Method 8020A

FCSB0901
 FCSB0902
 FCSB0903 (Duplicate of FCSB0901)

FCSB1002
 FCSB1001

AAB No. 1031802001, Method 8020A

FCSB1101
 FCSB1102

FCSB1201
 FCSB1202

AAB No. 1031801501, Method 8015M (Gas)

FCSB1601
 FCSB1602
 FCSB1701
 FCSB1801
 FCSB1802
 FCSB1901
 FCSB1902 (Duplicate of FCSB1901)
 FCSB2001

FCSB2002
 FCSB1101
 FCSB1102
 FCSB1103
 FCSB1201
 FCSB1202
 FCSB1203

AAB no. 1101801501, Method 8015M (Gas)

FCWQEB04 (Equipment Blank 10/25/96)

FCWQEB05 (Equipment Blank 10/26/96)

AAB No. 1029801501, Method 8015M (Gas)

FCSB0301
 FCSB0302
 FCSB0303
 FCSB0101

FCSB0102
 FCSB0103
 FCSB0201
 FCSB0202

FCSB0203
 FCSB0401
 FCSB0402
 FCSB0501
 FCSB0502

FCSB0503
 FCSB0504 (Duplicate of FCSB0501)
 FCSB0601
 FCSB0602
 FCSB0603

AAB No. 1028801501, Method 8015M (Gas)

FCWQEB01 (Equipment Blank 10/22/96)
 FCWQEB02 (Equipment Blank 10/23/96)
 FCWQEB03 (Equipment Blank 10/24/96)
 FCSB0701
 FCSB0801

FCSB0901
 FCSB0902
 FCSB0903
 FCSB1002
 FCSB1001

AAB No. AB903-85, Method 8015M (Diesel)

FC-SB03-01
 FC-SB03-02
 FC-SB03-03
 FC-SB01-01
 FC-SB01-02
 FC-SB01-03
 FC-SB02-01
 FC-SB02-02
 FC-SB02-03

FC-SB04-01
 FC-SB04-02
 FC-SB05-01
 FC-SB05-02
 FC-SB05-03
 FC-SB05-04 (Duplicate of FC-SB05-01)
 FC-SB06-01
 FC-SB06-02
 FC-SB06-03

AAB No. AB903-91, Method 8015M (Diesel)

FC-WQ-EB-01 (Equipment Blank 10/22/96)
 FC-WQ-EB-02 (Equipment blank 10/23/96)

FC-WQ-EB-03 (Equipment blank 10/24/96)

AAB No. AB903-96, Method 8015M (Diesel)

FC-SB07-01
 FC-SB08-01
 FC-SB09-01
 FC-SB09-02

FC-SBD09-03 (Duplicate of FC-SB09-01)
 FC-SB10-02
 FC-SB10-01

AAB No. AB925-19, Method 8015M (Diesel)

FC-WQ-EB-04 (Equipment Blank 10/25/96)

FC-WQ-EB-05 (Equipment Blank 10/26/96)

AAB No. AB925-13, Method 8015M (Diesel)

FC-SB16-01
 FC-SB16-02
 FC-SB17-01
 FC-SB18-01
 FC-SB18-02
 FC-SB19-01
 FC-SB19-02 (Duplicate of FC-SB19-01)
 FC-SB20-01

FC-SB20-02
 FC-SB11-01
 FC-SB11-02
 FC-SB11-03
 FC-SB12-01
 FC-SB12-02
 FC-SB12-03

AAB No. AB903-84, Method 8270B

FC-SB03-01
 FC-SB03-02
 FC-SB01-01
 FC-SB01-02
 FC-SB05-01
 FC-SB05-02
 FC-SB05-04 (Duplicate of FC-SB05-01)

FC-SB02-01
 FC-SB02-02
 FC-SB04-01
 FC-SB04-02
 FC-SB06-01
 FC-SB06-02

AAB No. AB925-42, Method 8270B

FC-SB01-01DL

FC-SB02-01DL

AAB No. AB925-10, Method 8270B

FC-SB16-01
 FC-SB16-02
 FC-SB17-01
 FC-SB18-01
 FC-SB18-02
 FC-SB19-01
 FC-SB19-02 (Duplicate of FC-SB19-01)
 FC-SB20-01

FC-SB20-02
 FC-SB11-01
 FC-SB11-02
 FC-SB11-03
 FC-SB12-01
 FC-SB12-02
 FC-SB12-03

AAB No. AB925-18, Method 8270B

FC-WQ-EB-04 (Equipment Blank 10/25/96)

FC-WQ-EB-05 (Equipment Blank 10/26/96)

AAB No. AB925-4, Method 8270B

FC-WQ-EB-01 (Equipment Blank 10/22/96)
 FC-WQ-EB-02 (Equipment Blank 10/23/96)

FC-WQ-EB-03 (Equipment Blank 10/24/96)

AAB No. AB903-98, Method 8270B

FC-SB07-01
 FC-SB08-01
 FC-SB09-01
 FC-SB09-02

FC-SB09-03 (Duplicate of FC-SB09-01)
 FC-SB10-02
 FC-SB10-01

AAB No. AB925-12, Method 8080A

(Pesticides)
 SB16-01
 SB16-02
 SB17-01
 SB18-01
 SB18-02

SB19-01
 SB19-02 (Duplicate of SB19-01)
 SB20-01
 SB20-02

(PCBs)

FCSB1601
 FCSB1602
 FCSB1701
 FCSB1801
 FCSB1802

FCSB1901
 FCSB1902 (Duplicate of FCSB1901)
 FCSB2001
 FCSB2002

AAB No. 1030601001, Method 6010A

FC-SB16-01
 FC-SB16-02
 FC-SB17-01
 FC-SB18-01
 FC-SB18-02
 FC-SB19-01

FC-SB19-02 (Duplicate of FC-SB19-01)
 FC-SB20-01
 FC-SB20-02
 FC-SB11-03
 FC-SB12-03

AAB No. 1028601001, Method 6010A

(ID12092)
 FC-SB07-01

FC-SB08-01

(ID12056)
 FC-SB03-02
 FC-SB01-02
 FC-SB04-02

FC-SB05-02
 FC-SB06-02

AAB No. 1027601002, Method 6010A

FC-WQ-EB-01 (Equipment Blank 10/22/96)
 FC-WQ-EB-02 (Equipment Blank 10/23/96)

FC-WQ-EB-03 (Equipment Blank 10/24/96)

AAB No. 1106742101, Method 7421

(ID12170)
 FC-SB16-01
 FC-SB16-02
 FC-SB17-01
 FC-SB18-01
 FC-SB18-02
 FC-SB19-01

FC-SB19-02 (Duplicate of FC-SB19-01)
 FC-SB20-01
 FC-SB20-02
 FC-SB11-03
 FC-SB12-03

(ID12092)
 FC-SB07-01

FC-SB08-01

(ID12056)
 FC-SB03-02
 FC-SB01-02
 FC-SB04-02

FC-SB05-02
 FC-SB06-02

AAB No. 1027742101, Method 7421

FC-WQ-EB-01 (Equipment Blank 10/22/96)
 FC-WQ-EB-02 (Equipment Blank 10/23/96)

FC-WQ-EB-03 (Equipment Blank 10/24/96)

AAB No. 1031601001, Method No. 6010A

FC-WQ-EB-04 (Equipment Blank 10/25/96)

FC-WQ-EB-05 (Equipment Blank 10/26/96)

AAB No. 1210601001, Method 6010A

FC-SB16-01
 FC-SB16-02
 FC-SB17-01
 FC-SB18-01
 FC-SB18-02
 FC-SB19-01

FC-SB19-02 (Duplicate of FC-SB19-01)
 FC-SB20-01
 FC-SB20-02
 FC-SB11-03
 FC-SB12-03

AAB No. 1119601003, Method 6010A

(ID12056)
 FC-SB03-02
 FC-SB01-02
 FC-SB04-02

FC-SB05-02
 FC-SB06-02

(ID12092)
 FC-SB07-01

FC-SB08-01

AAB No. 1028747101, Method 7471A

(ID12056)
 FC-SB03-02
 FC-SB01-02
 FC-SB04-02

FC-SB05-02
 FC-SB06-02

(ID12092)
 FC-SB07-01

FC-SB08-01

AAB No. 1029747001, Method 7470A

FC-WQ-EB-01 (Equipment Blank 10/22/96)
 FC-WQ-EB-02 (Equipment Blank 10/23/96)

FC-WQ-EB-03 (Equipment Blank 10/24/96)

AAB No. 1031747101, Method 7471A

FC-SB16-01
 FC-SB16-02
 FC-SB17-01
 FC-SB18-01
 FC-SB18-02
 FC-SB19-01

FC-SB19-02 (Duplicate of FC-SB19-01)
 FC-SB20-01
 FC-SB20-02
 FC-SB11-03
 FC-SB12-03

AAB No. 1105742101, Method 7421

FC-WQ-EB-04 (Equipment blank 10/25/96)

FC-WQ-EB-05 (Equipment Blank 10/26/96)

AAB No. 1030747001, Method 7470A

FC-WQ-EB-04 (Equipment Blank 10/25/96)

FC-WQ-EB-05 (Equipment Blank 10/26/96)

1.0 VOLATILE ORGANICS BY GC/MS

The following items/criteria were reviewed:

- Holding Times
- Surrogate Recovery
- Matrix Spikes (MS) and Matrix Spike Duplicates (MSD)
- Laboratory Control Samples (LCS)
- Initial and Continuing Calibration
- Blanks (Method and Field)
- GC/MS Instrument Performance Check
- Internal Standards
- Field Duplicates
- Compound Identification
- Compound Quantitation and Reported Detection Limits

All items above were generated within acceptable Quality Control (QC) specifications, with deviations detailed as follows. The initial analysis for FC-SB01-02 was qualified as 'R', unusable, for the non-detectable results, due to low internal standard recovery for all three internal standards. The remaining data is considered to be valid and usable with the appropriate qualifiers, as noted on the AFCEE Form O-2's in Appendix A and within the following text.

1.1 Holding Time

All holding times were met within the acceptable time frame of 14 days from collection for the preserved water samples and soil samples.

1.2 Surrogate Compound Recovery

All surrogate recovery (%R) was found to be generated within acceptable limits for the three surrogate compounds.

1.3 Matrix Spike/Matrix Spike Duplicates (MS/MSD)

One MS/MSD sample set for soils was analyzed for the project and Laboratory Control Samples (LCS) were analyzed for each analytical batch. Acceptable accuracy (percent recovery) and precision (relative percent difference) were generated for the quality control samples.

1.4 Calibration

All initial and continuing calibration was performed within acceptable limits for Relative Response Factors (RRF), minimum RF's, Percent Relative Standard Deviation (% RSD), Percent Recovery (%R) with respect to the expected value, and Percent Difference (%D).

1.5 Blanks

1.5.1 Field Blanks

1.5.1.1 AAB No. V12170

Three trip blanks and two equipment blanks were analyzed for the analytical batch. Positive results were not detected for the 8240B Volatile Organics.

1.5.1.2 AAB No. V12092

Four trip blanks and three equipment blanks were analyzed for the analytical batch. Positive results were not detected for the 8240B Volatile Organics.

1.5.2 Method Blanks

1.5.2.1 AAB No. V12170

One water method blank and one soil method blank were analyzed for the analytical batch. Volatile Organics were not detected.

1.5.2.2 AAB No. V12092

One water method blank and one soil method blank were analyzed for the analytical batch. Volatile Organics were not detected.

1.5.2.3 AAB No. V12056

One soil method blank was analyzed for the analytical batch. Volatile Organics were not detected.

1.6 GC/MS Instrument Performance Check

Instrument Performance was generated within acceptable limits and frequency for Bromofluorobenzene (BFB).

1.7 Internal Standards

All internal standards were generated within acceptable specifications for area counts and retention time variation, with the following exceptions.

1.7.1 AAB No. V12056

<u>Sample ID</u>	<u>Internal Standard</u>	<u>Reported Area Count</u>	<u>Lower Limit</u>
FC-SB01-02	Bromochloromethane	189393	264496
	1,4-Difluorobenzene	929851	1084828
	Chlorobenzene-d5	578660	760804

The sample above was qualified as 'R', unusable, for the non-detectable results, due to the generation of low reported area counts for all three internal standards. Sample FC-SB01-02 was reanalyzed and generated acceptable internal standard area counts for the reanalysis. Both analyses are included in Appendix A.

1.8 Field Duplicates

1.8.1 AAB No. V12170

Samples FC-SB19-01 and FC-SB19-02 were collected as the field duplicate soil samples and analyzed for Volatile Organics. Acceptable precision was generated for the duplicate pair, with the exception of 2-Hexanone and methyl isobutyl ketone. These compounds were detected in FC-SB19-02 at 0.143 mg/Kg and 0.0388 mg/Kg, respectively. Positive results were not detected for any of the Volatile compounds analyzed for FC-SB19-01. Non-homogeneity of the soil matrix may contribute to poor precision.

1.9 Compound Identification

GC/MS qualitative analyses are considered to be acceptable for the data set. Retention times and mass spectra were generated within appropriate quality control specifications.

1.10 Compound Quantitation and Reported Detection Limits

GC/MS quantitative analyses are considered to be acceptable. Sample dilutions, internal standards and response factors were found to be within acceptable limits.

1.10.1 AAB No. V12170

The undiluted sample results for FC-SB11-03 and FC-SB12-03 were qualified as 'E', estimated, due to the concentration being reported above the calibration range for the compounds benzene, ethylbenzene, toluene, m,p-xylene, and o-xylene. Sample results that include an 'E' qualifier require dilution to accurately quantitate the positive results affected. Both samples were diluted and results reported within the calibration range for the diluted analyses. The results from the diluted analyses should be used for contamination assessment purposes for the compounds qualified with an 'E', in the undiluted analysis.

2.0 VOLATILE ORGANICS (AROMATICS) BY GC

The following items/criteria were reviewed:

- Holding Times
- Surrogate Recovery
- MS/MSD
- LCS
- Initial and Continuing Calibration
- Blanks (Method and Field)
- Field Duplicates
- Compound Identification
- Compound Quantitation and Reported Detection Limits

All items above were generated within acceptable QC specifications, with deviations detailed as follows. All of the data is considered to be valid and usable with the appropriate qualifiers, as noted on the AFCEE Form O-2's in Appendix A and within the following text.

2.1 Holding Time

All holding times were met within the acceptable time frame of 14 days from collection for the preserved water samples and soil samples.

2.2 Surrogate Compound Recovery

All surrogate recovery was found to be generated within acceptable limits for the one surrogate compound.

2.3 MS/MSD

One MS/MSD sample set for soils was analyzed for the project and an LCS was analyzed for each analytical batch. Acceptable accuracy and precision were generated for the quality control samples.

2.4 Calibration

All initial and continuing calibration was performed within acceptable limits for correlation coefficients of ≥ 0.990 , %R with respect to the expected value, and %D.

2.5 Blanks

2.5.1 Field Blanks

Field blanks were not collected for Aromatic Volatiles analyzed by Method 8020A.

2.5.2 Method Blanks

2.5.2.1 AAB No. 10298029001

One soil method blank was analyzed for the analytical batch. Volatile Organics were not detected.

2.5.2.2 AAB No. 1101802001

One soil method blank was analyzed for the analytical batch. Volatile Organics were not detected.

2.5.2.3 AAB No. 1031802001

One soil method blank was analyzed for the analytical batch. Volatile Organics were not detected.

2.6 Field Duplicates

2.6.1 AAB No. 10298029001

Samples FC-SB05-04 and FC-SB05-01 were collected as the field duplicate soil samples and analyzed for Volatile Organics. Trace levels of 8020A Volatiles were detected in both of the samples. However, toluene was the only compound detected in both soil duplicate samples. Non-homogeneity of the soil matrix and the trace levels of detection for the Volatile compounds may contribute to the poor precision generated. Table 1 includes calculated precision for the duplicate pair.

2.6.2 AAB No. 1101802001

Samples FCSB0901 and FCSB0903 were collected as the field duplicate soils samples and analyzed for Volatile Organics. Positive results were not detected for Method 8020A, therefore, acceptable precision was generated.

2.7 Compound Identification

GC qualitative analyses are considered to be acceptable for the data set. Data was generated within appropriate quality control specifications.

2.8 Compound Quantitation and Reported Detection Limits

GC quantitative analyses are considered to be acceptable. Sample dilutions and quality control criteria were found to be acceptable.

3.0 TPH AS GASOLINE BY GC

The following items/criteria were reviewed:

- Holding Times
- Surrogate Recovery
- MS/MSD
- LCS
- Initial and Continuing Calibration
- Blanks (Method and Field)
- Field Duplicates
- Compound Identification
- Compound Quantitation and Reported Detection Limits

All items above were generated within acceptable QC specifications, with deviations detailed as follows. All of the data is considered to be valid and usable with the appropriate qualifiers, as noted on the AFCEE Form O-2's in Appendix B and within the following text.

3.1 Holding Time

All holding times were met within the acceptable time frame of 14 days from collection for the preserved water samples and soil samples.

3.2 Surrogate Compound Recovery

All surrogate recovery was found to be generated within acceptable limits for the one surrogate compound.

3.3 MS/MSD

Two MS/MSD sample sets for soils were analyzed for the project and an LCS was analyzed for each analytical batch. Acceptable accuracy and precision were generated for the quality control samples.

3.4 Calibration

All initial and continuing calibration was performed within acceptable limits for correlation coefficients of ≥ 0.990 , %R with respect to the expected value, and %D.

3.5 Blanks

3.5.1 Field Blanks

3.5.1.1 AAB No. 1101801501

Two equipment blanks were collected and analyzed for TPH as gasoline. Positive results were not detected.

3.5.1.2 AAB No. 1028801501

Three equipment blanks were collected and analyzed for TPH as gasoline. Positive results were not detected.

3.5.2 Method Blanks

3.5.2.1 AAB No. 1031801501

One soil method blank was analyzed for the analytical batch. TPH as gasoline was not detected.

3.5.2.2 AAB No. 1101801501

One water method blank was analyzed for the analytical batch. TPH as gasoline was not detected.

3.5.2.3 AAB No. 1029801501

One soil method blank was analyzed for the analytical batch. TPH as gasoline was not detected.

3.5.2.4 AAB No. 1028801501

One water method blank was analyzed for the analytical batch. TPH as gasoline was not detected.

3.5.2.5 AAB No. 1101801502

One soil method blank was analyzed for the analytical batch. TPH as gasoline was not detected.

3.6 Field Duplicates

3.6.1 AAB Nos. 1031801501 and 1029801501

Samples FC-SB19-02/FC-SB19-01 and FCSB0504/FCSB0501 were collected as the field duplicate soil samples and analyzed for TPH as gasoline. Positive results were not detected for either pair of duplicate samples, therefore, acceptable precision was generated.

3.7 Compound Identification

GC qualitative analyses are considered to be acceptable for the data set. Data was generated within appropriate quality control specifications.

3.8 Compound Quantitation and Reported Detection Limits

GC quantitative analyses are considered to be acceptable. Sample dilutions and quality control criteria were found to be acceptable.

4.0 TPH AS DIESEL BY GC

The following items/criteria were reviewed:

- Holding Times
- Surrogate Recovery
- MS/MSD
- LCS
- Initial and Continuing Calibration
- Blanks (Method and Field)
- Field Duplicates
- Compound Identification
- Compound Quantitation and Reported Detection Limits

All items above were generated within acceptable QC specifications, with deviations detailed as follows. All of the data is considered to be valid and usable with the appropriate qualifiers, as noted on the AFCEE Form O-2's in Appendix B and within the following text.

4.1 Holding Time

All holding times were met within the acceptable time frame for extraction and analysis of the water and soil samples. Water samples were extracted within 7 days of collection and soils within 14 days. Analyses were run within 40 days of extraction.

4.2 Surrogate Compound Recovery

All surrogate recovery was found to be generated within acceptable limits for the one surrogate compound, with the following exceptions.

4.2.1 AAB No. AB903-85

Sample ID

FC-SB02-02	Triacontane	176%	(Limit 60-140)
FC-SB01-01	Triacontane	33.7%	
FC-SB02-01	Triacontane	45.6%	

The samples above were qualified as 'J', estimated, for TPH as Diesel.

4.3 MS/MSD

Two MS/MSD sample sets for soils were analyzed for the project and an LCS was analyzed for each analytical batch. Acceptable accuracy and precision were generated for the quality control samples.

4.4 Calibration

All initial and continuing calibration was performed within acceptable limits for correlation coefficients of ≥ 0.990 , %R with respect to the expected value, and %D.

4.5 Blanks

4.5.1 Field Blanks

4.5.1.1 AAB No. AB903-91

Three equipment blanks were collected and analyzed for TPH as diesel. Positive results were detected in FC-WQ-EB-02 at 33 ug/L and FC-WQ-EB-03 at 68 ug/L. These results are reported at less than the PQL. The data was not qualified based upon these field blanks.

4.5.1.2 AAB No. AB925-19

Two equipment blanks were collected and analyzed for TPH as diesel. Positive results were detected in FC-WQ-EB-04 at 77 ug/L and FC-WQ-EB-05 at 126 ug/L. These results are reported at less than the PQL. The data was not qualified based upon these field blanks.

4.5.2 Method Blanks

4.5.2.1 AAB No. AB903-85

One soil method blank was analyzed for the analytical batch. TPH as diesel was not detected.

4.5.2.2 AAB No. AB903-91

One water method blank was analyzed for the analytical batch. TPH as diesel was not detected.

4.5.2.3 AAB No. AB903-96

One soil method blank was analyzed for the analytical batch. TPH as diesel was not detected.

4.5.2.4 AAB No. AB925-19

One water method blank was analyzed for the analytical batch. TPH as diesel was not detected.

4.5.2.5 AAB No. AB925-13

One soil method blank was analyzed for the analytical batch. TPH as diesel was not detected.

4.6 Field Duplicates

4.6.1 AAB Nos. AB903-85

Samples FC-SB05-04 and FC-SB05-01 were collected as the field duplicate soil samples and analyzed for TPH as diesel. Poor precision was generated at a relative percent difference of 87% for the soil duplicate. Non-homogeneity of the soil matrix may contribute to poor precision.

4.6.2 AAB No. AB903-96

Samples FC-SBD09-03 and FC-SB09-01 were collected as the field duplicate soil samples and analyzed for TPH as diesel. Positive results were not detected, therefore, acceptable precision was generated.

4.6.3 AAB No. AB925-13

Samples FC-SB19-02 and FC-SB19-01 were collected as the field duplicate soil samples and analyzed as TPH as diesel. Acceptable precision was generated for the duplicate sample (relative percent difference of 2%).

4.7 Compound Identification

GC qualitative analyses are considered to be acceptable for the data set. Data was generated within appropriate quality control specifications.

4.8 Compound Quantitation and Reported Detection Limits

GC quantitative analyses are considered to be acceptable. Sample dilutions and quality control criteria were found to be acceptable.

5.0 SEMIVOLATILE ORGANICS BY GC/MS (Base/Neutral and Acid Extractable Organics)

The following items/criteria were reviewed:

- Holding Times
- Surrogate Recovery
- MS/MSD
- LCS
- Initial and Continuing Calibration
- Blanks (Method and Field)
- GC/MS Instrument Performance Check
- Internal Standards
- Field Duplicates
- Compound Identification
- Compound Quantitation and Reported Detection Limits

All items above were generated within acceptable QC specifications, with deviations detailed as follows. The acid phenol compounds for the samples FC-SB01-01, FC-SB02-01, FC-SB01-01DL, and FC-SB02-01DL were qualified as 'R', unusable, due to surrogate recovery of less than 10%. In addition, samples FC-SB01-01DL and FC-SB02-01DL were qualified as 'R', unusable, for the non-detectable results for 4-chloroaniline, due to the fact that the solid LCS generated a recovery of 22% (Limit 25-146). The remaining data is considered to be valid and usable with the appropriate qualifiers, as noted on the AFCEE Form O-2's in Appendix C and within the following text.

5.1 Holding Time

All holding times were met within the acceptable time frame for extraction and analysis of the water and soil samples. Water samples were extracted within 7 days of collection and soils within 14 days. Analyses were run within 40 days of extraction.

5.2 Surrogate Compound Recovery

All surrogate recovery was found to be generated within acceptable limits for the six surrogate compounds, with the following exceptions.

5.2.1 AAB No. AB903-84

Sample ID

FC-SB01-01	2-Fluorophenol	6%	(Limit 25-135)
	2,4,6-Tribromophenol	3%	(Limit 25-144)
FC-SB02-01	2-Fluorophenol	8%	
	2,4,6-Tribromophenol	4%	

The acid phenol compounds for the samples noted above were qualified as 'R', unusable, due to surrogate recovery of less than 10%. These samples were re-analyzed and reported in AAB No. AB925-42, with similar low recovery for 2,4,6-Tribromophenol.

5.2.2 AAB No. AB925-42

Sample ID

FC-SB01-01DL	2,4,6-Tribromophenol	0%	(Limit 25-144)
FC-SB02-01DL	2,4,6-Tribromophenol	0%	

The samples above were qualified as 'R', unusable, for the acid phenol compounds, due to 0% recovery of the surrogate noted.

5.2.3 AAB No. AB925-18

Sample ID

FC-WQ-EB-04	Phenol-d6	20%	(Limit 25-125)
FC-WQ-EB-05	Phenol-d6	23%	
FC-WQ-EB-05-RE	Phenol-d6	23%	
FC-WQ-EB-04-RE	Phenol-d6	20%	

The non-detectable results for the samples noted above were qualified as 'UJ', estimated, for the acid-phenol compounds, only. Positive results were not detected for the samples.

5.3 MS/MSD

Two MS/MSD sample sets for soils were analyzed for the project and an LCS was analyzed for each analytical batch. Acceptable accuracy and precision were generated for the quality control samples, with the following exceptions.

5.3.1 AAB No. AB903-84

Sample ID

FC-SB06-01MS	Benzoic Acid	13%	(Limit 25-172)
FC-SB06-01MSD	2,4-Dimethylphenol	31%	(Limit 35-149)
FC-SB06-01MSD	2,4-Dinitrophenol	21%	(Limit 25-161)
		44% RPD	(Limit 30)
FC-SB06-01MSD	Benzoic Acid	10%	

The soil samples included in AAB No. AB903-84 were qualified with an 'M', for possible matrix interference, for the compounds noted above.

5.3.2 AAB No. AB925-42

The solid LCS for this analytical batch generated recovery for 4-Chloroaniline at 22% (Limit 35-146). Samples FC-SB01-01DL and FC-SB02-01DL were qualified as 'R', unusable, for the non-detectable results for 4-Chloroaniline.

5.3.3 AAB No. AB925-10

Precision for the MS/MSD sample for benzoic acid was found to be out of specification at an RPD of 36% (Limit 30%). The soil samples included in AAB No. AB925-10 were qualified with an 'M', for possible matrix interference for benzoic acid.

5.4 Calibration

All initial and continuing calibration was performed within acceptable limits for RRF's, minimum RF's, %RSD, %R with respect to the expected value, and %D.

5.5 Blanks

5.5.1 Field Blanks

5.5.1.1 AAB No. AB925-18

Two equipment blanks were analyzed for the analytical batch. Positive results were not detected for the 8270B Semivolatile Organics.

5.5.1.2 AAB No. AB925-4

Three equipment blanks were analyzed for the analytical batch. Positive results were detected for di-n-butylphthalate in samples FC-WQ-EB-02 and FC-WQ-EB-03 at 2.62 ug/L and 1.76 ug/L, respectively. The results are reported at less than the PQL. The data was not qualified based upon these field blanks.

5.5.2 Method Blanks

5.5.2.1 AAB Nos. AB903-84 and AB925-42

One soil method blank was analyzed for each analytical batch. Semivolatile Organics were not detected.

5.5.2.2 AAB Nos. AB925-10 and AB925-18

One soil method blank and one water method blank were analyzed for the analytical batches. Semivolatile Organics were not detected.

5.5.2.3 AAB Nos. AB925-4 and AB903-98

One soil method blank and one water method blank were analyzed for the analytical batches. Semivolatile Organics were not detected.

5.6 GC/MS Instrument Performance Check

Instrument Performance was generated within acceptable limits and frequency for Decafluorotriphenylphosphine (DFTPP).

5.7 Internal Standards

All internal standards were generated within acceptable specifications for area counts and retention time variation.

5.8 Field Duplicates

5.8.1 AAB No. AB903-84

Samples FC-SB05-04 and FC-SB05-01 were collected as the field duplicate soil samples and analyzed for Semivolatile Organics. Acceptable precision was generated for the duplicate pair. Positive results were not detected for either sample.

5.8.2 AAB No. AB925-10

Samples FC-SB19-01 and FC-SB19-02 were collected as the field duplicate samples and analyzed for Semivolatile Organics. Acceptable precision was generated. Positive results were not detected for either sample.

5.8.3 AAB No. AB903-98

Samples FC-SB09-03 and FC-SB09-01 were collected as the field duplicate soil samples and analyzed for Semivolatile Organics. Positive results were not detected for either sample, therefore, acceptable precision was generated.

5.9 Compound Identification

GC/MS qualitative analyses are considered to be acceptable for the data set. Retention times and mass spectra were generated within appropriate quality control specifications.

5.10 Compound Quantitation and Reported Detection Limits

GC/MS quantitative analyses are considered to be acceptable. Sample dilutions, internal standards and response factors were found to be within acceptable limits.

6.0 PESTICIDES/PCBs BY GC

The following items/criteria were reviewed:

- Holding Times
- Surrogate Recovery
- MS/MSD
- LCS
- Initial and Continuing Calibration
- Blanks (Method and Field)
- Field Duplicates
- Compound Identification
- Compound Quantitation and Reported Detection Limits

All items above were generated within acceptable QC specifications, with deviations detailed as follows. All of the data is considered to be valid and usable with the appropriate qualifiers, as noted on the AFCEE Form O-2's in Appendix D and within the following text.

6.1 Holding Time

All holding times were met within the acceptable time frame for extraction and analysis of the soil samples. Soil samples were extracted within 14 days of collection and analyzed within 40 days of extraction.

6.2 Surrogate Compound Recovery

All surrogate recovery was found to be generated within acceptable limits for the two surrogate compounds.

6.3 MS/MSD

One MS/MSD sample set for soils was analyzed for the project and an LCS was analyzed for each analytical batch. Acceptable accuracy and precision were generated for the quality control samples.

6.4 Calibration

All initial and continuing calibration was performed within acceptable limits for correlation coefficients of ≥ 0.990 , %R with respect to the expected value, and %D.

6.5 Blanks

6.5.1 Field Blanks

Field blanks were not collected for Pesticides and PCBs analyzed by Method 8080A.

6.5.2 Method Blanks

6.5.2.1 AAB No. AB925-12

One soil method blank was analyzed for Pesticides and PCBs for the analytical batch. Positive results were not detected.

6.6 Field Duplicates

6.6.1 AAB No. AB925-12

Samples FC-SB19-01 and FC-SB19-02 were collected as the field duplicate soil samples and analyzed for Pesticides and PCBs. Positive results were not detected for either sample, therefore, acceptable precision was generated.

6.7 Compound Identification

GC qualitative analyses are considered to be acceptable for the data set. Data was generated within appropriate quality control specifications.

6.8 Compound Quantitation and Reported Detection Limits

GC quantitative analyses are considered to be acceptable. Sample dilutions and quality control criteria were found to be acceptable.

7.0 **INORGANIC ANALYSES BY AA AND ICP**
(Mercury by Cold Vapor)

The following items/criteria were reviewed:

- Holding Times
- Initial and Continuing Calibration
- Blanks (Initial, Continuing Calibration, and Method)
- Field Blanks
- ICP Interference Check Sample
- MS/MSD
- Field Duplicates
- LCS
- ICP Serial Dilution
- Sample Result Verification

All items above were generated within acceptable QC specifications, with deviations detailed as follows. All data is considered to be valid and usable with the appropriate qualifiers, as noted on the AFCEE Form I-2's in Appendix E and within the following text.

7.1 **Holding Times**

All holding times were met within the acceptable time frame from collection for Inorganics (180 days) and mercury (28 days).

7.2 **Calibration**

All initial and continuing calibration was performed within acceptable limits for correlation coefficients of ≥ 0.995 and percent recovery.

7.3 **Blanks**

7.3.1 **Laboratory (Method) Blanks**

All initial calibration, continuing calibration, and method blanks were generated in accordance with acceptable limits, with the following exceptions.

7.3.1.1 **AAB No. 1027601002**

Calcium was detected in the method blank at 262 ug/L. The three equipment blank samples associated with this method blank were qualified with a 'B', to denote a concentration of greater than the PQL of calcium in the associated method blank.

7.3.2 **Field Blanks**

7.3.2.1 **AAB No. 1027601002**

Three equipment blanks were analyzed for the analytical batch. Inorganics detected over the PQL are as follows.

Sample ID

FC-WQ-EB-01 (10/22/96)	Sodium	655 ug/L
	Calcium	687 ug/L
	Iron	384 ug/L
FC-WQ-EB-02 (10/23/96)	Calcium	314 ug/L
FC-WQ-EB-03 (10/24/96)	Sodium	301 ug/L
	Calcium	275 ug/L

The samples associated with the equipment blanks above were qualified with a 'B', qualifier, for the compounds noted.

7.3.2.2 AAB No. 1027742101

Three equipment blanks were collected for the soil samples and analyzed for lead. Positive results were not detected for these equipment blanks.

7.3.2.3 AAB No. 1031601001

Two equipment blanks were collected for the soil samples and analyzed for Inorganics by Method 6010A. Inorganics detected over the PQL are as follows.

Sample ID

FC-WQ-EB-04 (10/24/96)	Calcium	303 ug/L
	Iron	85 ug/L
FC-WQ-EB-05 (10/26/96)	Calcium	306 ug/L

The samples associated with the equipment blanks above were qualified with a 'B' qualifier for the compounds noted.

7.3.2.4 AAB No. 1029747001

Three equipment blanks were analyzed for the analytical batch. Mercury was detected in the equipment blanks as follows.

Sample ID

FC-WQ-EB-01	Mercury	0.09 ug/L
FC-WQ-EB-02	Mercury	0.10 ug/L
FC-WQ-EB-03	Mercury	0.07 ug/L

The mercury results detected are all reported at less than the PQL. The samples were not qualified based upon these equipment blanks.

7.3.2.5 AAB No. 1105742101

Two equipment blanks were analyzed for the analytical batch. Lead was detected in FC-WQ-EB-05 at 2.05 ug/L. This result is less than the PQL, therefore, qualification of the associated samples is not required.

7.3.2.6 AAB No. 1030747001

Two equipment blanks were analyzed for the analytical batch. Mercury was not detected in either equipment blank.

7.4 ICP Interference Check

The recoveries for the ICP Interference Check samples were found to be within the acceptable 80-120% limit.

7.5 MS/MSD

All percent recoveries and relative percent difference for the MS/MSD samples were found to be acceptable, with the following exceptions.

7.5.1 AAB No. 1030601001

Sample ID

FC-SB20-02 (mg/Kg)	Aluminum	33% RPD	(Limit 25%)
	Cadmium	79% R	(Limit 80-120)
	Calcium	53.5% RPD	
	Magnesium	46.7% RPD	
	Nickel	75.9% R	
		76.2% R	
	Potassium	149.2% R	
	Zinc	177% R	
	74.5% R		
	76% R		

The soil samples included in AAB No. 1030601001 were qualified with an 'M', for possible matrix interference for the Inorganics noted above.

7.5.2 AAB No. 1106742101

Sample ID

FC-SB19-02 (mg/Kg)	Lead	64% R	(Limit 74-124)
		203% R	
		105% RPD	(Limit 25)

The samples included in AAB No. 1106742101 were qualified with an 'M', for possible matrix interference, due to poor accuracy and precision generated for the MS/MSD sample.

7.5.3 AAB No. 1210601001

Sample ID

FC-SB20-02 (mg/Kg)	Antimony	66% R	(Limit 80-120)
		51% R	
		26% RPD	(Limit 25)

The samples included in AAB No. 1210601001 were qualified with an 'M', for possible matrix interference, due to poor accuracy and precision generated for the MS/MSD.

7.6 Field Duplicates

7.6.1 AAB Nos. 1030601001, 1106742101, and 1210601001

Samples FC-SB19-01 and FC-SB19-02 were collected as the field duplicate samples and analyzed for Inorganics. Acceptable precision was generated. Table 2 includes calculated precision for the duplicate pair.

7.7 Laboratory Control Sample (LCS)

The aqueous and solid laboratory control samples were generated within the acceptable limit of 80-120% for recovery.

7.8 ICP Serial Dilution

ICP Serial Dilution was found to be within the acceptable limit of $\pm 10\%$ for the Inorganic analyses, with the following exceptions.

7.8.1 AAB No. 1030601001

Sample ID

FC-SB20-02	Beryllium	13.4% D
(mg/Kg)	Calcium	880.0%

The samples were qualified as 'J', estimated, for the positive results for beryllium and calcium.

7.8.2 AAB No. 1028601001 (TD12056)

Sample ID

FC-SB06-02	Selenium	57.4% D
(mg/Kg)		

The positive results for selenium for sample FC-SB06-02 were qualified as 'J', estimated. Positive results were not detected for selenium in the remaining associated samples.

7.8.3 AAB No. 1027601002

Sample ID

FC-WQ-EB-03	Barium	19.9% D
(ug/L)	Beryllium	453.1%
	Chromium	96.8%
	Copper	80.3%
	Iron	33.7%
	Magnesium	13.2%
	Sodium	190.9%

Sample FC-WQ-EB-03 was qualified as 'J', estimated, for the Inorganics noted above.

7.8.4 AAB No. 1031601001

Sample ID

FC-WQ-EB-04	Chromium	66.8% D
(ug/L)	Copper	56.8%
	Iron	35.4%

Sample FC-WQ-EB-04 was qualified as 'J', estimated, for the Inorganics noted above.

7.8.5 AAB No. 1210601001

Sample ID

FC-SB20-02	Antimony	236.1% D
(mg/Kg)		

The samples associated with this analytical batch were qualified as 'J', estimated, for antimony.

7.8.6 AAB No. 1119601003

Sample ID

FC-SB06-02	Zinc	55.5% D
(mg/Kg)		

The samples associated with this analytical batch were qualified as 'J', estimated, for zinc.

7.9 Sample Result Verification

Quantitative analyses are considered to be acceptable for the data set. Analyte quantitation was generated in accordance with protocols.

TABLE 1
FIELD DUPLICATE SAMPLE ANALYSIS
PRECISION FOR VOLATILES
RV and FAM CAMP Project
Results in mg/Kg (ppm)

Parameter	FC-SB05-04	FC-SB05-01	RPD**
Benzene	0.0003	ND	++
Toluene	0.0034	0.0013	89%
Ethyl Benzene	0.0004	ND	++
m,p-Xylenes	0.0009	ND	++
o-Xylenes	0.0004	ND	++
Methyl tert-butylether	ND	0.0018	++

** Relative Percent Difference (Calculated Precision)

ND Not Detected

++ Unable to be calculated due to non-detected results

TABLE 2
FIELD DUPLICATE SAMPLE ANALYSIS
PRECISION FOR INORGANICS

RV and FAM CAMP Project

Results in mg/Kg (ppm)

Parameter	FC-SB19-01	FC-SB19-02	RPD**
Aluminum	6161	5778	6%
Antimony	1.17	1.05	11%
Arsenic	3.42	3.26	5%
Barium	28.29	27.50	3%
Beryllium	0.33	0.30	10%
Cadmium	0.09	0.06	40%
Calcium	584845	573163	2%
Chromium	7.65	6.86	11%
Cobalt	1.65	1.76	6%
Copper	1.70	1.70	0%
Iron	5857	5794	1%
Lead	4.21	5.50	27%
Magnesium	1813	1776	2%
Manganese	65.96	76.04	14%
Mercury	0.04	ND	++
Nickel	5.05	4.82	5%
Potassium	1005	941	7%
Selenium	ND	ND	++
Silver	ND	ND	++
Sodium	110	99.72	10%
Thallium	ND	ND	++
Vanadium	18.06	17.91	1%
Zinc	8.42	6.97	19%

** Relative Percent Difference (Calculated Precision)

ND Not Detected

++ Unable to be calculated due to non-detected results

APPENDIX A

DATA SUMMARY FORMS

VOLATILE ORGANICS

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BLK

Lab Name: ITS-DALLAS

Contract: 9610IDIQ\3103

Lab Code:

AAB No.: AB903-84

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12056-19

Lab File ID: FD937

Date Received: 10/24/96

% Solids: 100

Date Extracted: 10/25/96

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
1,2,4-Trichlorobenzene	0.30	0.7	0.30	U
1,2-Dichlorobenzene	0.30	0.7	0.30	U
1,3-Dichlorobenzene	0.30	0.7	0.30	U
1,4-Dichlorobenzene	0.30	0.7	0.30	U
2,4-Dinitrotoluene	0.30	0.7	0.30	U
2,6-Dinitrotoluene	0.30	0.7	0.30	U
2-Chloronaphthalene	0.30	0.7	0.30	U
2-Methylnaphthalene	0.30	0.7	0.30	U
2-Nitroaniline	0.20	3.3	0.20	U
3-Nitroaniline	0.20	3.3	0.20	U
3,3'-Dichlorobenzidine	0.40	1.3	0.40	U
4-Bromophenyl phenyl ether	0.30	0.7	0.30	U
4-Chloroaniline	0.20	1.3	0.20	U
4-Chlorophenyl phenyl ether	0.30	0.7	0.30	U
4-Nitroaniline	0.30	3.3	0.30	U
Acenaphthylene	0.30	0.7	0.30	U
Acenaphthene	0.30	0.7	0.30	U
Anthracene	0.30	0.7	0.30	U
Benzo (a) anthracene	0.30	0.7	0.30	U
Benzo (a) pyrene	0.30	0.7	0.30	U
2,4-Dichlorophenol	0.15	0.3	0.15	U
Benzo (b) fluoranthene	0.30	0.7	0.30	U
Benzo (k) fluoranthene	0.30	0.7	0.30	U
Benzo (g, h, i) perylene	0.24	0.7	0.24	U
Benzyl alcohol	0.20	1.3	0.20	U
Bis (2-chloroethyl) ether	0.20	0.7	0.20	U
Bis (2-chloroethoxy) methane	0.20	0.7	0.20	U
Bis (2-chloroisopropyl) ether	0.30	0.7	0.30	U
Bis (2-ethylhexyl) phthalate	0.30	0.7	0.30	U
Butyl benzyl phthalate	0.30	0.7	0.30	U
Chrysene	0.30	0.7	0.30	U
Di-n-butylphthalate	0.30	0.7	0.30	U
Di-n-octylphthalate	0.30	0.7	0.30	U

AFCEE O-6

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O-6
8270B BLANK ORGANIC ANALYSIS DATA SHEET
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FIELD SAMPLE ID.

BLK

Lab Name: ITS-DALLAS
 Lab Code:
 Matrix: (soil/water) SOIL
 Lab File ID: FD937
 % Solids: 100
 Dilution Factor: 1.0

Contract: 9610IDIQ\3103
 AAB No.: AB903-84
 Lab Sample ID: D96-12056-19
 Date Received: 10/24/96
 Date Extracted: 10/25/96
 Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
Dibenz (a, h) anthracene	0.30	0.7	0.30	U
Dibenzofuran	0.30	0.7	0.30	U
Diethyl phthalate	0.24	0.7	0.24	U
Dimethyl phthalate	0.24	0.7	0.24	U
Fluoranthene	0.30	0.7	0.30	U
Fluorene	0.30	0.7	0.30	U
Hexachlorobenzene	0.30	0.7	0.30	U
Hexachlorobutadiene	0.30	0.7	0.30	U
Hexachlorocyclopentadiene	0.10	0.7	0.10	U
Hexachloroethane	0.30	0.7	0.30	U
Indeno (1, 2, 3- cd) pyrene	0.30	0.7	0.30	U
Isophorone	0.30	0.7	0.30	U
N-Nitrosodiphenylamine (1)	0.30	0.7	0.30	U
N-Nitrosodi-n-propylamine	0.30	0.7	0.30	U
Naphthalene	0.20	0.7	0.20	U
Nitrobenzene	0.30	0.7	0.30	U
Phenanthrene	0.30	0.7	0.30	U
Pyrene	0.30	0.7	0.30	U
2,4,5-Trichlorophenol	0.30	3.3	0.30	U
2,4,6-Trichlorophenol	0.15	0.3	0.15	U
2,4-Dimethylphenol	0.15	0.3	0.15	U
2,4-Dinitrophenol	0.20	3.3	0.20	U
2-Chlorophenol	0.15	0.3	0.15	U
2-Methylphenol	0.15	0.3	0.15	U
2-Nitrophenol	0.15	0.3	0.15	U
4,6-Dinitro-2-methylphenol	0.20	3.3	0.20	U
4-Chloro-3-methylphenol	0.20	1.3	0.20	U
4-Methylphenol	0.15	0.3	0.15	U
4-Nitrophenol	0.30	1.6	0.30	U
Benzoic acid	0.20	1.6	0.20	U
Pentachlorophenol	0.20	3.3	0.20	U
Phenol	0.15	0.3	0.15	U

(1) - Cannot be separated from Diphenylamine

AFCEE O-6

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METHOD BLANK

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610 ID IQ/3103

Lab Code: ITS-DALLAS

AAB No.: V12056

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12056-19

Lab File ID: BB7560301003

Date Received: 10/24/96

% Solids: 100

Date ~~Extracted: 10/30/96~~

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
1,1,1-Trichloroethane	0.0010	0.005	0.0010	U
1,1,2,2-Tetrachloroethane	0.0020	0.005	0.0020	U
1,1,2-Trichloroethane	0.0010	0.005	0.0010	U
1,1-Dichloroethane	0.0010	0.005	0.0010	U
1,1-Dichloroethene	0.0010	0.005	0.0010	U
1,2,3-Trichloropropane	0.0010	0.005	0.0010	U
1,2-Dichloroethane	0.0010	0.005	0.0010	U
1,2-Dichloropropane	0.0010	0.005	0.0010	U
Methyl ethyl ketone	0.0030	0.100	0.0030	U
2-Chloroethyl vinyl ether	0.0020	0.010	0.0020	U
2-Hexanone	0.0030	0.050	0.0030	U
Methyl isobutyl ketone	0.0020	0.050	0.0020	U
Acetone	0.0020	0.100	0.0020	U
Benzene	0.0010	0.005	0.0010	U
Bromodichloromethane	0.0010	0.005	0.0010	U
Bromoform	0.0010	0.005	0.0010	U
Bromomethane	0.0030	0.010	0.0030	U
Carbon disulfide	0.0010	0.005	0.0010	U
Carbon tetrachloride	0.0050	0.005	0.0050	U
Chlorobenzene	0.0010	0.005	0.0010	U
Chloroethane	0.0020	0.010	0.0020	U
Chloroform	0.0010	0.005	0.0010	U
Chloromethane	0.0010	0.010	0.0010	U
cis 1,2-Dichloroethene	0.0020	0.005	0.0020	U
cis 1,3-Dichloropropene	0.0010	0.005	0.0010	U
Chlorodibromomethane	0.0010	0.005	0.0010	U
Ethylbenzene	0.0020	0.005	0.0020	U
Methylene chloride	0.0020	0.005	0.0020	U
Styrene	0.0020	0.005	0.0020	U
Trichloroethene	0.0010	0.005	0.0010	U
Tetrachloroethene	0.0030	0.005	0.0030	U
Toluene	0.0010	0.005	0.0010	U
trans 1,2-Dichloroethene	0.0020	0.005	0.0020	U

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METHOD BLANK

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610 ID IQ/3103

Lab Code: ITS-DALLAS

AAB No.: V12056

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12056-19

Lab File ID: BB7560301003

Date Received: 10/24/96

% Solids: 100

~~Date Extracted: 10/30/96~~

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
trans 1,3-Dichloropropene	0.0010	0.005	0.0010	U
Vinyl acetate	0.0120	0.050	0.0120	U
Vinyl chloride	0.0010	0.010	0.0010	U
m,p-Xylene	0.0040	0.005	0.0040	U
o-Xylene	0.0040	0.005	0.0040	U

BLANK

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ\3103

Lab Code: DALLAS

AAB No.: 1029802001

Matrix: (soil/water) SOIL

Lab Sample ID: 12056-19

Lab File ID: 29OCT1611029

Date Received: 10/24/96

% Solids: 100.0

~~Date Extracted: 10/29/96~~

Dilution Factor: 1.0

Date Analyzed: 10/29/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
Benzene	0.0002	0.002	0.0002	U
Toluene	0.0003	0.002	0.0003	U
Ethyl benzene	0.0003	0.002	0.0003	U
m.p.-xylenes	0.0006	0.002	0.0006	U
o-Xylenes	0.0003	0.002	0.0003	U
Methyl tert-Butyl Ether	0.0003	0.002	0.0003	U

BLK

Lab Name: ITS-DALLAS

Contract: 9610IDIQ\3103

Lab Code:

AAB No.: AB903-98

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12092-15

Lab File ID: FD928

Date Received: 10/25/96

% Solids: 100

Date Extracted: 10/28/96

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
1,2,4-Trichlorobenzene	0.30	0.7	0.30	U
1,2-Dichlorobenzene	0.30	0.7	0.30	U
1,3-Dichlorobenzene	0.30	0.7	0.30	U
1,4-Dichlorobenzene	0.30	0.7	0.30	U
2,4-Dinitrotoluene	0.30	0.7	0.30	U
2,6-Dinitrotoluene	0.30	0.7	0.30	U
2-Chloronaphthalene	0.30	0.7	0.30	U
2-Methylnaphthalene	0.30	0.7	0.30	U
2-Nitroaniline	0.20	3.3	0.20	U
3-Nitroaniline	0.20	3.3	0.20	U
3,3'-Dichlorobenzidine	0.40	1.3	0.40	U
4-Bromophenyl phenyl ether	0.30	0.7	0.30	U
4-Chloroaniline	0.20	1.3	0.20	U
4-Chlorophenyl phenyl ether	0.30	0.7	0.30	U
4-Nitroaniline	0.30	3.3	0.30	U
Acenaphthylene	0.30	0.7	0.30	U
Acenaphthene	0.30	0.7	0.30	U
Anthracene	0.30	0.7	0.30	U
Benzo(a)anthracene	0.30	0.7	0.30	U
Benzo(a)pyrene	0.30	0.7	0.30	U
Benzo(b)fluoranthene	0.30	0.7	0.30	U
Benzo(k)fluoranthene	0.30	0.7	0.30	U
Benzo(g,h,i)perylene	0.24	0.7	0.24	U
Benzyl alcohol	0.20	1.3	0.20	U
Bis(2-chloroethyl)ether	0.20	0.7	0.20	U
Bis(2-chloroethoxy)methane	0.20	0.7	0.20	U
Bis(2-chloroisopropyl)ether	0.30	0.7	0.30	U
Bis(2-ethylhexyl)phthalate	0.30	0.7	0.30	U
Butyl benzyl phthalate	0.30	0.7	0.30	U
Chrysene	0.30	0.7	0.30	U
Di-n-butylphthalate	0.30	0.7	0.30	U
Di-n-octylphthalate	0.30	0.7	0.30	U
Dibenz(a,h)anthracene	0.30	0.7	0.30	U

METHOD BLANK

Lab Name: INCHCAPE TESTING SERVICES

Contract: 9610 ID/3103

Lab Code: ITS-DALLAS

AAB No.: V12092

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12092-15

Lab File ID: BB7560301003

Date Received: 10/26/96

% Solids: 100

~~Date Extracted: 10/30/96~~

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
1,1,1-Trichloroethane	0.0010	0.005	0.0010	U
1,1,2,2-Tetrachloroethane	0.0020	0.005	0.0020	U
1,1,2-Trichloroethane	0.0010	0.005	0.0010	U
1,1-Dichloroethane	0.0010	0.005	0.0010	U
1,1-Dichloroethene	0.0010	0.005	0.0010	U
1,2,3-Trichloropropane	0.0010	0.005	0.0010	U
1,2-Dichloroethane	0.0010	0.005	0.0010	U
1,2-Dichloropropane	0.0010	0.005	0.0010	U
Methyl ethyl ketone	0.0030	0.100	0.0030	U
2-Chloroethyl vinyl ether	0.0020	0.010	0.0020	U
2-Hexanone	0.0030	0.050	0.0030	U
Methyl isobutyl ketone	0.0020	0.050	0.0020	U
Acetone	0.0020	0.100	0.0020	U
Benzene	0.0010	0.005	0.0010	U
Bromodichloromethane	0.0010	0.005	0.0010	U
Bromoform	0.0010	0.005	0.0010	U
Bromomethane	0.0030	0.010	0.0030	U
Carbon disulfide	0.0010	0.005	0.0010	U
Carbon tetrachloride	0.0050	0.005	0.0050	U
Chlorobenzene	0.0010	0.005	0.0010	U
Chloroethane	0.0020	0.010	0.0020	U
Chloroform	0.0010	0.005	0.0010	U
Chloromethane	0.0010	0.010	0.0010	U
cis 1,2-Dichloroethene	0.0020	0.005	0.0020	U
cis 1,3-Dichloropropene	0.0010	0.005	0.0010	U
Chlorodibromomethane	0.0010	0.005	0.0010	U
Ethylbenzene	0.0020	0.005	0.0020	U
Methylene chloride	0.0020	0.005	0.0020	U
Styrene	0.0020	0.005	0.0020	U
Trichloroethene	0.0010	0.005	0.0010	U
Tetrachloroethene	0.0030	0.005	0.0030	U
Toluene	0.0010	0.005	0.0010	U
trans 1,2-Dichloroethene	0.0020	0.005	0.0020	U

METHOD BLANK

Lab Name: INCHCAPE TESTING SERVICES

Contract: 9610 ID/3103

Lab Code: ITS-DALLAS

AAB No.: V12092

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12092-15

Lab File ID: BB7560301003

Date Received: 10/26/96

% Solids: 100

~~Date Extracted: 10/30/96~~

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
trans 1,3-Dichloropropene	0.0010	0.005	0.0010	U
Vinyl acetate	0.0120	0.050	0.0120	U
Vinyl chloride	0.0010	0.010	0.0010	U
m,p-Xylene	0.0040	0.005	0.0040	U
o-Xylene	0.0040	0.005	0.0040	U

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BLK

Lab Name: ITS-DALLAS
 Lab Code:
 Matrix: (soil/water) WATER
 Lab File ID: FD949
 % Solids: NA
 Dilution Factor: 1.0

Contract: 9610IDIQ\3103
 AAB No.: AB925-4
 Lab Sample ID: D96-12092-17
 Date Received: 10/25/96
 Date Extracted: 10/29/96
 Date Analyzed: 10/30/96

CONCENTRATION UNITS: UG/L

COMPOUND	MDL	PQL	RESULT	Q
1,2,4-Trichlorobenzene	2.60	10.0	2.60	U
1,2-Dichlorobenzene	3.20	10.0	3.20	U
1,3-Dichlorobenzene	3.30	10.0	3.30	U
1,4-Dichlorobenzene	3.40	10.0	3.40	U
2,4-Dinitrotoluene	2.00	10.0	2.00	U
2,6-Dinitrotoluene	1.60	10.0	1.60	U
2-Chloronaphthalene	1.70	10.0	1.70	U
2-Methylnaphthalene	1.90	10.0	1.90	U
2-Nitroaniline	2.10	50.0	2.10	U
3-Nitroaniline	1.90	50.0	1.90	U
3,3'-Dichlorobenzidine	3.10	20.0	3.10	U
4-Bromophenyl phenyl ether	1.00	10.0	1.00	U
4-Chloroaniline	2.10	20.0	2.10	U
4-Chlorophenyl phenyl ether	1.60	10.0	1.60	U
4-Nitroaniline	2.60	50.0	2.60	U
Acenaphthylene	1.60	10.0	1.60	U
Acenaphthene	1.60	10.0	1.60	U
Anthracene	1.80	10.0	1.80	U
Benzo(a)anthracene	1.80	10.0	1.80	U
Benzo(a)pyrene	1.60	10.0	1.60	U
Benzo(b)fluoranthene	4.30	10.0	4.30	U
Benzo(k)fluoranthene	4.30	10.0	4.30	U
Benzo(g,h,i)perylene	1.60	10.0	1.60	U
Benzyl alcohol	2.90	20.0	2.90	U
Bis(2-chloroethyl)ether	2.90	10.0	2.90	U
Bis(2-chloroethoxy)methane	2.20	10.0	2.20	U
Bis(2-chloroisopropyl)ether	2.30	10.0	2.30	U
Bis(2-ethylhexyl)phthalate	3.50	10.0	3.50	U
Butyl benzyl phthalate	1.80	10.0	1.80	U
Chrysene	1.60	10.0	1.60	U
Di-n-butylphthalate	1.60	10.0	1.60	U
Di-n-octylphthalate	2.40	10.0	2.40	U
Dibenz(a,h)anthracene	1.60	10.0	1.60	U

BLANK

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ\3103

Lab Code: DALLAS

AAB No.: 1101802001

Matrix: (soil/water) SOIL

Lab Sample ID: 12092-15

Lab File ID: 01NOV1927101

Date Received: 10/25/96

% Solids: 100

~~Date Extracted: 11/01/96~~

Dilution Factor: 1.0

Date Analyzed: 11/01/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
Benzene	0.0002	0.002	0.0002	U
Toluene	0.0003	0.002	0.0003	U
Ethyl benzene	0.0003	0.002	0.0003	U
m.p. -xylenes	0.0006	0.002	0.0006	U
o-Xylenes	0.0003	0.002	0.0003	U
Methyl tert-Butyl Ether	0.0003	0.002	0.0003	U

METHOD BLANK

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610 ID/3103

Lab Code: ITS-DALLAS

AAB No.: V12092

Matrix: (soil/water) WATER

Lab Sample ID: D96-12092-16

Lab File ID: DD7371201012

Date Received: 10/25/96

% Solids: NA

Date ~~Extracted: 10/31/96~~ *o*

Dilution Factor: 1.0

Date Analyzed: 10/31/96

CONCENTRATION UNITS: UG/L

COMPOUND	MDL	PQL	RESULT	Q
Vinyl acetate	3.85	50.0	3.85	U
Vinyl chloride	2.31	10.0	2.31	U
m,p-Xylene	3.16	5.0	3.16	U
o-Xylene	4.93	5.0	4.93	U

METHOD BLANK

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610 ID/3103

Lab Code: ITS-DALLAS

AAB No.: V12092

Matrix: (soil/water) WATER

Lab Sample ID: D96-12092-17

Lab File ID: DD7371201012

Date Received: 10/25/96

% Solids: NA

~~Date Extracted: 10/31/96~~

Dilution Factor: 1.0

Date Analyzed: 10/31/96

CONCENTRATION UNITS: UG/L

COMPOUND	MDL	PQL	RESULT	Q
1,1,1-Trichloroethane	1.22	5.0	1.22	U
1,1,2,2-Tetrachloroethane	3.95	5.0	3.95	U
1,1,2-Trichloroethane	1.61	5.0	1.61	U
1,1-Dichloroethane	1.48	5.0	1.48	U
1,1-Dichloroethene	1.30	5.0	1.30	U
1,2,3-Trichloropropane	0.90	5.0	0.90	U
1,2-Dichloroethane	1.18	5.0	1.18	U
1,2-Dichloropropane	1.38	5.0	1.38	U
2-Chloroethylvinyl ether	0.08	5.0	0.08	U
2-Hexanone	2.69	50.0	2.69	U
Acetone	6.54	100.0	6.54	U
Benzene	1.13	5.0	1.13	U
Bromodichloromethane	1.80	5.0	1.80	U
Bromofom	0.92	5.0	0.92	U
Bromomethane	2.57	10.0	2.57	U
Carbon disulfide	1.58	5.0	1.58	U
Carbon tetrachloride	0.79	5.0	0.79	U
Chlorobenzene	0.84	5.0	0.84	U
Chloroethane	1.16	10.0	1.16	U
Chloroform	1.42	5.0	1.42	U
Chloromethane	2.39	10.0	2.39	U
cis-1,3-Dichloropropene	1.06	5.0	1.06	U
Chlorodibromomethane	1.23	5.0	1.23	U
Ethylbenzene	1.86	5.0	1.86	U
2-Butanone	7.68	100.0	7.68	U
4-Methyl-2-pentanone	2.75	50.0	2.75	U
Methylene chloride	1.57	5.0	1.57	U
Styrene	1.01	5.0	1.01	U
Tetrachloroethene	0.92	5.0	0.92	U
Toluene	0.95	5.0	0.95	U
cis-1,2-Dichloroethene	1.64	5.0	1.64	U
trans-1,2-Dichloroethene	1.64	5.0	1.64	U
trans-1,3-Dichloropropene	1.41	5.0	1.41	U
Trichloroethene	1.69	5.0	1.69	U

FC-SB16-01

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610 ID IQ/3103

Lab Code: ITS-DALLAS

AAB No.: V12170-SOIL

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12170-1

Lab File ID: BB7561201012

Date Received: 10/25/96

% Solids: 96

~~Date Extracted: 10/30/96~~

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
1,1,1-Trichloroethane	0.0010	0.005	0.0010	U
1,1,2,2-Tetrachloroethane	0.0021	0.005	0.0021	U
1,1,2-Trichloroethane	0.0010	0.005	0.0010	U
1,1-Dichloroethane	0.0010	0.005	0.0010	U
1,1-Dichloroethene	0.0010	0.005	0.0010	U
1,2,3-Trichloropropane	0.0010	0.050	0.0010	U
1,2-Dichloroethane	0.0010	0.005	0.0010	U
1,2-Dichloropropane	0.0010	0.005	0.0010	U
Methyl ethyl ketone	0.0031	0.100	0.0031	U
2-Chloroethyl vinyl ether	0.0021	0.010	0.0021	U
2-Hexanone	0.0031	0.050	0.0031	U
Methyl isobutyl ketone	0.0021	0.050	0.0021	U
Acetone	0.0021	0.100	0.0021	U
Benzene	0.0010	0.005	0.0010	U
Bromodichloromethane	0.0010	0.005	0.0010	U
Bromoform	0.0010	0.005	0.0010	U
Bromomethane	0.0031	0.010	0.0031	U
Carbon disulfide	0.0010	0.005	0.0010	U
Carbon tetrachloride	0.0052	0.005	0.0052	U
Chlorobenzene	0.0010	0.005	0.0010	U
Chloroethane	0.0021	0.010	0.0021	U
Chloroform	0.0010	0.005	0.0010	U
Chloromethane	0.0010	0.010	0.0010	U
cis 1,2-Dichloroethene	0.0021	0.005	0.0021	U
cis 1,3-Dichloropropene	0.0010	0.005	0.0010	U
Chlorodibromomethane	0.0010	0.005	0.0010	U
Ethylbenzene	0.0021	0.005	0.0021	U
Methylene chloride	0.0021	0.005	0.0021	U
Styrene	0.0021	0.005	0.0021	U
Trichloroethene	0.0010	0.005	0.0010	U
Tetrachloroethane	0.0031	0.005	0.0031	U
Toluene	0.0010	0.005	0.0010	U
trans 1,2-Dichloroethene	0.0021	0.005	0.0021	U

Revised
2439

FC-SB16-01

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610 ID IQ/3103

Lab Code: ITS-DALLAS

AAB No.: V12170-SOIL

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12170-1

Lab File ID: BB7561201012

Date Received: 10/25/96

% Solids: 96

~~Date Extracted: 10/30/96~~

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
trans 1,3-Dichloropropene	0.0010	0.005	0.0010	U
Vinyl acetate	0.0125	0.050	0.0125	U
Vinyl chloride	0.0010	0.010	0.0010	U
m,p-Xylene	0.0042	0.005	0.0042	U
o-Xylene	0.0042	0.005	0.0042	U

Revised
1440

FC-SB16-01

Lab Name: ITS-DALLAS
 Lab Code:
 Matrix: (soil/water) SOIL
 Lab File ID: FD995
 % Solids: 96
 Dilution Factor: 1.0

Contract: 9610IDIQ\3103
 AAB No.: AB925-10
 Lab Sample ID: D96-12170-1
 Date Received: 10/25/96
 Date Extracted: 10/29/96
 Date Analyzed: 11/01/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
1,2,4-Trichlorobenzene	0.31	0.7	0.31	U
1,2-Dichlorobenzene	0.31	0.7	0.31	U
1,3-Dichlorobenzene	0.31	0.7	0.31	U
1,4-Dichlorobenzene	0.31	0.7	0.31	U
2,4-Dinitrotoluene	0.31	0.7	0.31	U
2,6-Dinitrotoluene	0.31	0.7	0.31	U
2-Chloronaphthalene	0.31	0.7	0.31	U
2-Methylnaphthalene	0.31	0.7	0.31	U
2-Nitroaniline	0.21	3.3	0.21	U
3-Nitroaniline	0.21	3.3	0.21	U
3,3'-Dichlorobenzidine	0.42	1.3	0.42	U
4-Bromophenyl phenyl ether	0.31	0.7	0.31	U
4-Chloroaniline	0.21	1.3	0.21	U
4-Chlorophenyl phenyl ether	0.31	0.7	0.31	U
4-Nitroaniline	0.31	3.3	0.31	U
Acenaphthylene	0.31	0.7	0.31	U
Acenaphthene	0.31	0.7	0.31	U
Anthracene	0.31	0.7	0.31	U
Benzo(a)anthracene	0.31	0.7	0.31	U
Benzo(a)pyrene	0.31	0.7	0.31	U
2,4-Dichlorophenol	0.16	0.3	0.16	U
Benzo(b)fluoranthene	0.31	0.7	0.31	U
Benzo(k)fluoranthene	0.31	0.7	0.31	U
Benzo(g,h,i)perylene	0.25	0.7	0.25	U
Benzyl alcohol	0.21	1.3	0.21	U
Bis(2-chloroethyl)ether	0.21	0.7	0.21	U
Bis(2-chloroethoxy)methane	0.21	0.7	0.21	U
Bis(2-chloroisopropyl)ether	0.31	0.7	0.31	U
Bis(2-ethylhexyl)phthalate	0.31	0.7	0.31	U
Butyl benzyl phthalate	0.31	0.7	0.31	U
Chrysene	0.31	0.7	0.31	U
Di-n-butylphthalate	0.31	0.7	0.31	U
Di-n-octylphthalate	0.31	0.7	0.31	U

FC-SB16-02

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610 ID IQ/3103

Lab Code: ITS-DALLAS

AAB No.: V12170-SOIL

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12170-2

Lab File ID: BB7561301013

Date Received: 10/25/96

% Solids: 95

~~Date Extracted: 10/30/96~~

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
1,1,1-Trichloroethane	0.0010	0.005	0.0010	U
1,1,2,2-Tetrachloroethane	0.0021	0.005	0.0021	U
1,1,2-Trichloroethane	0.0010	0.005	0.0010	U
1,1-Dichloroethane	0.0010	0.005	0.0010	U
1,1-Dichloroethene	0.0010	0.005	0.0010	U
1,2,3-Trichloropropane	0.0010	0.050	0.0010	U
1,2-Dichloroethane	0.0010	0.005	0.0010	U
1,2-Dichloropropane	0.0010	0.005	0.0010	U
Methyl ethyl ketone	0.0031	0.100	0.0031	U
2-Chloroethyl vinyl ether	0.0021	0.010	0.0021	U
2-Hexanone	0.0031	0.050	0.0031	U
Methyl isobutyl ketone	0.0021	0.050	0.0021	U
Acetone	0.0021	0.100	0.0021	U
Benzene	0.0010	0.005	0.0010	U
Bromodichloromethane	0.0010	0.005	0.0010	U
Bromoform	0.0010	0.005	0.0010	U
Bromomethane	0.0031	0.010	0.0031	U
Carbon disulfide	0.0010	0.005	0.0010	U
Carbon tetrachloride	0.0052	0.005	0.0052	U
Chlorobenzene	0.0010	0.005	0.0010	U
Chloroethane	0.0021	0.010	0.0021	U
Chloroform	0.0010	0.005	0.0010	U
Chloromethane	0.0010	0.010	0.0010	U
cis 1,2-Dichloroethene	0.0021	0.005	0.0021	U
cis 1,3-Dichloropropene	0.0010	0.005	0.0010	U
Chlorodibromomethane	0.0010	0.005	0.0010	U
Ethylbenzene	0.0021	0.005	0.0021	U
Methylene chloride	0.0021	0.005	0.0021	U
Styrene	0.0021	0.005	0.0021	U
Trichloroethene	0.0010	0.005	0.0010	U
Tetrachloroethene	0.0031	0.005	0.0031	U
Toluene	0.0010	0.005	0.0010	U
trans 1,2-Dichloroethene	0.0021	0.005	0.0021	U

FC-SB16-02

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610 ID IQ/3103

Lab Code: ITS-DALLAS

AAB No.: V12170-SOIL

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12170-2

Lab File ID: BB7561301013

Date Received: 10/25/96

% Solids: 95

~~Date Extracted: 10/30/96~~

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
trans 1,3-Dichloropropene	0.0010	0.005	0.0010	U
Vinyl acetate	0.0125	0.050	0.0125	U
Vinyl chloride	0.0010	0.010	0.0010	U
m,p-Xylene	0.0042	0.005	0.0042	U
o-Xylene	0.0042	0.005	0.0042	U

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1442

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Lab Name: ITS-DALLAS

Contract: 9610IDIQ\3103

Lab Code:

AAB No.: AB925-10

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12170-2

Lab File ID: FD996

Date Received: 10/25/96

% Solids: 95

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 11/01/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
1,2,4-Trichlorobenzene	0.32	0.7	0.32	U
1,2-Dichlorobenzene	0.32	0.7	0.32	U
1,3-Dichlorobenzene	0.32	0.7	0.32	U
1,4-Dichlorobenzene	0.32	0.7	0.32	U
2,4-Dinitrotoluene	0.32	0.7	0.32	U
2,6-Dinitrotoluene	0.32	0.7	0.32	U
2-Chloronaphthalene	0.32	0.7	0.32	U
2-Methylnaphthalene	0.32	0.7	0.32	U
2-Nitroaniline	0.21	3.3	0.21	U
3-Nitroaniline	0.21	3.3	0.21	U
3,3'-Dichlorobenzidine	0.42	1.3	0.42	U
4-Bromophenyl phenyl ether	0.32	0.7	0.32	U
4-Chloroaniline	0.21	1.3	0.21	U
4-Chlorophenyl phenyl ether	0.32	0.7	0.32	U
4-Nitroaniline	0.32	3.3	0.32	U
Acenaphthylene	0.32	0.7	0.32	U
Acenaphthene	0.32	0.7	0.32	U
Anthracene	0.32	0.7	0.32	U
Benzo (a) anthracene	0.32	0.7	0.32	U
Benzo (a) pyrene	0.32	0.7	0.32	U
2,4-Dichlorophenol	0.16	0.3	0.16	U
Benzo (b) fluoranthene	0.32	0.7	0.32	U
Benzo (k) fluoranthene	0.32	0.7	0.32	U
Benzo (g,h,i) perylene	0.25	0.7	0.25	U
Benzyl alcohol	0.21	1.3	0.21	U
Bis (2-chloroethyl) ether	0.21	0.7	0.21	U
Bis (2-chloroethoxy) methane	0.21	0.7	0.21	U
Bis (2-chloroisopropyl) ether	0.32	0.7	0.32	U
Bis (2-ethylhexyl) phthalate	0.32	0.7	0.32	U
Butyl benzyl phthalate	0.32	0.7	0.32	U
Chrysene	0.32	0.7	0.32	U
Di-n-butylphthalate	0.32	0.7	0.32	U
Di-n-octylphthalate	0.32	0.7	0.32	U

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FC-SB17-01

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610 ID IQ/3103

Lab Code: ITS-DALLAS

AAB No.: V12170-SOIL

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12170-3

Lab File ID: BB7561401014

Date Received: 10/25/96

% Solids: 95

~~Date Extracted: 10/30/96~~

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
1,1,1-Trichloroethane	0.0010	0.005	0.0010	U
1,1,2,2-Tetrachloroethane	0.0021	0.005	0.0021	U
1,1,2-Trichloroethane	0.0010	0.005	0.0010	U
1,1-Dichloroethane	0.0010	0.005	0.0010	U
1,1-Dichloroethene	0.0010	0.005	0.0010	U
1,2,3-Trichloropropane	0.0010	0.050	0.0010	U
1,2-Dichloroethane	0.0010	0.005	0.0010	U
1,2-Dichloropropane	0.0010	0.005	0.0010	U
Methyl ethyl ketone	0.0031	0.100	0.0031	U
2-Chloroethyl vinyl ether	0.0021	0.010	0.0021	U
2-Hexanone	0.0031	0.050	0.0031	U
Methyl isobutyl ketone	0.0021	0.050	0.0021	U
Acetone	0.0021	0.100	0.0021	U
Benzene	0.0010	0.005	0.0010	U
Bromodichloromethane	0.0010	0.005	0.0010	U
Bromoform	0.0010	0.005	0.0010	U
Bromomethane	0.0031	0.010	0.0031	U
Carbon disulfide	0.0010	0.005	0.0010	U
Carbon tetrachloride	0.0052	0.005	0.0052	U
Chlorobenzene	0.0010	0.005	0.0010	U
Chloroethane	0.0021	0.010	0.0021	U
Chloroform	0.0010	0.005	0.0010	U
Chloromethane	0.0010	0.010	0.0010	U
cis 1,2-Dichloroethene	0.0021	0.005	0.0021	U
cis 1,3-Dichloropropene	0.0010	0.005	0.0010	U
Chlorodibromomethane	0.0010	0.005	0.0010	U
Ethylbenzene	0.0021	0.005	0.0021	U
Methylene chloride	0.0021	0.005	0.0021	U
Styrene	0.0021	0.005	0.0021	U
Trichloroethene	0.0010	0.005	0.0010	U
Tetrachloroethene	0.0031	0.005	0.0031	U
Toluene	0.0010	0.005	0.0010	U
trans 1,2-Dichloroethene	0.0021	0.005	0.0021	U

Revised
1443

FC-SB17-01

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610 ID IQ/3103

Lab Code: ITS-DALLAS

AAB No.: V12170-SOIL

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12170-3

Lab File ID: BB7561401014

Date Received: 10/25/96

% Solids: 95

~~Date Extracted: 10/30/96~~

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
trans 1,3-Dichloropropene	0.0010	0.005	0.0010	U
Vinyl acetate	0.0125	0.050	0.0125	U
Vinyl chloride	0.0010	0.010	0.0010	U
m,p-Xylene	0.0042	0.005	0.0042	U
o-Xylene	0.0042	0.005	0.0042	U

Revised
1111

FC-SB17-01

Lab Name: ITS-DALLAS
 Lab Code:
 Matrix: (soil/water) SOIL
 Lab File ID: FD997
 % Solids: 95
 Dilution Factor: 1.0

Contract: 9610IDIQ\3103
 AAB No.: AB925-10
 Lab Sample ID: D96-12170-3
 Date Received: 10/25/96
 Date Extracted: 10/29/96
 Date Analyzed: 11/01/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
1,2,4-Trichlorobenzene	0.32	0.7	0.32	U
1,2-Dichlorobenzene	0.32	0.7	0.32	U
1,3-Dichlorobenzene	0.32	0.7	0.32	U
1,4-Dichlorobenzene	0.32	0.7	0.32	U
2,4-Dinitrotoluene	0.32	0.7	0.32	U
2,6-Dinitrotoluene	0.32	0.7	0.32	U
2-Chloronaphthalene	0.32	0.7	0.32	U
2-Methylnaphthalene	0.32	0.7	0.32	U
2-Nitroaniline	0.21	3.3	0.21	U
3-Nitroaniline	0.21	3.3	0.21	U
3,3'-Dichlorobenzidine	0.42	1.3	0.42	U
4-Bromophenyl phenyl ether	0.32	0.7	0.32	U
4-Chloroaniline	0.21	1.3	0.21	U
4-Chlorophenyl phenyl ether	0.32	0.7	0.32	U
4-Nitroaniline	0.32	3.3	0.32	U
Acenaphthylene	0.32	0.7	0.32	U
Acenaphthene	0.32	0.7	0.32	U
Anthracene	0.32	0.7	0.32	U
Benzo(a)anthracene	0.32	0.7	0.32	U
Benzo(a)pyrene	0.32	0.7	0.32	U
2,4-Dichlorophenol	0.16	0.3	0.16	U
Benzo(b)fluoranthene	0.32	0.7	0.32	U
Benzo(k)fluoranthene	0.32	0.7	0.32	U
Benzo(g,h,i)perylene	0.25	0.7	0.25	U
Benzyl alcohol	0.21	1.3	0.21	U
Bis(2-chloroethyl)ether	0.21	0.7	0.21	U
Bis(2-chloroethoxy)methane	0.21	0.7	0.21	U
Bis(2-chloroisopropyl)ether	0.32	0.7	0.32	U
Bis(2-ethylhexyl)phthalate	0.32	0.7	0.32	U
Butyl benzyl phthalate	0.32	0.7	0.32	U
Chrysene	0.32	0.7	0.32	U
Di-n-butylphthalate	0.32	0.7	0.32	U
Di-n-octylphthalate	0.32	0.7	0.32	U

FC-SB18-01

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610 ID IQ/3103

Lab Code: ITS-DALLAS

AAB No.: V12170-SOIL

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12170-4

Lab File ID: BB7561501015

Date Received: 10/25/96

% Solids: 94

~~Date Extracted: 10/30/96~~

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
1,1,1-Trichloroethane	0.0011	0.005	0.0011	U
1,1,2,2-Tetrachloroethane	0.0022	0.005	0.0022	U
1,1,2-Trichloroethane	0.0011	0.005	0.0011	U
1,1-Dichloroethane	0.0011	0.005	0.0011	U
1,1-Dichloroethene	0.0011	0.005	0.0011	U
1,2,3-Trichloropropane	0.0011	0.050	0.0011	U
1,2-Dichloroethane	0.0011	0.005	0.0011	U
1,2-Dichloropropane	0.0011	0.005	0.0011	U
Methyl ethyl ketone	0.0033	0.100	0.0033	U
2-Chloroethyl vinyl ether	0.0022	0.010	0.0022	U
2-Hexanone	0.0033	0.050	0.0033	U
Methyl isobutyl ketone	0.0022	0.050	0.0022	U
Acetone	0.0022	0.100	0.0022	U
Benzene	0.0011	0.005	0.0011	U
Bromodichloromethane	0.0011	0.005	0.0011	U
Bromoform	0.0011	0.005	0.0011	U
Bromomethane	0.0033	0.010	0.0033	U
Carbon disulfide	0.0011	0.005	0.0011	U
Carbon tetrachloride	0.0054	0.005	0.0054	U
Chlorobenzene	0.0011	0.005	0.0011	U
Chloroethane	0.0022	0.010	0.0022	U
Chloroform	0.0011	0.005	0.0011	U
Chloromethane	0.0011	0.010	0.0011	U
cis 1,2-Dichloroethene	0.0022	0.005	0.0022	U
cis 1,3-Dichloropropene	0.0011	0.005	0.0011	U
Chlorodibromomethane	0.0011	0.005	0.0011	U
Ethylbenzene	0.0022	0.005	0.0022	U
Methylene chloride	0.0022	0.005	0.0022	U
Styrene	0.0022	0.005	0.0022	U
Trichloroethene	0.0011	0.005	0.0011	U
Tetrachloroethene	0.0033	0.005	0.0033	U
Toluene	0.0011	0.005	0.0011	U
trans 1,2-Dichloroethene	0.0022	0.005	0.0022	U

Revised
1445

FC-SB18-01

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610 ID IQ/3103

Lab Code: ITS-DALLAS

AAB No.: V12170-SOIL

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12170-4

Lab File ID: BB7561501015

Date Received: 10/25/96

% Solids: 92

~~Date Extracted: 10/30/96~~

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
trans 1,3-Dichloropropene	0.0011	0.005	0.0011	U
Vinyl acetate	0.0130	0.050	0.0130	U
Vinyl chloride	0.0011	0.010	0.0011	U
m,p-Xylene	0.0043	0.005	0.0043	U
o-Xylene	0.0043	0.005	0.0043	U

Revised
1446

FC-SB18-01

Lab Name: ITS-DALLAS

Contract: 9610IDIQ\3103

Lab Code:

AAB No.: AB925-10

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12170-4

Lab File ID: FD998

Date Received: 10/25/96

% Solids: 94

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 11/01/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
1,2,4-Trichlorobenzene	0.32	0.7	0.32	U
1,2-Dichlorobenzene	0.32	0.7	0.32	U
1,3-Dichlorobenzene	0.32	0.7	0.32	U
1,4-Dichlorobenzene	0.32	0.7	0.32	U
2,4-Dinitrotoluene	0.32	0.7	0.32	U
2,6-Dinitrotoluene	0.32	0.7	0.32	U
2-Chloronaphthalene	0.32	0.7	0.32	U
2-Methylnaphthalene	0.32	0.7	0.32	U
2-Nitroaniline	0.21	3.3	0.21	U
3-Nitroaniline	0.21	3.3	0.21	U
3,3'-Dichlorobenzidine	0.42	1.3	0.42	U
4-Bromophenyl phenyl ether	0.32	0.7	0.32	U
4-Chloroaniline	0.21	1.3	0.21	U
4-Chlorophenyl phenyl ether	0.32	0.7	0.32	U
4-Nitroaniline	0.32	3.3	0.32	U
Acenaphthylene	0.32	0.7	0.32	U
Acenaphthene	0.32	0.7	0.32	U
Anthracene	0.32	0.7	0.32	U
Benzo(a)anthracene	0.32	0.7	0.32	U
Benzo(a)pyrene	0.32	0.7	0.32	U
2,4-Dichlorophenol	0.16	0.3	0.16	U
Benzo(b)fluoranthene	0.32	0.7	0.32	U
Benzo(k)fluoranthene	0.32	0.7	0.32	U
Benzo(g,h,i)perylene	0.25	0.7	0.25	U
Benzyl alcohol	0.21	1.3	0.21	U
Bis(2-chloroethyl)ether	0.21	0.7	0.21	U
Bis(2-chloroethoxy)methane	0.21	0.7	0.21	U
Bis(2-chloroisopropyl)ether	0.32	0.7	0.32	U
Bis(2-ethylhexyl)phthalate	0.32	0.7	0.32	U
Butyl benzyl phthalate	0.32	0.7	0.32	U
Chrysene	0.32	0.7	0.32	U
Di-n-butylphthalate	0.32	0.7	0.32	U
Di-n-octylphthalate	0.32	0.7	0.32	U

430 238

FC-SB18-02

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610 ID IQ/3103

Lab Code: ITS-DALLAS

AAB No.: V12170-SOIL

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12170-5

Lab File ID: BB7561601016

Date Received: 10/25/96

% Solids: 92

Date Extracted: 10/30/96

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
1,1,1-Trichloroethane	0.0011	0.005	0.0011	U
1,1,2,2-Tetrachloroethane	0.0022	0.005	0.0022	U
1,1,2-Trichloroethane	0.0011	0.005	0.0011	U
1,1-Dichloroethane	0.0011	0.005	0.0011	U
1,1-Dichloroethene	0.0011	0.005	0.0011	U
1,2,3-Trichloropropane	0.0011	0.050	0.0011	U
1,2-Dichloroethane	0.0011	0.005	0.0011	U
1,2-Dichloropropane	0.0011	0.005	0.0011	U
Methyl ethyl ketone	0.0033	0.100	0.0033	U
2-Chloroethyl vinyl ether	0.0022	0.010	0.0022	U
2-Hexanone	0.0033	0.050	0.0033	U
Methyl isobutyl ketone	0.0022	0.050	0.0022	U
Acetone	0.0022	0.100	0.0022	U
Benzene	0.0011	0.005	0.0011	U
Bromodichloromethane	0.0011	0.005	0.0011	U
Bromoform	0.0011	0.005	0.0011	U
Bromomethane	0.0033	0.010	0.0033	U
Carbon disulfide	0.0011	0.005	0.0011	U
Carbon tetrachloride	0.0054	0.005	0.0054	U
Chlorobenzene	0.0011	0.005	0.0011	U
Chloroethane	0.0022	0.010	0.0022	U
Chloroform	0.0011	0.005	0.0011	U
Chloromethane	0.0011	0.010	0.0011	U
cis 1,2-Dichloroethene	0.0022	0.005	0.0022	U
cis 1,3-Dichloropropene	0.0011	0.005	0.0011	U
Chlorodibromomethane	0.0011	0.005	0.0011	U
Ethylbenzene	0.0022	0.005	0.0022	U
Methylene chloride	0.0022	0.005	0.0022	U
Styrene	0.0022	0.005	0.0022	U
Trichloroethene	0.0011	0.005	0.0011	U
Tetrachloroethene	0.0033	0.005	0.0033	U
Toluene	0.0011	0.005	0.0011	U
trans 1,2-Dichloroethene	0.0022	0.005	0.0022	U

Revised
2447

FC-SB18-02

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610 ID IQ/3103

Lab Code: ITS-DALLAS

AAB No.: V12170-SOIL

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12170-5

Lab File ID: BB7561601016

Date Received: 10/25/96

% Solids: 92

~~Date Extracted: 10/30/96~~

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
trans 1,3-Dichloropropene	0.0011	0.005	0.0011	U
Vinyl acetate	0.0130	0.050	0.0130	U
Vinyl chloride	0.0011	0.010	0.0011	U
m,p-Xylene	0.0043	0.005	0.0043	U
o-Xylene	0.0043	0.005	0.0043	U

430 240

FC-SB18-02

Lab Name: ITS-DALLAS
 Lab Code:
 Matrix: (soil/water) SOIL
 Lab File ID: FD999
 % Solids: 92
 Dilution Factor: 1.0

Contract: 9610IDIQ\3103
 AAB No.: AB925-10
 Lab Sample ID: D96-12170-5
 Date Received: 10/25/96
 Date Extracted: 10/29/96
 Date Analyzed: 11/01/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
1,2,4-Trichlorobenzene	0.33	0.7	0.33	U
1,2-Dichlorobenzene	0.33	0.7	0.33	U
1,3-Dichlorobenzene	0.33	0.7	0.33	U
1,4-Dichlorobenzene	0.33	0.7	0.33	U
2,4-Dinitrotoluene	0.33	0.7	0.33	U
2,6-Dinitrotoluene	0.33	0.7	0.33	U
2-Chloronaphthalene	0.33	0.7	0.33	U
2-Methylnaphthalene	0.33	0.7	0.33	U
2-Nitroaniline	0.22	3.3	0.22	U
3-Nitroaniline	0.22	3.3	0.22	U
3,3'-Dichlorobenzidine	0.44	1.3	0.44	U
4-Bromophenyl phenyl ether	0.33	0.7	0.33	U
4-Chloroaniline	0.22	1.3	0.22	U
4-Chlorophenyl phenyl ether	0.33	0.7	0.33	U
4-Nitroaniline	0.33	3.3	0.33	U
Acenaphthylene	0.33	0.7	0.33	U
Acenaphthene	0.33	0.7	0.33	U
Anthracene	0.33	0.7	0.33	U
Benzo(a)anthracene	0.33	0.7	0.33	U
Benzo(a)pyrene	0.33	0.7	0.33	U
2,4-Dichlorophenol	0.16	0.3	0.16	U
Benzo(b)fluoranthene	0.33	0.7	0.33	U
Benzo(k)fluoranthene	0.33	0.7	0.33	U
Benzo(g,h,i)perylene	0.26	0.7	0.26	U
Benzyl alcohol	0.22	1.3	0.22	U
Bis(2-chloroethyl)ether	0.22	0.7	0.22	U
Bis(2-chloroethoxy)methane	0.22	0.7	0.22	U
Bis(2-chloroisopropyl)ether	0.33	0.7	0.33	U
Bis(2-ethylhexyl)phthalate	0.33	0.7	0.33	U
Butyl benzyl phthalate	0.33	0.7	0.33	U
Chrysene	0.33	0.7	0.33	U
Di-n-butylphthalate	0.33	0.7	0.33	U
Di-n-octylphthalate	0.33	0.7	0.33	U

FC-WQTB-05

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610 ID/3103

Lab Code: ITS-DALLAS

AAB No.: V12170-LIQ

Matrix: (soil/water) WATER

Lab Sample ID: D96-12170-6

Lab File ID: DD7372201022

Date Received: 10/25/96

% Solids: NA

~~Date Extracted: 10/31/96~~

Dilution Factor: 1.0

Date Analyzed: 10/31/96

CONCENTRATION UNITS: UG/L

COMPOUND	MDL	PQL	RESULT	Q
1,1,1-Trichloroethane	1.22	5.0	1.22	U
1,1,2,2-Tetrachloroethane	3.95	5.0	3.95	U
1,1,2-Trichloroethane	1.61	5.0	1.61	U
1,1-Dichloroethane	1.48	5.0	1.48	U
1,1-Dichloroethene	1.30	5.0	1.30	U
1,2,3-Trichloropropane	0.90	5.0	0.90	U
1,2-Dichloroethane	1.18	5.0	1.18	U
1,2-Dichloropropane	1.38	5.0	1.38	U
2-Butanone	7.68	100.0	7.68	U
2-Chloroethylvinyl ether	0.08	5.0	0.08	U
2-Hexanone	2.69	50.0	2.69	U
Acetone	6.54	100.0	6.54	U
Benzene	1.13	5.0	1.13	U
Bromodichloromethane	1.80	5.0	1.80	U
Bromoform	0.92	5.0	0.92	U
Bromomethane	2.57	10.0	2.57	U
Carbon disulfide	1.58	5.0	1.58	U
Carbon tetrachloride	0.79	5.0	0.79	U
Chlorobenzene	0.84	5.0	0.84	U
Chloroethane	1.16	10.0	1.16	U
Chloroform	1.42	5.0	1.42	U
Chloromethane	2.39	10.0	2.39	U
cis-1,3-Dichloropropene	1.06	5.0	1.06	U
Chlorodibromomethane	1.23	5.0	1.23	U
Ethylbenzene	1.86	5.0	1.86	U
4-Methyl-2-pentanone	2.75	50.0	2.75	U
Methylene chloride	1.57	5.0	1.57	U
Styrene	1.01	5.0	1.01	U
Trichloroethene	1.69	5.0	1.69	U
Tetrachloroethene	0.92	5.0	0.92	U
Toluene	0.95	5.0	0.95	U
cis-1,2-Dichloroethene	1.64	5.0	1.64	U
trans-1,2-Dichloroethene	1.64	5.0	1.64	U
trans-1,3-Dichloropropene	1.41	5.0	1.41	U
Vinyl acetate	3.85	50.0	3.85	U
Vinyl chloride	2.31	10.0	2.31	U

FC-WQTB-05

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610 ID/3103

Lab Code: ITS-DALLAS

AAB No.: V12170-LIQ

Matrix: (soil/water) WATER

Lab Sample ID: D96-12170-6

Lab File ID: DD7372201022

Date Received: 10/25/96

% Solids: NA

~~Date Extracted: 10/31/96~~

Dilution Factor: 1.0

Date Analyzed: 10/31/96

CONCENTRATION UNITS: UG/L

COMPOUND	MDL	PQL	RESULT	Q
m,p-Xylene	3.16	5.0	3.16	U
o-Xylene	4.93	5.0	4.93	U

FC-SB19-01

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610 ID IQ/3103

Lab Code: ITS-DALLAS

AAB No.: V12170-SOIL

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12170-7

Lab File ID: BB7561701017

Date Received: 10/25/96

% Solids: 94

~~Date Extracted: 10/30/96~~

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
1,1,1-Trichloroethane	0.0011	0.005	0.0011	U
1,1,2,2-Tetrachloroethane	0.0022	0.005	0.0022	U
1,1,2-Trichloroethane	0.0011	0.005	0.0011	U
1,1-Dichloroethane	0.0011	0.005	0.0011	U
1,1-Dichloroethene	0.0011	0.005	0.0011	U
1,2,3-Trichloropropane	0.0011	0.050	0.0011	U
1,2-Dichloroethane	0.0011	0.005	0.0011	U
1,2-Dichloropropane	0.0011	0.005	0.0011	U
Methyl ethyl ketone	0.0033	0.100	0.0033	U
2-Chloroethyl vinyl ether	0.0022	0.010	0.0022	U
2-Hexanone	0.0033	0.050	0.0033	U
Methyl isobutyl ketone	0.0022	0.050	0.0022	U
Acetone	0.0022	0.100	0.0022	U
Benzene	0.0011	0.005	0.0011	U
Bromodichloromethane	0.0011	0.005	0.0011	U
Bromoform	0.0011	0.005	0.0011	U
Bromomethane	0.0033	0.010	0.0033	U
Carbon disulfide	0.0011	0.005	0.0011	U
Carbon tetrachloride	0.0054	0.005	0.0054	U
Chlorobenzene	0.0011	0.005	0.0011	U
Chloroethane	0.0022	0.010	0.0022	U
Chloroform	0.0011	0.005	0.0011	U
Chloromethane	0.0011	0.010	0.0011	U
cis 1,2-Dichloroethene	0.0022	0.005	0.0022	U
cis 1,3-Dichloropropene	0.0011	0.005	0.0011	U
Chlorodibromomethane	0.0011	0.005	0.0011	U
Ethylbenzene	0.0022	0.005	0.0022	U
Methylene chloride	0.0022	0.005	0.0022	U
Styrene	0.0022	0.005	0.0022	U
Trichloroethene	0.0011	0.005	0.0011	U
Tetrachloroethene	0.0033	0.005	0.0033	U
Toluene	0.0011	0.005	0.0011	U
trans 1,2-Dichloroethene	0.0022	0.005	0.0022	U

Revised
1451

FC-SB19-01

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610 ID IQ/3103

Lab Code: ITS-DALLAS

AAB No.: V12170-SOIL

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12170-7

Lab File ID: BB7561701017

Date Received: 10/25/96

% Solids: 92

~~Date Extracted: 10/30/96~~ 0

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
trans 1,3-Dichloropropene	0.0011	0.005	0.0011	U
Vinyl acetate	0.0130	0.050	0.0130	U
Vinyl chloride	0.0011	0.010	0.0011	U
m,p-Xylene	0.0043	0.005	0.0043	U
o-Xylene	0.0043	0.005	0.0043	U

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FC-SB19-01

Lab Name: ITS-DALLAS

Contract: 9610IDIQ\3103

Lab Code:

AAB No.: AB925-10

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12170-7

Lab File ID: FE000

Date Received: 10/25/96

% Solids: 94

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 11/01/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
1,2,4-Trichlorobenzene	0.32	0.7	0.32	U
1,2-Dichlorobenzene	0.32	0.7	0.32	U
1,3-Dichlorobenzene	0.32	0.7	0.32	U
1,4-Dichlorobenzene	0.32	0.7	0.32	U
2,4-Dinitrotoluene	0.32	0.7	0.32	U
2,6-Dinitrotoluene	0.32	0.7	0.32	U
2-Chloronaphthalene	0.32	0.7	0.32	U
2-Methylnaphthalene	0.32	0.7	0.32	U
2-Nitroaniline	0.21	3.3	0.21	U
3-Nitroaniline	0.21	3.3	0.21	U
3,3'-Dichlorobenzidine	0.43	1.3	0.43	U
4-Bromophenyl phenyl ether	0.32	0.7	0.32	U
4-Chloroaniline	0.21	1.3	0.21	U
4-Chlorophenyl phenyl ether	0.32	0.7	0.32	U
4-Nitroaniline	0.32	3.3	0.32	U
Acenaphthylene	0.32	0.7	0.32	U
Acenaphthene	0.32	0.7	0.32	U
Anthracene	0.32	0.7	0.32	U
Benzo(a)anthracene	0.32	0.7	0.32	U
Benzo(a)pyrene	0.32	0.7	0.32	U
2,4-Dichlorophenol	0.16	0.3	0.16	U
Benzo(b)fluoranthene	0.32	0.7	0.32	U
Benzo(k)fluoranthene	0.32	0.7	0.32	U
Benzo(g,h,i)perylene	0.26	0.7	0.26	U
Benzyl alcohol	0.21	1.3	0.21	U
Bis(2-chloroethyl)ether	0.21	0.7	0.21	U
Bis(2-chloroethoxy)methane	0.21	0.7	0.21	U
Bis(2-chloroisopropyl)ether	0.32	0.7	0.32	U
Bis(2-ethylhexyl)phthalate	0.32	0.7	0.32	U
Butyl benzyl phthalate	0.32	0.7	0.32	U
Chrysene	0.32	0.7	0.32	U
Di-n-butylphthalate	0.32	0.7	0.32	U
Di-n-octylphthalate	0.32	0.7	0.32	U

FC-SB19-02

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610 ID IQ/3103

Lab Code: ITS-DALLAS

AAB No.: V12170-SOIL

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12170-8

Lab File ID: BB7561801018

Date Received: 10/25/96

% Solids: 94

~~Date Extracted: 10/30/96~~

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
1,1,1-Trichloroethane	0.0011	0.005	0.0011	U
1,1,2,2-Tetrachloroethane	0.0022	0.005	0.0022	U
1,1,2-Trichloroethane	0.0011	0.005	0.0011	U
1,1-Dichloroethane	0.0011	0.005	0.0011	U
1,1-Dichloroethene	0.0011	0.005	0.0011	U
1,2,3-Trichloropropane	0.0011	0.050	0.0011	U
1,2-Dichloroethane	0.0011	0.005	0.0011	U
1,2-Dichloropropane	0.0011	0.005	0.0011	U
Methyl ethyl ketone	0.0033	0.100	0.0033	U
2-Chloroethyl vinyl ether	0.0022	0.010	0.0022	U
2-Hexanone	0.0033	0.050	0.1430	
Methyl isobutyl ketone	0.0022	0.050	0.0388	
Acetone	0.0022	0.100	0.0022	U
Benzene	0.0011	0.005	0.0011	U
Bromodichloromethane	0.0011	0.005	0.0011	U
Bromoform	0.0011	0.005	0.0011	U
Bromomethane	0.0033	0.010	0.0033	U
Carbon disulfide	0.0011	0.005	0.0011	U
Carbon tetrachloride	0.0054	0.005	0.0054	U
Chlorobenzene	0.0011	0.005	0.0011	U
Chloroethane	0.0022	0.010	0.0022	U
Chloroform	0.0011	0.005	0.0011	U
Chloromethane	0.0011	0.010	0.0011	U
cis 1,2-Dichloroethene	0.0022	0.005	0.0022	U
cis 1,3-Dichloropropene	0.0011	0.005	0.0011	U
Chlorodibromomethane	0.0011	0.005	0.0011	U
Ethylbenzene	0.0022	0.005	0.0022	U
Methylene chloride	0.0022	0.005	0.0022	U
Styrene	0.0022	0.005	0.0022	U
Trichloroethene	0.0011	0.005	0.0011	U
Tetrachloroethene	0.0033	0.005	0.0033	U
Toluene	0.0011	0.005	0.0011	U
trans 1,2-Dichloroethene	0.0022	0.005	0.0022	U

FC-SB19-02

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610 ID IQ/3103
Lab Code: ITS-DALLAS AAB No.: V12170-SOIL
Matrix: (soil/water) SOIL Lab Sample ID: D96-12170-8
Lab File ID: BB7561801018 Date Received: 10/25/96
% Solids: 92 ~~Date Extracted: 10/30/96~~
Dilution Factor: 1.0 Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
trans 1,3-Dichloropropene	0.0011	0.005	0.0011	U
Vinyl acetate	0.0130	0.050	0.0130	U
Vinyl chloride	0.0011	0.010	0.0011	U
m,p-Xylene	0.0043	0.005	0.0043	U
o-Xylene	0.0043	0.005	0.0043	U

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FC-SB19-02

Lab Name: ITS-DALLAS

Contract: 9610IDIQ\3103

Lab Code:

AAB No.: AB925-10

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12170-8

Lab File ID: FE083

Date Received: 10/25/96

% Solids: 94

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 11/07/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
1,2,4-Trichlorobenzene	0.32	0.7	0.32	U
1,2-Dichlorobenzene	0.32	0.7	0.32	U
1,3-Dichlorobenzene	0.32	0.7	0.32	U
1,4-Dichlorobenzene	0.32	0.7	0.32	U
2,4-Dinitrotoluene	0.32	0.7	0.32	U
2,6-Dinitrotoluene	0.32	0.7	0.32	U
2-Chloronaphthalene	0.32	0.7	0.32	U
2-Methylnaphthalene	0.32	0.7	0.32	U
2-Nitroaniline	0.21	3.3	0.21	U
3-Nitroaniline	0.21	3.3	0.21	U
3,3'-Dichlorobenzidine	0.43	1.3	0.43	U
4-Bromophenyl phenyl ether	0.32	0.7	0.32	U
4-Chloroaniline	0.21	1.3	0.21	U
4-Chlorophenyl phenyl ether	0.32	0.7	0.32	U
4-Nitroaniline	0.32	3.3	0.32	U
Acenaphthylene	0.32	0.7	0.32	U
Acenaphthene	0.32	0.7	0.32	U
Anthracene	0.32	0.7	0.32	U
Benzo (a) anthracene	0.32	0.7	0.32	U
Benzo (a) pyrene	0.32	0.7	0.32	U
2,4-Dichlorophenol	0.16	0.3	0.16	U
Benzo (b) fluoranthene	0.32	0.7	0.32	U
Benzo (k) fluoranthene	0.32	0.7	0.32	U
Benzo (g,h,i) perylene	0.26	0.7	0.26	U
Benzyl alcohol	0.21	1.3	0.21	U
Bis (2-chloroethyl) ether	0.21	0.7	0.21	U
Bis (2-chloroethoxy) methane	0.21	0.7	0.21	U
Bis (2-chloroisopropyl) ether	0.32	0.7	0.32	U
Bis (2-ethylhexyl) phthalate	0.32	0.7	0.32	U
Butyl benzyl phthalate	0.32	0.7	0.32	U
Chrysene	0.32	0.7	0.32	U
Di-n-butylphthalate	0.32	0.7	0.32	U
Di-n-octylphthalate	0.32	0.7	0.32	U

FC-SB20-01

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610 ID IQ/3103

Lab Code: ITS-DALLAS

AAB No.: V12170-SOIL

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12170-9

Lab File ID: BB7561901019

Date Received: 10/25/96

% Solids: 96

~~Date Extracted: 10/30/96~~

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
1,1,1-Trichloroethane	0.0010	0.005	0.0010	U
1,1,2,2-Tetrachloroethane	0.0021	0.005	0.0021	U
1,1,2-Trichloroethane	0.0010	0.005	0.0010	U
1,1-Dichloroethane	0.0010	0.005	0.0010	U
1,1-Dichloroethene	0.0010	0.005	0.0010	U
1,2,3-Trichloropropane	0.0010	0.050	0.0010	U
1,2-Dichloroethane	0.0010	0.005	0.0010	U
1,2-Dichloropropane	0.0010	0.005	0.0010	U
Methyl ethyl ketone	0.0031	0.100	0.0031	U
2-Chloroethyl vinyl ether	0.0021	0.010	0.0021	U
2-Hexanone	0.0031	0.050	0.0031	U
Methyl isobutyl ketone	0.0021	0.050	0.0021	U
Acetone	0.0021	0.100	0.0021	U
Benzene	0.0010	0.005	0.0010	U
Bromodichloromethane	0.0010	0.005	0.0010	U
Bromoform	0.0010	0.005	0.0010	U
Bromomethane	0.0031	0.010	0.0031	U
Carbon disulfide	0.0010	0.005	0.0010	U
Carbon tetrachloride	0.0052	0.005	0.0052	U
Chlorobenzene	0.0010	0.005	0.0010	U
Chloroethane	0.0021	0.010	0.0021	U
Chloroform	0.0010	0.005	0.0010	U
Chloromethane	0.0010	0.010	0.0010	U
cis 1,2-Dichloroethene	0.0021	0.005	0.0021	U
cis 1,3-Dichloropropene	0.0010	0.005	0.0010	U
Chlorodibromomethane	0.0010	0.005	0.0010	U
Ethylbenzene	0.0021	0.005	0.0021	U
Methylene chloride	0.0021	0.005	0.0021	U
Styrene	0.0021	0.005	0.0021	U
Trichloroethene	0.0010	0.005	0.0010	U
Tetrachloroethene	0.0031	0.005	0.0031	U
Toluene	0.0010	0.005	0.0010	U
trans 1,2-Dichloroethene	0.0021	0.005	0.0021	U

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FC-SB20-01

Lab Name: ITS-DALLAS

Contract: 9610IDIQ\3103

Lab Code:

AAB No.: AB925-10

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12170-9

Lab File ID: FE084

Date Received: 10/25/96

% Solids: 96

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 11/07/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
1,2,4-Trichlorobenzene	0.31	0.7	0.31	U
1,2-Dichlorobenzene	0.31	0.7	0.31	U
1,3-Dichlorobenzene	0.31	0.7	0.31	U
1,4-Dichlorobenzene	0.31	0.7	0.31	U
2,4-Dinitrotoluene	0.31	0.7	0.31	U
2,6-Dinitrotoluene	0.31	0.7	0.31	U
2-Chloronaphthalene	0.31	0.7	0.31	U
2-Methylnaphthalene	0.31	0.7	0.31	U
2-Nitroaniline	0.21	3.3	0.21	U
3-Nitroaniline	0.21	3.3	0.21	U
3,3'-Dichlorobenzidine	0.42	1.3	0.42	U
4-Bromophenyl phenyl ether	0.31	0.7	0.31	U
4-Chloroaniline	0.21	1.3	0.21	U
4-Chlorophenyl phenyl ether	0.31	0.7	0.31	U
4-Nitroaniline	0.31	3.3	0.31	U
Acenaphthylene	0.31	0.7	0.31	U
Acenaphthene	0.31	0.7	0.31	U
Anthracene	0.31	0.7	0.31	U
Benzo (a) anthracene	0.31	0.7	0.31	U
Benzo (a) pyrene	0.31	0.7	0.31	U
2,4-Dichlorophenol	0.16	0.3	0.16	U
Benzo (b) fluoranthene	0.31	0.7	0.31	U
Benzo (k) fluoranthene	0.31	0.7	0.31	U
Benzo (g,h,i) perylene	0.25	0.7	0.25	U
Benzyl alcohol	0.21	1.3	0.21	U
Bis (2-chloroethyl) ether	0.21	0.7	0.21	U
Bis (2-chloroethoxy) methane	0.21	0.7	0.21	U
Bis (2-chloroisopropyl) ether	0.31	0.7	0.31	U
Bis (2-ethylhexyl) phthalate	0.31	0.7	0.31	U
Butyl benzyl phthalate	0.31	0.7	0.31	U
Chrysene	0.31	0.7	0.31	U
Di-n-butylphthalate	0.31	0.7	0.31	U
Di-n-octylphthalate	0.31	0.7	0.31	U

FC-SB20-01

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610 ID IQ/3103

Lab Code: ITS-DALLAS

AAB No.: V12170-SOIL

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12170-9

Lab File ID: BB7561901019

Date Received: 10/25/96

% Solids: 96

~~Date Extracted: 10/30/96~~

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
trans 1,3-Dichloropropene	0.0010	0.005	0.0010	U
Vinyl acetate	0.0125	0.050	0.0125	U
Vinyl chloride	0.0010	0.010	0.0010	U
m,p-Xylene	0.0042	0.005	0.0042	U
o-Xylene	0.0042	0.005	0.0042	U

FC-SB20-02

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610 ID IQ/3103

Lab Code: ITS-DALLAS

AAB No.: V12170-SOIL

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12170-10

Lab File ID: BB7562001020

Date Received: 10/25/96

% Solids: 88

~~Date Extracted: 10/30/96~~

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
1,1,1-Trichloroethane	0.0011	0.005	0.0011	U
1,1,2,2-Tetrachloroethane	0.0023	0.005	0.0023	U
1,1,2-Trichloroethane	0.0011	0.005	0.0011	U
1,1-Dichloroethane	0.0011	0.005	0.0011	U
1,1-Dichloroethene	0.0011	0.005	0.0011	U
1,2,3-Trichloropropane	0.0011	0.050	0.0011	U
1,2-Dichloroethane	0.0011	0.005	0.0011	U
1,2-Dichloropropane	0.0011	0.005	0.0011	U
Methyl ethyl ketone	0.0034	0.100	0.0034	U
2-Chloroethyl vinyl ether	0.0023	0.010	0.0023	U
2-Hexanone	0.0034	0.050	0.0186	
Methyl isobutyl ketone	0.0023	0.050	0.0138	
Acetone	0.0023	0.100	0.0023	U
Benzene	0.0011	0.005	0.0011	U
Bromodichloromethane	0.0011	0.005	0.0011	U
Bromoform	0.0011	0.005	0.0011	U
Bromomethane	0.0034	0.010	0.0034	U
Carbon disulfide	0.0011	0.005	0.0011	U
Carbon tetrachloride	0.0057	0.005	0.0057	U
Chlorobenzene	0.0011	0.005	0.0011	U
Chloroethane	0.0023	0.010	0.0023	U
Chloroform	0.0011	0.005	0.0011	U
Chloromethane	0.0011	0.010	0.0011	U
cis 1,2-Dichloroethene	0.0023	0.005	0.0023	U
cis 1,3-Dichloropropene	0.0011	0.005	0.0011	U
Chlorodibromomethane	0.0011	0.005	0.0011	U
Ethylbenzene	0.0023	0.005	0.0023	U
Methylene chloride	0.0023	0.005	0.0023	U
Styrene	0.0023	0.005	0.0023	U
Trichloroethene	0.0011	0.005	0.0011	U
Tetrachloroethene	0.0034	0.005	0.0034	U
Toluene	0.0011	0.005	0.0011	U
trans 1,2-Dichloroethene	0.0023	0.005	0.0023	U

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FC-SB20-02

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610 ID IQ/3103

Lab Code: ITS-DALLAS

AAB No.: V12170-SOIL

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12170-10

Lab File ID: BB7562001020

Date Received: 10/25/96

% Solids: 88

~~Date Extracted: 10/30/96~~

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
trans 1,3-Dichloropropene	0.0011	0.005	0.0011	U
Vinyl acetate	0.0136	0.050	0.0136	U
Vinyl chloride	0.0011	0.010	0.0011	U
m,p-Xylene	0.0045	0.005	0.0045	U
o-Xylene	0.0045	0.005	0.0045	U

FC-SB20-02

Lab Name: ITS-DALLAS
 Lab Code:
 Matrix: (soil/water) SOIL
 Lab File ID: FD994
 % Solids: 88
 Dilution Factor: 1.0

Contract: 9610IDIQ\3103
 AAB No.: AB925-10
 Lab Sample ID: D96-12170-10
 Date Received: 10/25/96
 Date Extracted: 10/29/96
 Date Analyzed: 11/01/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
1,2,4-Trichlorobenzene	0.34	0.7	0.34	U
1,2-Dichlorobenzene	0.34	0.7	0.34	U
1,3-Dichlorobenzene	0.34	0.7	0.34	U
1,4-Dichlorobenzene	0.34	0.7	0.34	U
2,4-Dinitrotoluene	0.34	0.7	0.34	U
2,6-Dinitrotoluene	0.34	0.7	0.34	U
2-Chloronaphthalene	0.34	0.7	0.34	U
2-Methylnaphthalene	0.34	0.7	0.34	U
2-Nitroaniline	0.23	3.3	0.23	U
3-Nitroaniline	0.23	3.3	0.23	U
3,3'-Dichlorobenzidine	0.46	1.3	0.46	U
4-Bromophenyl phenyl ether	0.34	0.7	0.34	U
4-Chloroaniline	0.23	1.3	0.23	U
4-Chlorophenyl phenyl ether	0.34	0.7	0.34	U
4-Nitroaniline	0.34	3.3	0.34	U
Acenaphthylene	0.34	0.7	0.34	U
Acenaphthene	0.34	0.7	0.34	U
Anthracene	0.34	0.7	0.34	U
Benzo (a) anthracene	0.34	0.7	0.34	U
Benzo (a) pyrene	0.34	0.7	0.34	U
2,4-Dichlorophenol	0.17	0.3	0.17	U
Benzo (b) fluoranthene	0.34	0.7	0.34	U
Benzo (k) fluoranthene	0.34	0.7	0.34	U
Benzo (g,h,i) perylene	0.27	0.7	0.27	U
Benzyl alcohol	0.23	1.3	0.23	U
Bis (2-chloroethyl) ether	0.23	0.7	0.23	U
Bis (2-chloroethoxy) methane	0.23	0.7	0.23	U
Bis (2-chloroisopropyl) ether	0.34	0.7	0.34	U
Bis (2-ethylhexyl) phthalate	0.34	0.7	0.34	U
Butyl benzyl phthalate	0.34	0.7	0.34	U
Chrysene	0.34	0.7	0.34	U
Di-n-butylphthalate	0.34	0.7	0.34	U
Di-n-octylphthalate	0.34	0.7	0.34	U

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FC-WQ-TB-06

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610 ID/3103

Lab Code: ITS-DALLAS

AAB No.: V12170-LIQ

Matrix: (soil/water) WATER

Lab Sample ID: D96-12170-11

Lab File ID: DD7372301023

Date Received: 10/25/96

% Solids: NA

Date ~~Extracted~~: 10/31/96

Dilution Factor: 1.0

Date Analyzed: 10/31/96

CONCENTRATION UNITS: UG/L

COMPOUND	MDL	PQL	RESULT	Q
1,1,1-Trichloroethane	1.22	5.0	1.22	U
1,1,2,2-Tetrachloroethane	3.95	5.0	3.95	U
1,1,2-Trichloroethane	1.61	5.0	1.61	U
1,1-Dichloroethane	1.48	5.0	1.48	U
1,1-Dichloroethene	1.30	5.0	1.30	U
1,2,3-Trichloropropane	0.90	5.0	0.90	U
1,2-Dichloroethane	1.18	5.0	1.18	U
1,2-Dichloropropane	1.38	5.0	1.38	U
2-Butanone	7.68	100.0	7.68	U
2-Chloroethylvinyl ether	0.08	5.0	0.08	U
2-Hexanone	2.69	50.0	2.69	U
Acetone	6.54	100.0	6.54	U
Benzene	1.13	5.0	1.13	U
Bromodichloromethane	1.80	5.0	1.80	U
Bromoform	0.92	5.0	0.92	U
Bromomethane	2.57	10.0	2.57	U
Carbon disulfide	1.58	5.0	1.58	U
Carbon tetrachloride	0.79	5.0	0.79	U
Chlorobenzene	0.84	5.0	0.84	U
Chloroethane	1.16	10.0	1.16	U
Chloroform	1.42	5.0	1.42	U
Chloromethane	2.39	10.0	2.39	U
cis-1,3-Dichloropropene	1.06	5.0	1.06	U
Chlorodibromomethane	1.23	5.0	1.23	U
Ethylbenzene	1.86	5.0	1.86	U
4-Methyl-2-pentanone	2.75	50.0	2.75	U
Methylene chloride	1.57	5.0	1.57	U
Styrene	1.01	5.0	1.01	U
Trichloroethene	1.69	5.0	1.69	U
Tetrachloroethene	0.92	5.0	0.92	U
Toluene	0.95	5.0	0.95	U
cis-1,2-Dichloroethene	1.64	5.0	1.64	U
trans-1,2-Dichloroethene	1.64	5.0	1.64	U
trans-1,3-Dichloropropene	1.41	5.0	1.41	U
Vinyl acetate	3.85	50.0	3.85	U
Vinyl chloride	2.31	10.0	2.31	U

FC-WQ-TB-06

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610 ID/3103

Lab Code: ITS-DALLAS

AAB No.: V12170-LIQ

Matrix: (soil/water) WATER

Lab Sample ID: D96-12170-11

Lab File ID: DD7372301023

Date Received: 10/25/96

% Solids: NA

Date Extracted: 10/31/96

Dilution Factor: 1.0

Date Analyzed: 10/31/96

CONCENTRATION UNITS: UG/L

COMPOUND	MDL	PQL	RESULT	Q
m,p-Xylene	3.16	5.0	3.16	U
o-Xylene	4.93	5.0	4.93	U

FC-WQ-EB-04

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610 ID/3103

Lab Code: ITS-DALLAS

AAB No.: V12170-LIQ

Matrix: (soil/water) WATER

Lab Sample ID: D96-12170-12

Lab File ID: DD7372401024

Date Received: 10/25/96

% Solids: NA

~~Date Extracted: 10/31/96~~

Dilution Factor: 1.0

Date Analyzed: 10/31/96

CONCENTRATION UNITS: UG/L

COMPOUND	MDL	PQL	RESULT	Q
1,1,1-Trichloroethane	1.22	5.0	1.22	U
1,1,2,2-Tetrachloroethane	3.95	5.0	3.95	U
1,1,2-Trichloroethane	1.61	5.0	1.61	U
1,1-Dichloroethane	1.48	5.0	1.48	U
1,1-Dichloroethene	1.30	5.0	1.30	U
1,2,3-Trichloropropane	0.90	5.0	0.90	U
1,2-Dichloroethane	1.18	5.0	1.18	U
1,2-Dichloropropane	1.38	5.0	1.38	U
2-Butanone	7.68	100.0	7.68	U
2-Chloroethylvinyl ether	0.08	5.0	0.08	U
2-Hexanone	2.69	50.0	2.69	U
Acetone	6.54	100.0	6.54	U
Benzene	1.13	5.0	1.13	U
Bromodichloromethane	1.80	5.0	1.80	U
Bromoform	0.92	5.0	0.92	U
Bromomethane	2.57	10.0	2.57	U
Carbon disulfide	1.58	5.0	1.58	U
Carbon tetrachloride	0.79	5.0	0.79	U
Chlorobenzene	0.84	5.0	0.84	U
Chloroethane	1.16	10.0	1.16	U
Chloroform	1.42	5.0	1.42	U
Chloromethane	2.39	10.0	2.39	U
cis-1,3-Dichloropropene	1.06	5.0	1.06	U
Chlorodibromomethane	1.23	5.0	1.23	U
Ethylbenzene	1.86	5.0	1.86	U
4-Methyl-2-pentanone	2.75	50.0	2.75	U
Methylene chloride	1.57	5.0	1.57	U
Styrene	1.01	5.0	1.01	U
Trichloroethene	1.69	5.0	1.69	U
Tetrachloroethene	0.92	5.0	0.92	U
Toluene	0.95	5.0	0.95	U
cis-1,2-Dichloroethene	1.64	5.0	1.64	U
trans-1,2-Dichloroethene	1.64	5.0	1.64	U
trans-1,3-Dichloropropene	1.41	5.0	1.41	U
Vinyl acetate	3.85	50.0	3.85	U
Vinyl chloride	2.31	10.0	2.31	U

FC-WQ-EB-04

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610 ID/3103

Lab Code: ITS-DALLAS

AAB No.: V12170-LIQ

Matrix: (soil/water) WATER

Lab Sample ID: D96-12170-12

Lab File ID: DD7372401024

Date Received: 10/25/96

% Solids: NA

~~Date Extracted: 10/31/96~~

Dilution Factor: 1.0

Date Analyzed: 10/31/96

CONCENTRATION UNITS: UG/L

COMPOUND	MDL	PQL	RESULT	Q
m,p-Xylene	3.16	5.0	3.16	U
o-Xylene	4.93	5.0	4.93	U

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FC-WQ-EB-04

Lab Name: ITS-DALLAS

Contract: 9610IDIQ\3103

Lab Code:

AAB No.: AB925-18

Matrix: (soil/water) WATER

Lab Sample ID: D96-12170-12

Lab File ID: FD963

Date Received: 10/25/96

% Solids: NA

Date Extracted: 10/30/96

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: UG/L

COMPOUND	MDL	PQL	RESULT	Q
✓ 1,2,4-Trichlorobenzene	2.60	10.0	2.60	U
✓ 1,2-Dichlorobenzene	3.20	10.0	3.20	U
✓ 1,3-Dichlorobenzene	3.30	10.0	3.30	U
✓ 1,4-Dichlorobenzene	3.40	10.0	3.40	U
✓ 2,4-Dinitrotoluene	2.00	10.0	2.00	U
✓ 2,6-Dinitrotoluene	1.60	10.0	1.60	U
✓ 2-Chloronaphthalene	1.70	10.0	1.70	U
✓ 2-Methylnaphthalene	1.90	10.0	1.90	U
✓ 2-Nitroaniline	2.10	50.0	2.10	U
✓ 3-Nitroaniline	1.90	50.0	1.90	U
✓ 3,3'-Dichlorobenzidine	3.10	20.0	3.10	U
✓ 4-Bromophenyl phenyl ether	1.00	10.0	1.00	U
✓ 4-Chloroaniline	2.10	20.0	2.10	U
✓ 4-Chlorophenyl phenyl ether	1.60	10.0	1.60	U
✓ 4-Nitroaniline	2.60	50.0	2.60	U
✓ Acenaphthylene	1.60	10.0	1.60	U
✓ Acenaphthene	1.60	10.0	1.60	U
✓ Anthracene	1.80	10.0	1.80	U
✓ Benzo(a)anthracene	1.80	10.0	1.80	U
✓ Benzo(a)pyrene	1.60	10.0	1.60	U
✓ Benzo(b)fluoranthene	4.30	10.0	4.30	U
✓ Benzo(k)fluoranthene	4.30	10.0	4.30	U
✓ Benzo(g,h,i)perylene	1.60	10.0	1.60	U
✓ Benzyl alcohol	2.90	20.0	2.90	U
✓ Bis(2-chloroethyl)ether	2.90	10.0	2.90	U
✓ Bis(2-chloroethoxy)methane	2.20	10.0	2.20	U
✓ Bis(2-chloroisopropyl)ether	2.30	10.0	2.30	U
✓ Bis(2-ethylhexyl)phthalate	3.50	10.0	3.50	U
✓ Butyl benzyl phthalate	1.80	10.0	1.80	U
✓ Chrysene	1.60	10.0	1.60	U
✓ Di-n-butylphthalate	1.60	10.0	1.60	U
✓ Di-n-octylphthalate	2.40	10.0	2.40	U
✓ Dibenz(a,h)anthracene	1.60	10.0	1.60	U

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Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ\3103

Lab Code: DALLAS

AAB No.: 1031802001

Matrix: (soil/water) SOIL

Method Blank ID: 12170-21

Lab File ID: 31OCT1406031

Date Received: 10/26/96

% Solids: 100

~~Date Extracted: 10/31/96~~

Dilution Factor: 1.0

Date Analyzed: 10/31/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
Benzene	0.0002	0.002	0.0002	U
Toluene	0.0003	0.002	0.0003	U
Ethyl benzene	0.0003	0.002	0.0003	U
m.p.-xylenes	0.0006	0.002	0.0006	U
o-Xylenes	0.0003	0.002	0.0003	U
Methyl tert-Butyl Ether	0.0003	0.002	0.0003	U

METHOD BLANK

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610 ID IQ/3103
 Lab Code: ITS-DALLAS AAB No.: V12170-SOIL
 Matrix: (soil/water) SOIL Lab Sample ID: D96-12170-21
 Lab File ID: BB7560301003 Date Received: 10/26/96
 % Solids: 100 ~~Date Extracted: 10/30/96~~
 Dilution Factor: 1.0 Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
1,1,1-Trichloroethane	0.0010	0.005	0.0010	U
1,1,2,2-Tetrachloroethane	0.0020	0.005	0.0020	U
1,1,2-Trichloroethane	0.0010	0.005	0.0010	U
1,1-Dichloroethane	0.0010	0.005	0.0010	U
1,1-Dichloroethene	0.0010	0.005	0.0010	U
1,2,3-Trichloropropane	0.9000	5.000	0.9000	U
1,2-Dichloroethane	0.0010	0.005	0.0010	U
1,2-Dichloropropane	0.0010	0.005	0.0010	U
Methyl ethyl ketone	0.0030	0.100	0.0030	U
2-Chloroethyl vinyl ether	0.0020	0.010	0.0020	U
2-Hexanone	0.0030	0.050	0.0030	U
Methyl isobutyl ketone	0.0020	0.050	0.0020	U
Acetone	0.0020	0.100	0.0020	U
Benzene	0.0010	0.005	0.0010	U
Bromodichloromethane	0.0010	0.005	0.0010	U
Bromoform	0.0010	0.005	0.0010	U
Bromomethane	0.0030	0.010	0.0030	U
Carbon disulfide	0.0010	0.005	0.0010	U
Carbon tetrachloride	0.0050	0.005	0.0050	U
Chlorobenzene	0.0010	0.005	0.0010	U
Chloroethane	0.0020	0.010	0.0020	U
Chloroform	0.0010	0.005	0.0010	U
Chloromethane	0.0010	0.010	0.0010	U
cis 1,2-Dichloroethene	0.0020	0.005	0.0020	U
cis 1,3-Dichloropropene	0.0010	0.005	0.0010	U
Chlorodibromomethane	0.0010	0.005	0.0010	U
Ethylbenzene	0.0020	0.005	0.0020	U
Methylene chloride	0.0020	0.005	0.0020	U
Styrene	0.0020	0.005	0.0020	U
Trichloroethene	0.0010	0.005	0.0010	U
Tetrachloroethene	0.0030	0.005	0.0030	U
Toluene	0.0010	0.005	0.0010	U
trans 1,2-Dichloroethene	0.0020	0.005	0.0020	U

METHOD BLANK

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610 ID IQ/3103
 Lab Code: ITS-DALLAS AAB No.: V12092-SOIL
 Matrix: (soil/water) SOIL Lab Sample ID: D96-12170-21
 Lab File ID: BB7560301003 Date Received: 10/26/96
 % Solids: 100 Date ~~Extracted~~: 10/30/96
 Dilution Factor: 1.0 Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
trans 1,3-Dichloropropene	0.0010	0.005	0.0010	U
Vinyl acetate	0.0120	0.050	0.0120	U
Vinyl chloride	0.0010	0.010	0.0010	U
m,p-Xylene	0.0040	0.005	0.0040	U
o-Xylene	0.0040	0.005	0.0040	U

BLK

Lab Name: ITS-DALLAS

Contract: 9610IDIQ\3103

Lab Code:

AAB No.: AB925-10

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12170-21

Lab File ID: FD990

Date Received: 10/25/96

% Solids: 100

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 11/01/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
1,2,4-Trichlorobenzene	0.30	0.7	0.30	U
1,2-Dichlorobenzene	0.30	0.7	0.30	U
1,3-Dichlorobenzene	0.30	0.7	0.30	U
1,4-Dichlorobenzene	0.30	0.7	0.30	U
2,4-Dinitrotoluene	0.30	0.7	0.30	U
2,6-Dinitrotoluene	0.30	0.7	0.30	U
2-Chloronaphthalene	0.30	0.7	0.30	U
2-Methylnaphthalene	0.30	0.7	0.30	U
2-Nitroaniline	0.20	3.3	0.20	U
3-Nitroaniline	0.20	3.3	0.20	U
3,3'-Dichlorobenzidine	0.40	1.3	0.40	U
4-Bromophenyl phenyl ether	0.30	0.7	0.30	U
4-Chloroaniline	0.20	1.3	0.20	U
4-Chlorophenyl phenyl ether	0.30	0.7	0.30	U
4-Nitroaniline	0.30	3.3	0.30	U
Acenaphthylene	0.30	0.7	0.30	U
Acenaphthene	0.30	0.7	0.30	U
Anthracene	0.30	0.7	0.30	U
Benzo(a)anthracene	0.30	0.7	0.30	U
Benzo(a)pyrene	0.30	0.7	0.30	U
2,4-Dichlorophenol	0.15	0.3	0.15	U
Benzo(b)fluoranthene	0.30	0.7	0.30	U
Benzo(k)fluoranthene	0.30	0.7	0.30	U
Benzo(g,h,i)perylene	0.24	0.7	0.24	U
Benzyl alcohol	0.20	1.3	0.20	U
Bis(2-chloroethyl)ether	0.20	0.7	0.20	U
Bis(2-chloroethoxy)methane	0.20	0.7	0.20	U
Bis(2-chloroisopropyl)ether	0.30	0.7	0.30	U
Bis(2-ethylhexyl)phthalate	0.30	0.7	0.30	U
Butyl benzyl phthalate	0.30	0.7	0.30	U
Chrysene	0.30	0.7	0.30	U
Di-n-butylphthalate	0.30	0.7	0.30	U
Di-n-octylphthalate	0.30	0.7	0.30	U

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BLK

Lab Name: ITS-DALLAS

Contract: 9610IDIQ\3103

Lab Code:

AAB No.: AB925-42

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12056-25

Lab File ID: FE171

Date Received: 10/24/96

% Solids: 100

Date Extracted: 11/01/96

Dilution Factor: 1.0

Date Analyzed: 11/14/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
1,2,4-Trichlorobenzene	0.30	0.7	0.30	U
1,2-Dichlorobenzene	0.30	0.7	0.30	U
1,3-Dichlorobenzene	0.30	0.7	0.30	U
1,4-Dichlorobenzene	0.30	0.7	0.30	U
2,4-Dinitrotoluene	0.30	0.7	0.30	U
2,6-Dinitrotoluene	0.30	0.7	0.30	U
2-Chloronaphthalene	0.30	0.7	0.30	U
2-Methylnaphthalene	0.30	0.7	0.30	U
2-Nitroaniline	0.20	3.3	0.20	U
3-Nitroaniline	0.20	3.3	0.20	U
3,3'-Dichlorobenzidine	0.40	1.3	0.40	U
4-Bromophenyl phenyl ether	0.30	0.7	0.30	U
4-Chloroaniline	0.20	1.3	0.20	U
4-Chlorophenyl phenyl ether	0.30	0.7	0.30	U
4-Nitroaniline	0.30	3.3	0.30	U
Acenaphthylene	0.30	0.7	0.30	U
Acenaphthene	0.30	0.7	0.30	U
Anthracene	0.30	0.7	0.30	U
Benzo (a) anthracene	0.30	0.7	0.30	U
Benzo (a) pyrene	0.30	0.7	0.30	U
2,4-Dichlorophenol	0.15	0.3	0.15	U
Benzo (b) fluoranthene	0.30	0.7	0.30	U
Benzo (k) fluoranthene	0.30	0.7	0.30	U
Benzo (g,h,i) perylene	0.24	0.7	0.24	U
Benzyl alcohol	0.20	1.3	0.20	U
Bis (2-chloroethyl) ether	0.20	0.7	0.20	U
Bis (2-chloroethoxy) methane	0.20	0.7	0.20	U
Bis (2-chloroisopropyl) ether	0.30	0.7	0.30	U
Bis (2-ethylhexyl) phthalate	0.30	0.7	0.30	U
Butyl benzyl phthalate	0.30	0.7	0.30	U
Chrysene	0.30	0.7	0.30	U
Di-n-butylphthalate	0.30	0.7	0.30	U
Di-n-octylphthalate	0.30	0.7	0.30	U

METHOD BLANK

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610 ID/3103

Lab Code: ITS-DALLAS

AAB No.: V12170-LIQ

Matrix: (soil/water) WATER

Lab Sample ID: D96-12170-26

Lab File ID: DD7371201012

Date Received: 10/26/96

% Solids: NA

~~Date Extracted: 10/31/96~~

Dilution Factor: 1.0

-Date Analyzed: 10/31/96

CONCENTRATION UNITS: UG/L

COMPOUND	MDL	PQL	RESULT	Q
1,1,1-Trichloroethane	1.22	5.0	1.22	U
1,1,2,2-Tetrachloroethane	3.95	5.0	3.95	U
1,1,2-Trichloroethane	1.61	5.0	1.61	U
1,1-Dichloroethane	1.48	5.0	1.48	U
1,1-Dichloroethene	1.30	5.0	1.30	U
1,2-Dichloroethane	1.18	5.0	1.18	U
1,2-Dichloropropane	1.38	5.0	1.38	U
2-Chloroethylvinyl ether	0.08	5.0	0.08	U
2-Hexanone	2.69	50.0	2.69	U
Acetone	6.54	100.0	6.54	U
Benzene	1.13	5.0	1.13	U
Bromodichloromethane	1.80	5.0	1.80	U
Bromoform	0.92	5.0	0.92	U
Bromomethane	2.57	10.0	2.57	U
Carbon disulfide	1.58	5.0	1.58	U
Carbon tetrachloride	0.79	5.0	0.79	U
Chlorobenzene	0.84	5.0	0.84	U
Chloroethane	1.16	10.0	1.16	U
Chloroform	1.42	5.0	1.42	U
Chloromethane	2.39	10.0	2.39	U
cis-1,3-Dichloropropene	1.06	5.0	1.06	U
Chlorodibromomethane	1.23	5.0	1.23	U
Ethylbenzene	1.86	5.0	1.86	U
4-Methyl-2-pentanone	2.75	50.0	2.75	U
Methylene chloride	1.57	5.0	1.57	U
Styrene	1.01	5.0	1.01	U
Tetrachloroethene	0.92	5.0	0.92	U
Toluene	0.95	5.0	0.95	U
cis-1,2-Dichloroethene	1.64	5.0	1.64	U
trans-1,2-Dichloroethene	1.64	5.0	1.64	U
trans-1,3-Dichloropropene	1.41	5.0	1.41	U
Vinyl acetate	3.85	50.0	3.85	U
Vinyl chloride	2.31	10.0	2.31	U

METHOD BLANK

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610 ID/3103

Lab Code: ITS-DALLAS

AAB No.: V12170-LIQ

Matrix: (soil/water) WATER

Lab Sample ID: D96-12170-26

Lab File ID: DD7371201012

Date Received: 10/26/96

% Solids: NA

~~Date Extracted: 10/31/96~~

Dilution Factor: 1.0

-Date Analyzed: 10/31/96

CONCENTRATION UNITS: UG/L

COMPOUND	MDL	PQL	RESULT	Q
m,p-Xylene	3.16	5.0	3.16	U
o-Xylene	4.93	5.0	4.93	U
2-Butanone	7.68	100.0	7.68	U
1,2,3-Trichloropropane	0.90	5.0	0.90	U

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FIELD SAMPLE ID.

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BLK

Lab Name: ITS-DALLAS

Contract: 9610IDIQ\3103

Lab Code:

AAB No.: AB925-18

Matrix: (soil/water) WATER

Lab Sample ID: D96-12170-26

Lab File ID: FD957

Date Received: 10/26/96

% Solids: NA

Date Extracted: 10/30/96

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: UG/L

COMPOUND	MDL	PQL	RESULT	Q
1,2,4-Trichlorobenzene	2.60	10.0	2.60	U
1,2-Dichlorobenzene	3.20	10.0	3.20	U
1,3-Dichlorobenzene	3.30	10.0	3.30	U
1,4-Dichlorobenzene	3.40	10.0	3.40	U
2,4-Dinitrotoluene	2.00	10.0	2.00	U
2,6-Dinitrotoluene	1.60	10.0	1.60	U
2-Chloronaphthalene	1.70	10.0	1.70	U
2-Methylnaphthalene	1.90	10.0	1.90	U
2-Nitroaniline	2.10	50.0	2.10	U
3-Nitroaniline	1.90	50.0	1.90	U
3,3'-Dichlorobenzidine	3.10	20.0	3.10	U
4-Bromophenyl phenyl ether	1.00	10.0	1.00	U
4-Chloroaniline	2.10	20.0	2.10	U
4-Chlorophenyl phenyl ether	1.60	10.0	1.60	U
4-Nitroaniline	2.60	50.0	2.60	U
Acenaphthylene	1.60	10.0	1.60	U
Acenaphthene	1.60	10.0	1.60	U
Anthracene	1.80	10.0	1.80	U
Benzo (a) anthracene	1.80	10.0	1.80	U
Benzo (a) pyrene	1.60	10.0	1.60	U
Benzo (b) fluoranthene	4.30	10.0	4.30	U
Benzo (k) fluoranthene	4.30	10.0	4.30	U
Benzo (g, h, i) perylene	1.60	10.0	1.60	U
Benzyl alcohol	2.90	20.0	2.90	U
Bis (2-chloroethyl) ether	2.90	10.0	2.90	U
Bis (2-chloroethoxy) methane	2.20	10.0	2.20	U
Bis (2-chloroisopropyl) ether	2.30	10.0	2.30	U
Bis (2-ethylhexyl) phthalate	3.50	10.0	3.50	U
Butyl benzyl phthalate	1.80	10.0	1.80	U
Chrysene	1.60	10.0	1.60	U
Di-n-butylphthalate	1.60	10.0	1.60	U
Di-n-octylphthalate	2.40	10.0	2.40	U
Dibenz (a, h) anthracene	1.60	10.0	1.60	U

AFCEE O-6

2293

430 268

FC-WQ-EB-04 RE

Lab Name: ITS-DALLAS

Contract: 9610IDIQ\3103

Lab Code:

AAB No.: AB925-18

Matrix: (soil/water) WATER

Lab Sample ID: D96-12170-28

Lab File ID: FD989

Date Received: 10/25/96

% Solids: NA

Date Extracted: 10/30/96

Dilution Factor: 1.0

Date Analyzed: 11/01/96

CONCENTRATION UNITS: UG/L

COMPOUND	MDL	PQL	RESULT	Q
1,2,4-Trichlorobenzene	2.60	10.0	2.60	U
1,2-Dichlorobenzene	3.20	10.0	3.20	U
1,3-Dichlorobenzene	3.30	10.0	3.30	U
1,4-Dichlorobenzene	3.40	10.0	3.40	U
2,4-Dinitrotoluene	2.00	10.0	2.00	U
2,6-Dinitrotoluene	1.60	10.0	1.60	U
2-Chloronaphthalene	1.70	10.0	1.70	U
2-Methylnaphthalene	1.90	10.0	1.90	U
2-Nitroaniline	2.10	50.0	2.10	U
3-Nitroaniline	1.90	50.0	1.90	U
3,3'-Dichlorobenzidine	3.10	20.0	3.10	U
4-Bromophenyl phenyl ether	1.00	10.0	1.00	U
4-Chloroaniline	2.10	20.0	2.10	U
4-Chlorophenyl phenyl ether	1.60	10.0	1.60	U
4-Nitroaniline	2.60	50.0	2.60	U
Acenaphthylene	1.60	10.0	1.60	U
Acenaphthene	1.60	10.0	1.60	U
Anthracene	1.80	10.0	1.80	U
Benzo(a)anthracene	1.80	10.0	1.80	U
Benzo(a)pyrene	1.60	10.0	1.60	U
Benzo(b)fluoranthene	4.30	10.0	4.30	U
Benzo(k)fluoranthene	4.30	10.0	4.30	U
Benzo(g,h,i)perylene	1.60	10.0	1.60	U
Benzyl alcohol	2.90	20.0	2.90	U
Bis(2-chloroethyl) ether	2.90	10.0	2.90	U
Bis(2-chloroethoxy)methane	2.20	10.0	2.20	U
Bis(2-chloroisopropyl) ether	2.30	10.0	2.30	U
Bis(2-ethylhexyl)phthalate	3.50	10.0	3.50	U
Butyl benzyl phthalate	1.80	10.0	1.80	U
Chrysene	1.60	10.0	1.60	U
Di-n-butylphthalate	1.60	10.0	1.60	U
Di-n-octylphthalate	2.40	10.0	2.40	U
Dibenz(a,h)anthracene	1.60	10.0	1.60	U

APPENDIX B

DATA SUMMARY FORMS

TPH as GASOLINE and TPH as DIESEL

FCSB1601

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ\3103

Lab Code: DALLAS

AAB No.: 1031801501

Matrix: (soil/water) SOIL

Lab Sample ID: 12170-1

Lab File ID: 31OCT1636031

Date Received: 10/25/96

% Solids: 96.3

~~Date Extracted: 10/31/96~~

Dilution Factor: 1.0

Date Analyzed: 10/31/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
TPH AS GASOLINE	0.04	1.0	0.04	U

430 27i

FCSB1602

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ\3103

Lab Code: DALLAS

AAB No.: 1031801501

Matrix: (soil/water) SOIL

Lab Sample ID: 12170-2

Lab File ID: 31OCT1747031

Date Received: 10/25/96

% Solids: 95.1

~~Date Extracted: 10/31/96~~

Dilution Factor: 1.0

Date Analyzed: 10/31/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
TPH AS GASOLINE	0.04	1.0	0.04	U

430 272

FCSB1701

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ\3103

Lab Code: DALLAS

AAB No.: 1031801501

Matrix: (soil/water) SOIL

Lab Sample ID: 12170-3

Lab File ID: 31OCT1810031

Date Received: 10/25/96

% Solids: 94.9

~~Date Extracted: 10/31/96~~

Dilution Factor: 1.0

Date Analyzed: 10/31/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
TPH AS GASOLINE	0.04	1.0	0.04	U

430 273

FCSB1801

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ\3103

Lab Code: DALLAS

AAB No.: 1031801501

Matrix: (soil/water) SOIL

Lab Sample ID: 12170-4

Lab File ID: 31OCT1700031

Date Received: 10/25/96

% Solids: 94.3

~~Date Extracted: 10/31/96~~

Dilution Factor: 1.0

Date Analyzed: 10/31/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
TPH AS GASOLINE	0.04	1.0	0.04	U

430 274

FCSB1802

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ\3103

Lab Code: DALLAS

AAB No.: 1031801501

Matrix: (soil/water) SOIL

Lab Sample ID: 12170-5

Lab File ID: 31OCT1723031

Date Received: 10/25/96

% Solids: 91.9

Date Extracted: ~~10/31/96~~

Dilution Factor: 1.0

Date Analyzed: 10/31/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
TPH AS GASOLINE	0.04	1.0	0.04	U

430 275

FCSB1901

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ\3103

Lab Code: DALLAS

AAB No.: 1031801501

Matrix: (soil/water) SOIL

Lab Sample ID: 12170-7

Lab File ID: 31OCT1526031

Date Received: 10/25/96

% Solids: 93.7

~~Date Extracted: 10/31/96~~

Dilution Factor: 1.0

Date Analyzed: 10/31/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
TPH AS GASOLINE	0.04	1.0	0.04	U

430 276

FCSB1902

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ\3103

Lab Code: DALLAS

AAB No.: 1031801501

Matrix: (soil/water) SOIL

Lab Sample ID: 12170-8

Lab File ID: 31OCT1550031

Date Received: 10/25/96

% Solids: 93.9

~~Date Extracted: 10/31/96~~

Dilution Factor: 1.0

Date Analyzed: 10/31/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
TPH AS GASOLINE	0.04	1.0	0.04	U

430 277

FCSB2001

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ\3103

Lab Code: DALLAS

AAB No.: 1031801501

Matrix: (soil/water) SOIL

Lab Sample ID: 12170-9

Lab File ID: 31OCT2204031

Date Received: 10/25/96

% Solids: 95.7

~~Date Extracted: 10/31/96~~

Dilution Factor: 1.0

Date Analyzed: 10/31/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
TPH AS GASOLINE	0.04	1.0	0.04	U

8015M_GRO ORGANICS ANALYSIS DATA SHEET

430 278

FCSB2002

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ\3103

Lab Code: DALLAS

AAB No.: 1031801501

Matrix: (soil/water) SOIL

Lab Sample ID: 12170-10

Lab File ID: 31OCT1613031

Date Received: 10/25/96

% Solids: 87.6

~~Date Extracted: 10/31/96~~

Dilution Factor: 1.0

Date Analyzed: 10/31/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
TPH AS GASOLINE	0.05	1.0	0.05	U

FCWQEB04

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ\3103

Lab Code: DALLAS

AAB No.: 1101801501

Matrix: (soil/water) WATER

Lab Sample ID: 12170-12

Lab File ID: 01NOV1636101

Date Received: 10/25/96

% Solids: NA

Date Extracted: 11/01/96

Dilution Factor: 1.0

Date Analyzed: 11/01/96

CONCENTRATION UNITS: UG/L

COMPOUND	MDL	PQL	RESULT	Q
TPH AS GASOLINE	6.0	100.	6.0	U

430 280

FC-WQ-EB-04

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ/3103

Lab Code: ITS-DALLAS

AAB No.: AB925-19

Matrix: (soil/water) WATER

Lab Sample ID: 12170-12

Lab File ID: 31OCT0901031

Date Received: 10/25/96

% Solids: NA

Date Extracted: 10/30/96

Dilution Factor: 1.0

Date Analyzed: 10/31/96

CONCENTRATION UNITS: UG/L

COMPOUND	MDL	PQL	RESULT	Q
TPH AS DIESEL	30.00	1000.0	77.00	F

430 281

FC-SB16-01

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ/3103

Lab Code: ITS-DALLAS

AAB No.: AB925-13

Matrix: (soil/water) SOIL

Lab Sample ID: 12170-1

Lab File ID: 30OCT17050317

Date Received: 10/25/96

% Solids: 96.3

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
TPH AS DIESEL	2.08	10.0	2.44	F

8015M_DRO ORGANICS ANALYSIS DATA SHEET

430 282

FC-SB16-02

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ/3103

Lab Code: ITS-DALLAS

AAB No.: AB925-13

Matrix: (soil/water) SOIL

Lab Sample ID: 12170-2

Lab File ID: 30OCT1737030

Date Received: 10/25/96

% Solids: 95.1

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
TPH AS DIESEL	2.10	10.0	2.10	U

430 283

FC-SB17-01

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ/3103

Lab Code: ITS-DALLAS

AAB No.: AB925-13

Matrix: (soil/water) SOIL

Lab Sample ID: 12170-3

Lab File ID: 30OCT1808030

Date Received: 10/25/96

% Solids: 94.9

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
TPH AS DIESEL	2.11	10.0	2.19	F

430 284

FC-SB18-01

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ/3103

Lab Code: ITS-DALLAS

AAB No.: AB925-13

Matrix: (soil/water) SOIL

Lab Sample ID: 12170-4

Lab File ID: 30OCT1839030

Date Received: 10/25/96

% Solids: 94.3

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
TPH AS DIESEL	2.12	10.0	2.73	F

430 285

FC-SB18-02

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ/3103

Lab Code: ITS-DALLAS

AAB No.: AB925-13

Matrix: (soil/water) SOIL

Lab Sample ID: 12170-5

Lab File ID: 30OCT1254030

Date Received: 10/25/96

% Solids: 91.9

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/L

COMPOUND	MDL	PQL	RESULT	Q
TPH AS DIESEL	2.18	10.0	2.18	U

430 286

FC-SB19-01

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ/3103

Lab Code: ITS-DALLAS

AAB No.: AB925-13

Matrix: (soil/water) SOIL

Lab Sample ID: 12170-7

Lab File ID: 30OCT1325030

Date Received: 10/25/96

% Solids: 93.7

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
TPH AS DIESEL	2.13	10.0	3.07	F

430 287

FC-SB19-02

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ/3103

Lab Code: ITS-DALLAS

AAB No.: AB925-13

Matrix: (soil/water) SOIL

Lab Sample ID: 12170-8

Lab File ID: 30OCT1357030

Date Received: 10/25/96

% Solids: 93.9

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
TPH AS DIESEL	2.13	10.0	3.14	F

430 288

FC-SB20-01

Lab Name: INHCAPE TESTING SERVICES Contract: 9610IDIQ/3103

Lab Code: ITS-DALLAS

AAB No.: AB925-13

Matrix: (soil/water) SOIL

Lab Sample ID: 12170-9

Lab File ID: 30OCT1428030

Date Received: 10/25/96

% Solids: 95.7

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
TPH AS DIESEL	2.09	10.0	3.43	F

8015M_DRO ORGANICS ANALYSIS DATA SHEET

430 289

FC-SB20-02

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ/3103

Lab Code: ITS-DALLAS

AAB No.: AB925-13

Matrix: (soil/water) SOIL

Lab Sample ID: 12170-10

Lab File ID: 30OCT1634030

Date Received: 10/25/96

% Solids: 87.6

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
TPH AS DIESEL	2.28	10.0	2.28	U

430 290

BLANK

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ\3103

Lab Code: DALLAS

AAB No.: 1031801501

Matrix: (soil/water) SOIL

Method Blank ID: BLANK

Lab File ID: 31OCT1406031

Date Received: 10/26/96

% Solids: 100

Date ~~Extracted: 10/31/96~~

Dilution Factor: 1.0

Date Analyzed: 10/31/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
TPH AS GASOLINE	0.04	1.0	0.04	U

430 291

BLANK

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ\3103

Lab Code: DALLAS

AAB No.: 1101801501

Matrix: (soil/water) WATER

Method Blank ID: BLANK

Lab File ID: 01NOV1421101

Date Received: 10/25/96

% Solids: NA

~~Date Extracted: 11/01/96~~

Dilution Factor: 1.0

Date Analyzed: 11/01/96

CONCENTRATION UNITS: UG/L

COMPOUND	MDL	PQL	RESULT	Q
TPH AS GASOLINE	6.0	100.	6.0	U

430 292

BLANK

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ\3103

Lab Code: DALLAS

AAB No.: 1029801501

Matrix: (soil/water) SOIL

Method Blank ID: 12056-19

Lab File ID: 29OCT1611029

Date Received: 10/24/96

% Solids: 100

~~Date Extracted: 10/29/96~~

Dilution Factor: 1.0

Date Analyzed: 10/29/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
TPH AS GASOLINE	0.040	1.00	0.040	U

430 293

BLANK

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ\3103

Lab Code: DALLAS

AAB No.: 1028801501

Matrix: (soil/water) WATER

Method Blank ID: BLANK

Lab File ID: 28OCT1239028

Date Received: 10/25/96

% Solids: NA

~~Date Extracted: 10/28/96~~ e

Dilution Factor: 1.0

Date Analyzed: 10/28/96

CONCENTRATION UNITS: UG/L

COMPOUND	MDL	PQL	RESULT	Q
TPH AS GASOLINE	6.0	100.	6.0	U

430 294

BLANK

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ\3103

Lab Code: DALLAS

AAB No.: 1101801502

Matrix: (soil/water) SOIL

Method Blank ID: 12092-15

Lab File ID: 01NOV1453101

Date Received: 10/25/96

% Solids: 100

~~Date Extracted: 11/01/96~~

Dilution Factor: 1.0

Date Analyzed: 11/01/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
TPH AS GASOLINE	0.040	1.00	0.040	U

430 295

BLK

Lab Name: INCHCAPE TESTING SERVICES	Contract: 9610IDIQ/3103
Lab Code: ITS-DALLAS	AAB No.: AB903-85
Matrix: (soil/water) SOIL	Method Blank ID: BLK
Lab File ID: 28OCT1137030	Date Received: 10/23/96
% Solids: 100	Date Extracted: 10/25/96
Dilution Factor: 1.0	Date Analyzed: 10/28/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
TPH AS DIESEL	2.00	10.0	2.00	U

430 296

BLK

Lab Name: INCHCAPE TESTING SERVICES Contract: 96101IDIQ/3103
 Lab Code: ITS-DALLAS AAB No.: AB903-91
 Matrix: (soil/water) WATER Method Blank ID: BLK
 Lab File ID: 29OCT0919029 Date Received: 10/23/96
 % Solids: NA Date Extracted: 10/28/96
 Dilution Factor: 1.0 Date Analyzed: 10/29/96

CONCENTRATION UNITS: UG/L

COMPOUND	MDL	PQL	RESULT	Q
TPH AS DIESEL	30.0	1000	30.0	U

430 297

BLK

Lab Name: INCHCAPE TESTING SERVICES Contract: 96101IDIQ/3103

Lab Code: ITS-DALLAS

AAB No.: AB903-96

Matrix: (soil/water) SOIL

Method Blank ID: BLK

Lab File ID: 28OCT1620028

Date Received: 09/20/96

% Solids: 100

Date Extracted: 09/23/96

Dilution Factor: 1.0

Date Analyzed: 10/28/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
TPH AS DIESEL	2.00	10.0	2.00	U

430 298

BLK

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ/3103

Lab Code: ITS-DALLAS

AAB No.: AB925-19

Matrix: (soil/water) WATER

Method Blank ID: BLK

Lab File ID: 31OCT0729031

Date Received: 10/26/96

% Solids: NA

Date Extracted: 10/30/96

Dilution Factor: 1.0

Date Analyzed: 10/31/96

CONCENTRATION UNITS: UG/L

COMPOUND	MDL	PQL	RESULT	Q
TPH AS DIESEL	30.00	1000.0	30.00	U

430 299

BLK

Lab Name: INCHCAPE TESTING SERVICES Contract: 96101IDIQ/3103

Lab Code: ITS-DALLAS

AAB No.: AB925-13

Matrix: (soil/water) SOIL

Method Blank ID: BLK

Lab File ID: 30OCT122330

Date Received: 10/26/96

% Solids: 100

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
TPH AS DIESEL	2.00	10.0	2.00	U

430 300

DATA VALIDATION REPORT

ORGANIC AND INORGANIC ANALYSES

Recreation Vehicle (RV) and Family Camping (FAM CAMP) Area Project

Naval Air Station Fort Worth
Carswell Field, Texas

AFCEE Analytical Batch Numbers:

V12170, V12092, V12056, 1029802001, 1101802001, 1031802001, 1031801501, 1101801501,
1029801501, 1028801501, 1101801502, AB903-85, AB903-91, AB903-96, AB925-19, AB925-13,
AB903-84, AB925-42, AB925-10, AB925-18, AB925-4, AB903-98, AB925-12, 1030601001,
1028601001, 1027601002, 1106742101, 1027742101, 1031601001, 1210601001, 1119601003,
1028747101, 1029747001, 1031747101, 1105742101, and 1030747001

Sampling Dates of October 22 - 26, 1996

VOLUME 2 of 2

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RV and FAM CAMP Project
Data Validation Report: Organic and Inorganic Analyses

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RV and FAM CAMP Project
Data Validation Report: Organic and Inorganic Analyses

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Table 1: Field Duplicate Sample Analysis - Precision for Volatiles

Table 2: Field Duplicate Sample Analysis - Precision for Inorganics

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APPENDIX F

DATA QUALIFIERS

ORGANIC DATA QUALIFIERS

- U - Indicates that the compound was analyzed for, but not detected. The associated numerical value is at or below the *Method Detection Limit (MDL)*.
- J - The compound was positively identified. The associated numerical value is an estimated quantity.
- UJ - The compound was analyzed for, but not detected. The sample quantitation limit is an estimated quantity due to variance from quality control limits.
- F - The compound was positively identified. However, the associated numerical value is below the *Practical Quantitation Limit (PQL)*.
- B - The compound was found in the associated blank, as well as in the sample.
- M - Designates that a matrix effect may be present due to accuracy and/or precision being generated out of specification for the *MS/MSD*.
- E - Reported value is estimated due to quantitation above the calibration range.
- D - Reported result taken from diluted sample analysis.
- R - Reported value is unusable and rejected due to variance from quality control limits.
- NA - Not Analyzed.

INORGANIC DATA QUALIFIERS

- U - Indicates that the analyte was analyzed for, but not detected. The associated numerical value is at or below the Method Detection Limit (MDL).
- J - The analyte was positively identified. The reported value is estimated due to variance from quality control limits.
- UJ - The element was analyzed for, but not detected. The sample quantitation limit is an estimate due to variance from quality control limits.
- B - The compound was found in the associated blank, as well as in the sample.
- M - Designates that a matrix effect may be present due to accuracy and/or precision being generated out of specification for the MS/MSD.
- F - The compound was positively identified. However, the associated numerical value is below the Practical Quantitation Limit (PQL).
- R - Reported value is unusable and rejected due to variance from quality control limits.
- NA - Not analyzed.

APPENDIX G

CASE NARRATIVES



DATE RECEIVED: 23 & 24-OCT-1996 REPORT NUMBER: D96-12056
REPORT DATE: 26-DEC-1996

SAMPLE SUBMITTED BY : The Environmental Company
ADDRESS : 710 NW Juniper Street
Issaquah, WA 98027
ATTENTION : Mr. Bob Duffner
DATE SAMPLED : 22 & 23-OCT-96

CASE NARRATIVE COMMENTS:

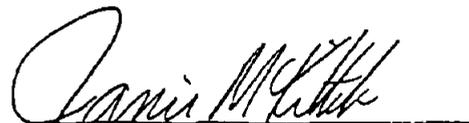
Regarding ICP Metals, analyzed by EPA 6010A; the soil samples were re-prepared for Zinc analysis, and are reported in a separate package following the initial analysis.

Diesel Range Organics, by EPA 8015 Modified, have surrogate recoveries outside of acceptance limits for the following samples: FC-SB01-01, FC-SB02-01, and FC-SB02-02. High product recovery in the samples have caused matrix interference with surrogate recoveries.

Regarding Volatile Organics, by EPA 8240; sample FC-SB01-02 was re-analyzed due to low internal standard recoveries. The re-analysis was within internal standard recovery limits.

The Semivolatile Organics, by EPA 8270, have matrix interference demonstrated by the Matrix Spike, Matrix Spike Duplicate, and RPD between the MS/MSD. Benzoic acid is outside of recovery limits in the Matrix Spike sample. 2,4-Dimethylphenol, 2,4-Dinitrophenol, and Benzoic acid are outside of recovery limits in the Matrix Spike Duplicate sample. In addition, the RPD for 2,4-Dinitrophenol is outside of acceptance limits. All associated quality control samples have been flagged "M". Due to low recovery of acid surrogates, samples FC-SB01-01 and FC-SB02-01 have been flagged "R" for all acid target compounds. These samples were re-analyzed at a dilution of 10X, and confirmed that matrix interference was responsible for low surrogate recoveries.

No other comments were documented during the sample analysis of this job. If you have any questions, please call me at (972) 238-5591.


Janice McKittrick
Project Manager



DATE RECEIVED: 25 & 26-OCT-1996

REPORT NUMBER: D96-12170

REPORT DATE: 31-DEC-1996

SAMPLE SUBMITTED BY : The Environmental Company
ADDRESS : 710 NW Juniper Street
Issaquah, WA 98027
ATTENTION : Mr. Bob Duffner
DATE SAMPLED : 25 & 26-OCT-96

CASE NARRATIVE COMMENTS:

Regarding ICP Metals, analyzed by EPA 6010A; the soil samples were re-prepared for Antimony analysis, and are reported in a separate package following the initial analysis. The Matrix Spike, Matrix Spike Duplicate, and RPD between the MS/MSD are outside of acceptance limits for: Aluminum, Antimony, Calcium, and Magnesium. The Matrix Spike and Matrix Spike Duplicate are outside of acceptance limits for: Cadmium, Iron, Nickel, Potassium, and Zinc. All associated quality control samples have been flagged "M".

Regarding Lead analysis by EPA Method 7421, the Matrix Spike, Matrix Spike Duplicate, and RPD between the MS/MSD are outside of acceptance criteria. All associated quality control samples have been flagged "M".

Due to the detection of target compounds exceeding the calibration range, Benzene, Toluene, Ethylbenzene, m,p-Xylene, and o-Xylene; samples FC-SB11-03 and FC-SB12-03 were re-analyzed with a dilution factor of 100 times, for Volatile Organics by EPA Method 8240.

Regarding the Semivolatile Organics by EPA Method 8270, the soil Matrix Spike / Matrix Spike Duplicate RPD was greater than 30%. All associated quality control samples have been flagged "M". The surrogate recovery for Phenol-d6 is below the lower control limit for FC-WQ-EB-04 and FC-WQ-EB-05. The samples were re-analyzed and the low surrogate recovery confirmed. All target compounds associated with this surrogate are flagged "J" in these samples.

No other comments were documented during the sample analysis of this job. If you have any questions, please call me at (972) 238-5591.


Janice McKittrick
Project Manager



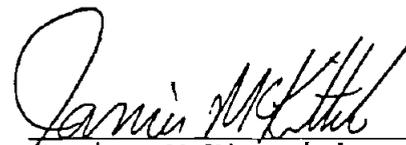
DATE RECEIVED: 23,24 & 25-OCT-1996 REPORT NUMBER: D96-12092
REPORT DATE: 26-DEC-1996

SAMPLE SUBMITTED BY : The Environmental Company
ADDRESS : 710 NW Juniper Street
Issaquah, WA 98027
ATTENTION : Mr. Bob Duffner
DATE SAMPLED : 22, 23 & 24-OCT-96

CASE NARRATIVE COMMENTS:

Regarding ICP Metals, analyzed by EPA 6010A; the soil samples were re-prepared for Zinc analysis, and are reported in a separate package following the initial analysis.

No other comments were documented during the sample analysis of this job. If you have any questions, please call me at (972) 238-5591.



Janice McKittrick
Project Manager

APPENDIX H

CHAIN-OF-CUSTODY FORMS

CHAIN OF CUSTODY RECORD

PROJECT	SAMPLERS: (Signature)			DATE	TIME	MATRIX	CONTAINERS NO.	ANALYSIS REQUIRED	REMARKS OR SAMPLE LOCATION	PRESERVATION	
	I		C							E	D
3101 - Fam Camp	Bob Duffner										
FC-SB16-01			10/25	0810	Soil	4	1	X	1	1	X
FC-SB16-02			10/25	0825	Soil	4	1	X	1	1	X
FC-SB17-01			10/25	1040	Soil	4	1	X	1	1	X
FC-SB18-01			10/25	1000	Soil	4	1	X	1	1	X
FC-SB18-02			10/25	1015	Soil	4	1	X	1	1	X
FC-WQT B-05			10/25	1530	water	2	1				
COOLER TEMPERATURE WHEN RECEIVED °C											
Relinquished by: (Signature) ① Bob Duffner Date / Time 10/25/14 1615											
Relinquished by: (Signature) ② Bob Duffner Date / Time 10-25 1830											
Relinquished by: (Signature) ③ Bob Duffner Date / Time 10-25 1830											
Relinquished by: (Signature) ④ Bob Duffner Date / Time 10-25 1830											

ORIGINAL

CHAIN OF CUSTODY RECORD

PROJECT	SAMPLE NUMBER	DATE	TIME	MATRIX	CONTAINERS	ANALYSIS REQUIRED					REMARKS OR SAMPLE LOCATION	PRESERVATION	
						Mobile	BTEX	SVOC	TPH-D	TPH-G		INOC	ICED
FAM CAMP Bob Duffner, King Tronsguard	FC-SB01-01	10/22	09:40	Soil	3	X	X	X	X	X		X	Energy
	FC-SB01-02	10/22	10:05	Soil	4	X	X	X	X	X		X	MNO3
	FC-SB01-03	10/22	10:20	Soil	3	X	X	X	X	X		X	TPH-D
	FC-SB02-01	10/22	13:00	Soil	3	X	X	X	X	X		X	HCl
	FC-SB02-02	10/22	13:20	Soil	3	X	X	X	X	X		X	NO2-1
	FC-SB02-03	10/22	14:20	Soil	3	X	X	X	X	X		X	H2K
	FC-SB03-01	10/22	17:10	Soil	3	X	X	X	X	X		X	+
	FC-SB03-02	10/22	17:25	Soil	4	X	X	X	X	X		X	2
	FC-SB03-03	10/22	17:45	Soil	3	X	X	X	X	X		X	3
	FC-WQ-EB-01	10/22	12:45	Water	7	X	X	X	X	X		X	
TEMP BLANK					1								
FC-WQ-TB-01	10/22	22:18	Water	2	X								
RELINQUISHED BY: (Signature) ①	Received by: (Signature)	Date / Time	Relinquished by: (Signature) ④		Received by: (Signature)		Date / Time		Shipped via:		430		
RELINQUISHED BY: (Signature) ②	Received by: (Signature)	Date / Time	Relinquished by: (Signature)		Received by: (Signature)		Date / Time		Shipping Ticket No.		312		
RELINQUISHED BY: (Signature) ③	Received by: (Signature)	Date / Time	Relinquished by: (Signature)		Received by: (Signature)		Date / Time		TEMPERATURE RECEIVED		3 °C		

ORIGINAL

Cooler Temp

Received for Laboratory by: (Signature) C. McLean

TEMPERATURE RECEIVED

3 °C

500

CHAIN OF CUSTODY RECORD

10/24/00

PROJECT: # 3103 FAM CAMP
 SAMPLERS: (Signature) Bob Duffin

ANALYSIS REQUIRED:
 Volatiles BOD5
 BTEX BOD5
 SUVA BOD5
 TPHD BOD5
 TPHG BOD5
 HMOs GC/MS

SAMPLE NUMBER	DATE	TIME	MATRIX	CONTAINERS NO.	ANALYSIS REQUIRED	REMARKS OR SAMPLE LOCATION	PRESERVATION	SPECIFY CHEMICALS ADDED AND FINAL pH IF KNOWN
FC-SB04-01	10/23	0840	SOIL	3	1	31044TPHD is -10		
FC-SB04-02	10/23	0840	SOIL	4	1	same container		
FC-SB05-01	10/23	1035	SOIL	3	1			
FC-SB05-02	10/23	1135	SOIL	4	1			
FC-SB05-03	10/23	1150	SOIL	2	1			
FC-SB05-04	10/23	1035	SOIL	2	1			
FC-SB06-01	10/23	1450	SOIL	4	2	MS/MSD		
FC-SB06-02	10/23	1520	SOIL	2	1			
FC-SB06-03	10/23	1520	SOIL	2	1			
FC-WQ-EB-02	10/23	1630	WATER	4	2			
FC-WQ-TB-03	10/23	1740	WATER	2	2			
Temperature Control					1	Cooler Temp @ C		
Relinquished by: (Signature) R.M. Duffin	Date / Time	10/23/00	1745	Received by: (Signature)	Date / Time	10/24/00	Shipped via:	430
Relinquished by: (Signature)	Date / Time			Received by: (Signature)	Date / Time		Shipping Ticket No.	315
Relinquished by: (Signature)	Date / Time			Received by: (Signature)	Date / Time			315

APPENDIX C

**DATA SUMMARY FORMS
SEMIVOLATILE ORGANICS**

BLK

Lab Name: ITS-DALLAS

Contract: 9610IDIQ\3103

Lab Code:

AAB No.: AB925-18

Matrix: (soil/water) WATER

Lab Sample ID: D96-12170-26

Lab File ID: FD957

Date Received: 10/26/96

% Solids: NA

Date Extracted: 10/30/96

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: UG/L

COMPOUND	MDL	PQL	RESULT	Q
Dibenzofuran	1.60	10.0	1.60	U
Diethyl phthalate	1.50	10.0	1.50	U
Dimethyl phthalate	1.20	10.0	1.20	U
Fluoranthene	3.20	10.0	3.20	U
Fluorene	1.80	10.0	1.80	U
Hexachlorobenzene	1.10	10.0	1.10	U
Hexachlorobutadiene	3.00	10.0	3.00	U
Hexachlorocyclopentadiene	0.20	10.0	0.20	U
Hexachloroethane	3.40	10.0	3.40	U
Indeno(1,2,3-cd)pyrene	1.40	10.0	1.40	U
Isophorone	1.60	10.0	1.60	U
N-Nitrosodiphenylamine (1)	1.20	10.0	1.20	U
N-Nitrosodi-n-propylamine	2.10	10.0	2.10	U
Naphthalene	2.20	10.0	2.20	U
Nitrobenzene	2.50	10.0	2.50	U
Phenanthrene	1.50	10.0	1.50	U
Pyrene	2.20	10.0	2.20	U
2,4,5-Trichlorophenol	1.60	50.0	1.60	U
2,4,6-Trichlorophenol	1.50	10.0	1.50	U
2,4-Dichlorophenol	1.80	10.0	1.80	U
2,4-Dimethylphenol	2.30	10.0	2.30	U
2,4-Dinitrophenol	2.00	50.0	2.00	U
2-Chlorophenol	2.50	10.0	2.50	U
2-Methylphenol	2.40	20.0	2.40	U
2-Nitrophenol	2.30	10.0	2.30	U
4,6-Dinitro-2-methylphenol	2.30	50.0	2.30	U
4-Chloro-3-methylphenol	1.60	20.0	1.60	U
4-Methylphenol	1.80	10.0	1.80	U
4-Nitrophenol	3.10	50.0	3.10	U
Benzoic acid	3.90	50.0	3.90	U
Pentachlorophenol	5.70	50.0	5.70	U
Phenol	2.60	10.0	2.60	U

(1) - Cannot be separated from Diphenylamine

FC-WQ-EB-04 RE

Lab Name: ITS-DALLAS

Contract: 9610IDIQ\3103

Lab Code:

AAB No.: AB925-18

Matrix: (soil/water) WATER

Lab Sample ID: D96-12170-28

Lab File ID: FD989

Date Received: 10/25/96

% Solids: NA

Date Extracted: 10/30/96

Dilution Factor: 1.0

Date Analyzed: 11/01/96

CONCENTRATION UNITS: UG/L

COMPOUND	MDL	PQL	RESULT	Q
Dibenzofuran	1.60	10.0	1.60	U
Diethyl phthalate	1.50	10.0	1.50	U
Dimethyl phthalate	1.20	10.0	1.20	U
Fluoranthene	3.20	10.0	3.20	U
Fluorene	1.80	10.0	1.80	U
Hexachlorobenzene	1.10	10.0	1.10	U
Hexachlorobutadiene	3.00	10.0	3.00	U
Hexachlorocyclopentadiene	0.20	10.0	0.20	U
Hexachloroethane	3.40	10.0	3.40	U
Indeno(1,2,3-cd)pyrene	1.40	10.0	1.40	U
Isophorone	1.60	10.0	1.60	U
N-Nitrosodiphenylamine	1.20	10.0	1.20	U
N-Nitrosodi-n-propylamine	2.10	10.0	2.10	U
Naphthalene	2.20	10.0	2.20	U
Nitrobenzene	2.50	10.0	2.50	U
Phenanthrene	1.50	10.0	1.50	U
Pyrene	2.20	10.0	2.20	U
2,4,5-Trichlorophenol	1.60	50.0	1.60	UJ
2,4,6-Trichlorophenol	1.50	10.0	1.50	UJ
2,4-Dichlorophenol	1.80	10.0	1.80	UJ
2,4-Dimethylphenol	2.30	10.0	2.30	UJ
2,4-Dinitrophenol	2.00	50.0	2.00	UJ
2-Chlorophenol	2.50	10.0	2.50	UJ
2-Methylphenol	2.40	20.0	2.40	UJ
2-Nitrophenol	2.30	10.0	2.30	UJ
4,6-Dinitro-2-methylphenol	2.30	50.0	2.30	UJ
4-Chloro-3-methylphenol	1.60	20.0	1.60	UJ
4-Methylphenol	1.80	10.0	1.80	UJ
4-Nitrophenol	3.10	50.0	3.10	UJ
Benzoic acid	3.90	50.0	3.90	UJ
Pentachlorophenol	5.70	50.0	5.70	UJ
Phenol	2.60	10.0	2.60	UJ

FC-WQ-EB-04

Lab Name: ITS-DALLAS
 Lab Code:
 Matrix: (soil/water) WATER
 Lab File ID: FD963
 % Solids: NA
 Dilution Factor: 1.0

Contract: 9610IDIQ\3103
 AAB No.: AB925-18
 Lab Sample ID: D96-12170-12
 Date Received: 10/25/96
 Date Extracted: 10/30/96
 Date Analyzed: 10/30/96

CONCENTRATION UNITS: UG/L

COMPOUND	MDL	PQL	RESULT	Q
✓ Dibenzofuran	1.60	10.0	1.60	U
✓ Diethyl phthalate	1.50	10.0	1.50	U
✓ Dimethyl phthalate	1.20	10.0	1.20	U
✓ Fluoranthene	3.20	10.0	3.20	U
✓ Fluorene	1.80	10.0	1.80	U
✓ Hexachlorobenzene	1.10	10.0	1.10	U
✓ Hexachlorobutadiene	3.00	10.0	3.00	U
✓ Hexachlorocyclopentadiene	0.20	10.0	0.20	U
✓ Hexachloroethane	3.40	10.0	3.40	U
✓ Indeno(1,2,3-cd)pyrene	1.40	10.0	1.40	U
✓ Isophorone	1.60	10.0	1.60	U
✓ N-Nitrosodiphenylamine	1.20	10.0	1.20	U
✓ N-Nitrosodi-n-propylamine	2.10	10.0	2.10	U
✓ Naphthalene	2.20	10.0	2.20	U
✓ Nitrobenzene	2.50	10.0	2.50	U
✓ Phenanthrene	1.50	10.0	1.50	U
✓ Pyrene	2.20	10.0	2.20	U
✓ 2,4,5-Trichlorophenol	1.60	50.0	1.60	UJ
✓ 2,4,6-Trichlorophenol	1.50	10.0	1.50	UJ
✓ 2,4-Dichlorophenol	1.80	10.0	1.80	UJ
✓ 2,4-Dimethylphenol	2.30	10.0	2.30	UJ
✓ 2,4-Dinitrophenol	2.00	50.0	2.00	UJ
✓ 2-Chlorophenol	2.50	10.0	2.50	UJ
✓ 2-Methylphenol	2.40	20.0	2.40	UJ
✓ 2-Nitrophenol	2.30	10.0	2.30	UJ
✓ 4,6-Dinitro-2-methylphenol	2.30	50.0	2.30	UJ
✓ 4-Chloro-3-methylphenol	1.60	20.0	1.60	UJ
✓ 4-Methylphenol	1.80	10.0	1.80	UJ
✓ 4-Nitrophenol	3.10	50.0	3.10	UJ
✓ Benzoic acid	3.90	50.0	3.90	UJ
✓ Pentachlorophenol	5.70	50.0	5.70	UJ
✓ Phenol	2.60	10.0	2.60	UJ

430 323

BLK

Lab Name: ITS-DALLAS

Contract: 9610IDIQ\3103

Lab Code:

AAB No.: AB925-10

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12170-21

Lab File ID: FD990

Date Received: 10/25/96

% Solids: 100

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 11/01/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
Dibenz(a,h)anthracene	0.30	0.7	0.30	U
Dibenzofuran	0.30	0.7	0.30	U
Diethyl phthalate	0.24	0.7	0.24	U
Dimethyl phthalate	0.24	0.7	0.24	U
Fluoranthene	0.30	0.7	0.30	U
Fluorene	0.30	0.7	0.30	U
Hexachlorobenzene	0.30	0.7	0.30	U
Hexachlorobutadiene	0.30	0.7	0.30	U
Hexachlorocyclopentadiene	0.10	0.7	0.10	U
Hexachloroethane	0.30	0.7	0.30	U
Indeno(1,2,3-cd)pyrene	0.30	0.7	0.30	U
Isophorone	0.30	0.7	0.30	U
N-Nitrosodiphenylamine (1)	0.30	0.7	0.30	U
N-Nitrosodi-n-propylamine	0.30	0.7	0.30	U
Naphthalene	0.20	0.7	0.20	U
Nitrobenzene	0.30	0.7	0.30	U
Phenanthrene	0.30	0.7	0.30	U
Pyrene	0.30	0.7	0.30	U
2,4,5-Trichlorophenol	0.30	3.3	0.30	U
2,4,6-Trichlorophenol	0.15	0.3	0.15	U
2,4-Dimethylphenol	0.15	0.3	0.15	U
2,4-Dinitrophenol	0.20	3.3	0.20	U
2-Chlorophenol	0.15	0.3	0.15	U
2-Methylphenol	0.15	0.3	0.15	U
2-Nitrophenol	0.15	0.3	0.15	U
4,6-Dinitro-2-methylphenol	0.20	3.3	0.20	U
4-Chloro-3-methylphenol	0.20	1.3	0.20	U
4-Methylphenol	0.15	0.3	0.15	U
4-Nitrophenol	0.30	1.6	0.30	U
Benzoic acid	0.20	1.6	0.20	U
Pentachlorophenol	0.20	3.3	0.20	U
Phenol	0.15	0.3	0.15	U

(1) - Cannot be separated from Diphenylamine

FC-SB20-02

Lab Name: ITS-DALLAS

Contract: 9610IDIQ\3103

Lab Code:

AAB No.: AB925-10

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12170-10

Lab File ID: FD994

Date Received: 10/25/96

% Solids: 88

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 11/01/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
Dibenz(a,h)anthracene	0.34	0.7	0.34	U
Dibenzofuran	0.34	0.7	0.34	U
Diethyl phthalate	0.27	0.7	0.27	U
Dimethyl phthalate	0.27	0.7	0.27	U
Fluoranthene	0.34	0.7	0.34	U
Fluorene	0.34	0.7	0.34	U
Hexachlorobenzene	0.34	0.7	0.34	U
Hexachlorobutadiene	0.34	0.7	0.34	U
Hexachlorocyclopentadiene	0.11	0.7	0.11	U
Hexachloroethane	0.34	0.7	0.34	U
Indeno(1,2,3-cd)pyrene	0.34	0.7	0.34	U
Isophorone	0.34	0.7	0.34	U
N-Nitrosodiphenylamine	0.34	0.7	0.34	U
N-Nitrosodi-n-propylamine	0.34	0.7	0.34	U
Naphthalene	0.23	0.7	0.23	U
Nitrobenzene	0.34	0.7	0.34	U
Phenanthrene	0.34	0.7	0.34	U
Pyrene	0.34	0.7	0.34	U
2,4,5-Trichlorophenol	0.34	3.3	0.34	U
2,4,6-Trichlorophenol	0.17	0.3	0.17	U
2,4-Dimethylphenol	0.17	0.3	0.17	U
2,4-Dinitrophenol	0.23	3.3	0.23	U
2-Chlorophenol	0.17	0.3	0.17	U
2-Methylphenol	0.17	0.3	0.17	U
2-Nitrophenol	0.17	0.3	0.17	U
4,6-Dinitro-2-methylphenol	0.23	3.3	0.23	U
4-Chloro-3-methylphenol	0.23	1.3	0.23	U
4-Methylphenol	0.17	0.3	0.17	U
4-Nitrophenol	0.34	1.6	0.34	U
Benzoic acid	0.23	1.6	0.23	U
Pentachlorophenol	0.23	3.3	0.23	U
Phenol	0.17	0.3	0.17	U

FC-SB20-01

Lab Name: ITS-DALLAS
 Lab Code:
 Matrix: (soil/water) SOIL
 Lab File ID: FE084
 % Solids: 96
 Dilution Factor: 1.0

Contract: 9610IDIQ\3103
 AAB No.: AB925-10
 Lab Sample ID: D96-12170-9
 Date Received: 10/25/96
 Date Extracted: 10/29/96
 Date Analyzed: 11/07/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
Dibenz (a, h) anthracene	0.31	0.7	0.31	U
Dibenzofuran	0.31	0.7	0.31	U
Diethyl phthalate	0.25	0.7	0.25	U
Dimethyl phthalate	0.25	0.7	0.25	U
Fluoranthene	0.31	0.7	0.31	U
Fluorene	0.31	0.7	0.31	U
Hexachlorobenzene	0.31	0.7	0.31	U
Hexachlorobutadiene	0.31	0.7	0.31	U
Hexachlorocyclopentadiene	0.10	0.7	0.10	U
Hexachloroethane	0.31	0.7	0.31	U
Indeno (1, 2, 3- cd) pyrene	0.31	0.7	0.31	U
Isophorone	0.31	0.7	0.31	U
N-Nitrosodiphenylamine	0.31	0.7	0.31	U
N-Nitrosodi-n-propylamine	0.31	0.7	0.31	U
Naphthalene	0.21	0.7	0.21	U
Nitrobenzene	0.31	0.7	0.31	U
Phenanthrene	0.31	0.7	0.31	U
Pyrene	0.31	0.7	0.31	U
2,4,5-Trichlorophenol	0.31	3.3	0.31	U
2,4,6-Trichlorophenol	0.16	0.3	0.16	U
2,4-Dimethylphenol	0.16	0.3	0.16	U
2,4-Dinitrophenol	0.21	3.3	0.21	U
2-Chlorophenol	0.16	0.3	0.16	U
2-Methylphenol	0.16	0.3	0.16	U
2-Nitrophenol	0.16	0.3	0.16	U
4,6-Dinitro-2-methylphenol	0.21	3.3	0.21	U
4-Chloro-3-methylphenol	0.21	1.3	0.21	U
4-Methylphenol	0.16	0.3	0.16	U
4-Nitrophenol	0.31	1.6	0.31	U
Benzoic acid	0.21	1.6	0.21	U ^M
Pentachlorophenol	0.21	3.3	0.21	U
Phenol	0.16	0.3	0.16	U

FC-SB19-02

Lab Name: ITS-DALLAS

Contract: 9610IDIQ\3103

Lab Code:

AAB No.: AB925-10

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12170-8

Lab File ID: FE083

Date Received: 10/25/96

% Solids: 94

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 11/07/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
Dibenz(a,h)anthracene	0.32	0.7	0.32	U
Dibenzofuran	0.32	0.7	0.32	U
Diethyl phthalate	0.26	0.7	0.26	U
Dimethyl phthalate	0.26	0.7	0.26	U
Fluoranthene	0.32	0.7	0.32	U
Fluorene	0.32	0.7	0.32	U
Hexachlorobenzene	0.32	0.7	0.32	U
Hexachlorobutadiene	0.32	0.7	0.32	U
Hexachlorocyclopentadiene	0.11	0.7	0.11	U
Hexachloroethane	0.32	0.7	0.32	U
Indeno(1,2,3-cd)pyrene	0.32	0.7	0.32	U
Isophorone	0.32	0.7	0.32	U
N-Nitrosodiphenylamine	0.32	0.7	0.32	U
N-Nitrosodi-n-propylamine	0.32	0.7	0.32	U
Naphthalene	0.21	0.7	0.21	U
Nitrobenzene	0.32	0.7	0.32	U
Phenanthrene	0.32	0.7	0.32	U
Pyrene	0.32	0.7	0.32	U
2,4,5-Trichlorophenol	0.32	3.3	0.32	U
2,4,6-Trichlorophenol	0.16	0.3	0.16	U
2,4-Dimethylphenol	0.16	0.3	0.16	U
2,4-Dinitrophenol	0.21	3.3	0.21	U
2-Chlorophenol	0.16	0.3	0.16	U
2-Methylphenol	0.16	0.3	0.16	U
2-Nitrophenol	0.16	0.3	0.16	U
4,6-Dinitro-2-methylphenol	0.21	3.3	0.21	U
4-Chloro-3-methylphenol	0.21	1.3	0.21	U
4-Methylphenol	0.16	0.3	0.16	U
4-Nitrophenol	0.32	1.6	0.32	U
Benzoic acid	0.21	1.6	0.21	U
Pentachlorophenol	0.21	3.3	0.21	U
Phenol	0.16	0.3	0.16	U

FC-SB19-01

Lab Name: ITS-DALLAS

Contract: 9610IDIQ\3103

Lab Code:

AAB No.: AB925-10

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12170-7

Lab File ID: FE000

Date Received: 10/25/96

% Solids: 94

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 11/01/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
Dibenz(a,h)anthracene	0.32	0.7	0.32	U
Dibenzofuran	0.32	0.7	0.32	U
Diethyl phthalate	0.26	0.7	0.26	U
Dimethyl phthalate	0.26	0.7	0.26	U
Fluoranthene	0.32	0.7	0.32	U
Fluorene	0.32	0.7	0.32	U
Hexachlorobenzene	0.32	0.7	0.32	U
Hexachlorobutadiene	0.32	0.7	0.32	U
Hexachlorocyclopentadiene	0.11	0.7	0.11	U
Hexachloroethane	0.32	0.7	0.32	U
Indeno(1,2,3-cd)pyrene	0.32	0.7	0.32	U
Isophorone	0.32	0.7	0.32	U
N-Nitrosodiphenylamine	0.32	0.7	0.32	U
N-Nitrosodi-n-propylamine	0.32	0.7	0.32	U
Naphthalene	0.21	0.7	0.21	U
Nitrobenzene	0.32	0.7	0.32	U
Phenanthrene	0.32	0.7	0.32	U
Pyrene	0.32	0.7	0.32	U
2,4,5-Trichlorophenol	0.32	3.3	0.32	U
2,4,6-Trichlorophenol	0.16	0.3	0.16	U
2,4-Dimethylphenol	0.16	0.3	0.16	U
2,4-Dinitrophenol	0.21	3.3	0.21	U
2-Chlorophenol	0.16	0.3	0.16	U
2-Methylphenol	0.16	0.3	0.16	U
2-Nitrophenol	0.16	0.3	0.16	U
4,6-Dinitro-2-methylphenol	0.21	3.3	0.21	U
4-Chloro-3-methylphenol	0.21	1.3	0.21	U
4-Methylphenol	0.16	0.3	0.16	U
4-Nitrophenol	0.32	1.6	0.32	U
Benzoic acid	0.21	1.6	0.21	U
Pentachlorophenol	0.21	3.3	0.21	U
Phenol	0.16	0.3	0.16	U

430 328

FC-SB18-02

Lab Name: ITS-DALLAS
 Lab Code:
 Matrix: (soil/water) SOIL
 Lab File ID: FD999
 % Solids: 92
 Dilution Factor: 1.0

Contract: 9610IDIQ\3103
 AAB No.: AB925-10
 Lab Sample ID: D96-12170-5
 Date Received: 10/25/96
 Date Extracted: 10/29/96
 Date Analyzed: 11/01/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
Dibenz(a,h)anthracene	0.33	0.7	0.33	U
Dibenzofuran	0.33	0.7	0.33	U
Diethyl phthalate	0.26	0.7	0.26	U
Dimethyl phthalate	0.26	0.7	0.26	U
Fluoranthene	0.33	0.7	0.33	U
Fluorene	0.33	0.7	0.33	U
Hexachlorobenzene	0.33	0.7	0.33	U
Hexachlorobutadiene	0.33	0.7	0.33	U
Hexachlorocyclopentadiene	0.11	0.7	0.11	U
Hexachloroethane	0.33	0.7	0.33	U
Indeno(1,2,3-cd)pyrene	0.33	0.7	0.33	U
Isophorone	0.33	0.7	0.33	U
N-Nitrosodiphenylamine	0.33	0.7	0.33	U
N-Nitrosodi-n-propylamine	0.33	0.7	0.33	U
Naphthalene	0.22	0.7	0.22	U
Nitrobenzene	0.33	0.7	0.33	U
Phenanthrene	0.33	0.7	0.33	U
Pyrene	0.33	0.7	0.33	U
2,4,5-Trichlorophenol	0.33	3.3	0.33	U
2,4,6-Trichlorophenol	0.16	0.3	0.16	U
2,4-Dimethylphenol	0.16	0.3	0.16	U
2,4-Dinitrophenol	0.22	3.3	0.22	U
2-Chlorophenol	0.16	0.3	0.16	U
2-Methylphenol	0.16	0.3	0.16	U
2-Nitrophenol	0.16	0.3	0.16	U
4,6-Dinitro-2-methylphenol	0.22	3.3	0.22	U
4-Chloro-3-methylphenol	0.22	1.3	0.22	U
4-Methylphenol	0.16	0.3	0.16	U
4-Nitrophenol	0.33	1.6	0.33	U
Benzoic acid	0.22	1.6	0.22	U
Pentachlorophenol	0.22	3.3	0.22	U
Phenol	0.16	0.3	0.16	U

FC-SB18-01

Lab Name: ITS-DALLAS

Contract: 9610IDIQ\3103

Lab Code:

AAB No.: AB925-10

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12170-4

Lab File ID: FD998

Date Received: 10/25/96

% Solids: 94

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 11/01/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
Dibenz(a,h)anthracene	0.32	0.7	0.32	U
Dibenzofuran	0.32	0.7	0.32	U
Diethyl phthalate	0.25	0.7	0.25	U
Dimethyl phthalate	0.25	0.7	0.25	U
Fluoranthene	0.32	0.7	0.32	U
Fluorene	0.32	0.7	0.32	U
Hexachlorobenzene	0.32	0.7	0.32	U
Hexachlorobutadiene	0.32	0.7	0.32	U
Hexachlorocyclopentadiene	0.11	0.7	0.11	U
Hexachloroethane	0.32	0.7	0.32	U
Indeno(1,2,3-cd)pyrene	0.32	0.7	0.32	U
Isophorone	0.32	0.7	0.32	U
N-Nitrosodiphenylamine	0.32	0.7	0.32	U
N-Nitrosodi-n-propylamine	0.32	0.7	0.32	U
Naphthalene	0.21	0.7	0.21	U
Nitrobenzene	0.32	0.7	0.32	U
Phenanthrene	0.32	0.7	0.32	U
Pyrene	0.32	0.7	0.32	U
2,4,5-Trichlorophenol	0.32	3.3	0.32	U
2,4,6-Trichlorophenol	0.16	0.3	0.16	U
2,4-Dimethylphenol	0.16	0.3	0.16	U
2,4-Dinitrophenol	0.21	3.3	0.21	U
2-Chlorophenol	0.16	0.3	0.16	U
2-Methylphenol	0.16	0.3	0.16	U
2-Nitrophenol	0.16	0.3	0.16	U
4,6-Dinitro-2-methylphenol	0.21	3.3	0.21	U
4-Chloro-3-methylphenol	0.21	1.3	0.21	U
4-Methylphenol	0.16	0.3	0.16	U
4-Nitrophenol	0.32	1.6	0.32	U
Benzoic acid	0.21	1.6	0.21	U
Pentachlorophenol	0.21	3.3	0.21	U
Phenol	0.16	0.3	0.16	U

FC-SB17-01

Lab Name: ITS-DALLAS

Contract: 9610IDIQ\3103

Lab Code:

AAB No.: AB925-10

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12170-3

Lab File ID: FD997

Date Received: 10/25/96

% Solids: 95

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 11/01/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
Dibenz (a, h) anthracene	0.32	0.7	0.32	U
Dibenzofuran	0.32	0.7	0.32	U
Diethyl phthalate	0.25	0.7	0.25	U
Dimethyl phthalate	0.25	0.7	0.25	U
Fluoranthene	0.32	0.7	0.32	U
Fluorene	0.32	0.7	0.32	U
Hexachlorobenzene	0.32	0.7	0.32	U
Hexachlorobutadiene	0.32	0.7	0.32	U
Hexachlorocyclopentadiene	0.11	0.7	0.11	U
Hexachloroethane	0.32	0.7	0.32	U
Indeno (1, 2, 3- cd) pyrene	0.32	0.7	0.32	U
Isophorone	0.32	0.7	0.32	U
N-Nitrosodiphenylamine	0.32	0.7	0.32	U
N-Nitrosodi-n-propylamine	0.32	0.7	0.32	U
Naphthalene	0.21	0.7	0.21	U
Nitrobenzene	0.32	0.7	0.32	U
Phenanthrene	0.32	0.7	0.32	U
Pyrene	0.32	0.7	0.32	U
2,4,5-Trichlorophenol	0.32	3.3	0.32	U
2,4,6-Trichlorophenol	0.16	0.3	0.16	U
2,4-Dimethylphenol	0.16	0.3	0.16	U
2,4-Dinitrophenol	0.21	3.3	0.21	U
2-Chlorophenol	0.16	0.3	0.16	U
2-Methylphenol	0.16	0.3	0.16	U
2-Nitrophenol	0.16	0.3	0.16	U
4,6-Dinitro-2-methylphenol	0.21	3.3	0.21	U
4-Chloro-3-methylphenol	0.21	1.3	0.21	U
4-Methylphenol	0.16	0.3	0.16	U
4-Nitrophenol	0.32	1.6	0.32	U
Benzoic acid	0.21	1.6	0.21	U ^M
Pentachlorophenol	0.21	3.3	0.21	U
Phenol	0.16	0.3	0.16	U

FC-SB16-02

Lab Name: ITS-DALLAS

Contract: 9610IDIQ\3103

Lab Code:

AAB No.: AB925-10

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12170-2

Lab File ID: FD996

Date Received: 10/25/96

% Solids: 95

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 11/01/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
Dibenz (a, h) anthracene	0.32	0.7	0.32	U
Dibenzofuran	0.32	0.7	0.32	U
Diethyl phthalate	0.25	0.7	0.25	U
Dimethyl phthalate	0.25	0.7	0.25	U
Fluoranthene	0.32	0.7	0.32	U
Fluorene	0.32	0.7	0.32	U
Hexachlorobenzene	0.32	0.7	0.32	U
Hexachlorobutadiene	0.32	0.7	0.32	U
Hexachlorocyclopentadiene	0.11	0.7	0.11	U
Hexachloroethane	0.32	0.7	0.32	U
Indeno (1, 2, 3-cd) pyrene	0.32	0.7	0.32	U
Isophorone	0.32	0.7	0.32	U
N-Nitrosodiphenylamine	0.32	0.7	0.32	U
N-Nitrosodi-n-propylamine	0.32	0.7	0.32	U
Naphthalene	0.21	0.7	0.21	U
Nitrobenzene	0.32	0.7	0.32	U
Phenanthrene	0.32	0.7	0.32	U
Pyrene	0.32	0.7	0.32	U
2,4,5-Trichlorophenol	0.32	3.3	0.32	U
2,4,6-Trichlorophenol	0.16	0.3	0.16	U
2,4-Dimethylphenol	0.16	0.3	0.16	U
2,4-Dinitrophenol	0.21	3.3	0.21	U
2-Chlorophenol	0.16	0.3	0.16	U
2-Methylphenol	0.16	0.3	0.16	U
2-Nitrophenol	0.16	0.3	0.16	U
4,6-Dinitro-2-methylphenol	0.21	3.3	0.21	U
4-Chloro-3-methylphenol	0.21	1.3	0.21	U
4-Methylphenol	0.16	0.3	0.16	U
4-Nitrophenol	0.32	1.6	0.32	U
Benzoic acid	0.21	1.6	0.21	U
Pentachlorophenol	0.21	3.3	0.21	U
Phenol	0.16	0.3	0.16	U

430 332

FC-SB16-01

Lab Name: ITS-DALLAS

Contract: 9610IDIQ\3103

Lab Code:

AAB No.: AB925-10

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12170-1

Lab File ID: FD995

Date Received: 10/25/96

% Solids: 96

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 11/01/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
Dibenz(a,h)anthracene	0.31	0.7	0.31	U
Dibenzofuran	0.31	0.7	0.31	U
Diethyl phthalate	0.25	0.7	0.25	U
Dimethyl phthalate	0.25	0.7	0.25	U
Fluoranthene	0.31	0.7	0.31	U
Fluorene	0.31	0.7	0.31	U
Hexachlorobenzene	0.31	0.7	0.31	U
Hexachlorobutadiene	0.31	0.7	0.31	U
Hexachlorocyclopentadiene	0.10	0.7	0.10	U
Hexachloroethane	0.31	0.7	0.31	U
Indeno(1,2,3-cd)pyrene	0.31	0.7	0.31	U
Isophorone	0.31	0.7	0.31	U
N-Nitrosodiphenylamine	0.31	0.7	0.31	U
N-Nitrosodi-n-propylamine	0.31	0.7	0.31	U
Naphthalene	0.21	0.7	0.21	U
Nitrobenzene	0.31	0.7	0.31	U
Phenanthrene	0.31	0.7	0.31	U
Pyrene	0.31	0.7	0.31	U
2,4,5-Trichlorophenol	0.31	3.3	0.31	U
2,4,6-Trichlorophenol	0.16	0.3	0.16	U
2,4-Dimethylphenol	0.16	0.3	0.16	U
2,4-Dinitrophenol	0.21	3.3	0.21	U
2-Chlorophenol	0.16	0.3	0.16	U
2-Methylphenol	0.16	0.3	0.16	U
2-Nitrophenol	0.16	0.3	0.16	U
4,6-Dinitro-2-methylphenol	0.21	3.3	0.21	U
4-Chloro-3-methylphenol	0.21	1.3	0.21	U
4-Methylphenol	0.16	0.3	0.16	U
4-Nitrophenol	0.31	1.6	0.31	U
Benzoic acid	0.21	1.6	0.21	U ^M
Pentachlorophenol	0.21	3.3	0.21	U
Phenol	0.16	0.3	0.16	U

430 330

BLK

Lab Name: ITS-DALLAS

Contract: 9610IDIQ\3103

Lab Code:

AAB No.: AB925-42

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12056-25

Lab File ID: FE171

Date Received: 10/24/96

% Solids: 100

Date Extracted: 11/01/96

Dilution Factor: 1.0

Date Analyzed: 11/14/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
Dibenz(a,h)anthracene	0.30	0.7	0.30	U
Dibenzofuran	0.30	0.7	0.30	U
Diethyl phthalate	0.24	0.7	0.24	U
Dimethyl phthalate	0.24	0.7	0.24	U
Fluoranthene	0.30	0.7	0.30	U
Fluorene	0.30	0.7	0.30	U
Hexachlorobenzene	0.30	0.7	0.30	U
Hexachlorobutadiene	0.30	0.7	0.30	U
Hexachlorocyclopentadiene	0.10	0.7	0.10	U
Hexachloroethane	0.30	0.7	0.30	U
Indeno(1,2,3-cd)pyrene	0.30	0.7	0.30	U
Isophorone	0.30	0.7	0.30	U
N-Nitrosodiphenylamine (1)	0.30	0.7	0.30	U
N-Nitrosodi-n-propylamine	0.30	0.7	0.30	U
Naphthalene	0.20	0.7	0.20	U
Nitrobenzene	0.30	0.7	0.30	U
Phenanthrene	0.30	0.7	0.30	U
Pyrene	0.30	0.7	0.30	U
2,4,5-Trichlorophenol	0.30	3.3	0.30	U
2,4,6-Trichlorophenol	0.15	0.3	0.15	U
2,4-Dimethylphenol	0.15	0.3	0.15	U
2,4-Dinitrophenol	0.20	3.3	0.20	U
2-Chlorophenol	0.15	0.3	0.15	U
2-Methylphenol	0.15	0.3	0.15	U
2-Nitrophenol	0.15	0.3	0.15	U
4,6-Dinitro-2-methylphenol	0.20	3.3	0.20	U
4-Chloro-3-methylphenol	0.20	1.3	0.20	U
4-Methylphenol	0.15	0.3	0.15	U
4-Nitrophenol	0.30	1.6	0.30	U
Benzoic acid	0.20	1.6	0.20	U
Pentachlorophenol	0.20	3.3	0.20	U
Phenol	0.15	0.3	0.15	U

(1) - Cannot be separated from Diphenylamine

430 334

BLK

Lab Name: ITS-DALLAS

Contract: 9610IDIQ\3103

Lab Code:

AAB No.: AB903-98

Matrix: (soil/water) SOIL

Lab Sample ID: D96-12092-15

Lab File ID: FD928

Date Received: 10/25/96

% Solids: 100

Date Extracted: 10/28/96

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
Dibenzofuran	0.30	0.7	0.30	U
Diethyl phthalate	0.24	0.7	0.24	U
Dimethyl phthalate	0.24	0.7	0.24	U
Fluoranthene	0.30	0.7	0.30	U
Fluorene	0.30	0.7	0.30	U
Hexachlorobenzene	0.30	0.7	0.30	U
Hexachlorobutadiene	0.30	0.7	0.30	U
Hexachlorocyclopentadiene	0.10	0.7	0.10	U
Hexachloroethane	0.30	0.7	0.30	U
Indeno(1,2,3-cd)pyrene	0.30	0.7	0.30	U
Isophorone	0.30	0.7	0.30	U
N-Nitrosodiphenylamine (1)	0.30	0.7	0.30	U
N-Nitrosodi-n-propylamine	0.30	0.7	0.30	U
Naphthalene	0.20	0.7	0.20	U
Nitrobenzene	0.30	0.7	0.30	U
Phenanthrene	0.30	0.7	0.30	U
Pyrene	0.30	0.7	0.30	U
2,4,5-Trichlorophenol	0.30	3.3	0.30	U
2,4,6-Trichlorophenol	0.15	0.3	0.15	U
2,4-Dichlorophenol	0.15	0.3	0.15	U
2,4-Dimethylphenol	0.15	0.3	0.15	U
2,4-Dinitrophenol	0.20	3.3	0.20	U
2-Chlorophenol	0.15	0.3	0.15	U
2-Methylphenol	0.15	0.3	0.15	U
2-Nitrophenol	0.15	0.3	0.15	U
4,6-Dinitro-2-methylphenol	0.20	3.3	0.20	U
4-Chloro-3-methylphenol	0.20	1.3	0.20	U
4-Methylphenol	0.15	0.3	0.15	U
4-Nitrophenol	0.30	1.6	0.30	U
Benzoic acid	0.40	1.6	0.40	U
Pentachlorophenol	0.20	3.3	0.20	U
Phenol	0.15	0.3	0.15	U

(1) - Cannot be separated from Diphenylamine

430 335

BLK

Lab Name: ITS-DALLAS

Contract: 9610IDIQ\3103

Lab Code:

AAB No.: AB925-4

Matrix: (soil/water) WATER

Lab Sample ID: D96-12092-17

Lab File ID: FD949

Date Received: 10/25/96

% Solids: NA

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 10/30/96

CONCENTRATION UNITS: UG/L

COMPOUND	MDL	PQL	RESULT	Q
Dibenzofuran	1.60	10.0	1.60	U
Diethyl phthalate	1.50	10.0	1.50	U
Dimethyl phthalate	1.20	10.0	1.20	U
Fluoranthene	3.20	10.0	3.20	U
Fluorene	1.80	10.0	1.80	U
Hexachlorobenzene	1.10	10.0	1.10	U
Hexachlorobutadiene	3.00	10.0	3.00	U
Hexachlorocyclopentadiene	0.20	10.0	0.20	U
Hexachloroethane	3.40	10.0	3.40	U
Indeno(1,2,3-cd)pyrene	1.40	10.0	1.40	U
Isophorone	1.60	10.0	1.60	U
N-Nitrosodiphenylamine (1)	1.20	10.0	1.20	U
N-Nitrosodi-n-propylamine	2.10	10.0	2.10	U
Naphthalene	2.20	10.0	2.20	U
Nitrobenzene	2.50	10.0	2.50	U
Phenanthrene	1.50	10.0	1.50	U
Pyrene	2.20	10.0	2.20	U
2,4,5-Trichlorophenol	1.60	50.0	1.60	U
2,4,6-Trichlorophenol	1.50	10.0	1.50	U
2,4-Dichlorophenol	1.80	10.0	1.80	U
2,4-Dimethylphenol	2.30	10.0	2.30	U
2,4-Dinitrophenol	2.00	50.0	2.00	U
2-Chlorophenol	2.50	10.0	2.50	U
2-Methylphenol	2.40	20.0	2.40	U
2-Nitrophenol	2.30	10.0	2.30	U
4,6-Dinitro-2-methylphenol	2.30	50.0	2.30	U
4-Chloro-3-methylphenol	1.60	20.0	1.60	U
4-Methylphenol	1.80	10.0	1.80	U
4-Nitrophenol	3.10	50.0	3.10	U
Benzoic acid	3.90	50.0	3.90	U
Pentachlorophenol	5.70	50.0	5.70	U
Phenol	2.60	10.0	2.60	U

(1) - Cannot be separated from Diphenylamine

APPENDIX D

DATA SUMMARY FORMS

PESTICIDES/PCBs

430 337

SB16-01#

Lab Name: INCHCAPE TESTING SERVICES Contract: 3103

Lab Code: ITS-DALLAS

AAB No.: AB925-12

Matrix: (soil/water) SOIL

Lab Sample ID: 12170-1

Lab File ID: PEST110496A-I361

Date Received: 10/25/96

% Solids: 96.3

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 11/05/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
✓ Alpha-BHC	0.0003	0.0020	0.0003	U
✓ Beta-BHC	0.0007	0.0040	0.0007	U
✓ Delta-BHC	0.0003	0.0060	0.0003	U
✓ Gamma-BHC (Lindane)	0.0003	0.0030	0.0004	F
✓ Heptachlor	0.0004	0.0020	0.0004	U
✓ Aldrin	0.0005	0.0030	0.0005	U
✓ Heptachlor epoxide	0.0004	0.0600	0.0004	U
✓ Endosulfan I	0.0003	0.0090	0.0003	U
✓ Dieldrin	0.0004	0.0100	0.0004	U
✓ 4,4'-DDE	0.0004	0.0030	0.0004	U
✓ Endrin	0.0005	0.0040	0.0005	U
✓ Endosulfan II	0.0003	0.0030	0.0003	U
✓ 4,4'-DDD	0.0003	0.0070	0.0003	U
✓ Endosulfan sulfate	0.0010	0.0400	0.0010	U
✓ 4,4'-DDT	0.0003	0.0080	0.0003	U
✓ Methoxychlor	0.0003	0.1000	0.0003	U
✓ Endrin aldehyde	0.0003	0.0200	0.0003	U
✓ Toxaphene	0.0177	0.2000	0.0177	U
✓ Chlordane	0.0021	0.0090	0.0021	U

430 338

SB16-02#

Lab Name: INCHCAPE TESTING SERVICES Contract: 3103

Lab Code: ITS-DALLAS

AAB No.: AB925-12

Matrix: (soil/water) SOIL

Lab Sample ID: 12170-2

Lab File ID: PEST110496A-I371

Date Received: 10/25/96

% Solids: 95.1

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 11/05/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
Alpha-BHC	0.0003	0.0020	0.0003	U
Beta-BHC	0.0007	0.0040	0.0007	U
Delta-BHC	0.0003	0.0060	0.0003	U
Gamma-BHC (Lindane)	0.0003	0.0030	0.0004	F
Heptachlor	0.0004	0.0020	0.0004	U
Aldrin	0.0005	0.0030	0.0005	U
Heptachlor epoxide	0.0004	0.0600	0.0004	U
Endosulfan I	0.0003	0.0090	0.0003	U
Dieldrin	0.0004	0.0100	0.0004	U
4,4'-DDE	0.0004	0.0030	0.0004	U
Endrin	0.0005	0.0040	0.0005	U
Endosulfan II	0.0003	0.0030	0.0003	U
4,4'-DDD	0.0003	0.0070	0.0003	U
Endosulfan sulfate	0.0011	0.0400	0.0011	U
4,4'-DDT	0.0003	0.0080	0.0003	U
Methoxychlor	0.0003	0.1000	0.0003	U
Endrin aldehyde	0.0003	0.0200	0.0003	U
Toxaphene	0.0179	0.2000	0.0179	U
Chlordane	0.0021	0.0090	0.0021	U

430 339

SB17-01#

Lab Name: INCHCAPE TESTING SERVICES Contract: 3103

Lab Code: ITS-DALLAS

AAB No.: AB925-12

Matrix: (soil/water) SOIL

Lab Sample ID: 12170-3

Lab File ID: PEST110496A-I381

Date Received: 10/25/96

% Solids: 94.9

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 11/05/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
Alpha-BHC	0.0003	0.0020	0.0003	U
Beta-BHC	0.0007	0.0040	0.0007	U
Delta-BHC	0.0003	0.0060	0.0003	U
Gamma-BHC (Lindane)	0.0003	0.0030	0.0003	U
Heptachlor	0.0004	0.0020	0.0004	U
Aldrin	0.0005	0.0030	0.0005	U
Heptachlor epoxide	0.0004	0.0600	0.0004	U
Endosulfan I	0.0003	0.0090	0.0003	U
Dieldrin	0.0004	0.0100	0.0004	U
4,4'-DDE	0.0004	0.0030	0.0004	U
Endrin	0.0005	0.0040	0.0005	U
Endosulfan II	0.0003	0.0030	0.0003	U
4,4'-DDD	0.0003	0.0070	0.0003	U
Endosulfan sulfate	0.0011	0.0400	0.0011	U
4,4'-DDT	0.0003	0.0080	0.0003	U
Methoxychlor	0.0003	0.1000	0.0003	U
Endrin aldehyde	0.0003	0.0200	0.0003	U
Toxaphene	0.0179	0.2000	0.0179	U
Chlordane	0.0021	0.0090	0.0021	U

430 340

SB18-01#

Lab Name: INCHCAPE TESTING SERVICES Contract: 3103

Lab Code: ITS-DALLAS

AAB No.: AB925-12

Matrix: (soil/water) SOIL

Lab Sample ID: 12170-4

Lab File ID: PEST110496A-I421

Date Received: 10/25/96

% Solids: 94.3

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 11/05/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
Alpha-BHC	0.0003	0.0020	0.0003	U
Beta-BHC	0.0007	0.0040	0.0007	U
Delta-BHC	0.0003	0.0060	0.0003	U
Gamma-BHC (Lindane)	0.0003	0.0030	0.0003	U
Heptachlor	0.0004	0.0020	0.0004	U
Aldrin	0.0005	0.0030	0.0005	U
Heptachlor epoxide	0.0004	0.0600	0.0004	U
Endosulfan I	0.0003	0.0090	0.0003	U
Dieldrin	0.0004	0.0100	0.0004	U
4,4'-DDE	0.0004	0.0030	0.0004	U
Endrin	0.0005	0.0040	0.0005	U
Endosulfan II	0.0003	0.0030	0.0003	U
4,4'-DDD	0.0003	0.0070	0.0003	U
Endosulfan sulfate	0.0011	0.0400	0.0011	U
4,4'-DDT	0.0003	0.0080	0.0003	U
Methoxychlor	0.0003	0.1000	0.0003	U
Endrin aldehyde	0.0003	0.0200	0.0003	U
Toxaphene	0.0180	0.2000	0.0180	U
Chlordane	0.0021	0.0090	0.0021	U

430 341

SB18-02#

Lab Name: INCHCAPE TESTING SERVICES Contract: 3103

Lab Code: ITS-DALLAS

AAB No.: AB925-12

Matrix: (soil/water) SOIL

Lab Sample ID: 12170-5

Lab File ID: PEST110496A-I431

Date Received: 10/25/96

% Solids: 91.9

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 11/05/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
Alpha-BHC	0.0003	0.0020	0.0003	U
Beta-BHC	0.0008	0.0040	0.0008	U
Delta-BHC	0.0003	0.0060	0.0003	U
Gamma-BHC (Lindane)	0.0003	0.0060	0.0003	U
Heptachlor	0.0004	0.0020	0.0004	U
Aldrin	0.0005	0.0030	0.0005	U
Heptachlor epoxide	0.0004	0.0600	0.0004	U
Endosulfan I	0.0003	0.0090	0.0003	U
Dieldrin	0.0004	0.0100	0.0004	U
4,4'-DDE	0.0004	0.0030	0.0004	U
Endrin	0.0005	0.0040	0.0005	U
Endosulfan II	0.0003	0.0030	0.0003	U
4,4'-DDD	0.0003	0.0070	0.0003	U
Endosulfan sulfate	0.0011	0.0400	0.0011	U
4,4'-DDT	0.0003	0.0080	0.0003	U
Methoxychlor	0.0003	0.1000	0.0003	U
Endrin aldehyde	0.0003	0.0200	0.0003	U
Toxaphene	0.0185	0.2000	0.0185	U
Chlordane	0.0022	0.0090	0.0022	U

430 342

SB19-01#

Lab Name: INCHCAPE TESTING SERVICES Contract: 3103

Lab Code: ITS-DALLAS

AAB No.: AB925-12

Matrix: (soil/water) SOIL

Lab Sample ID: 12170-7

Lab File ID: PEST110496A-I441

Date Received: 10/25/96

% Solids: 93.7

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 11/05/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
Alpha-BHC	0.0003	0.0020	0.0003	U
Beta-BHC	0.0007	0.0040	0.0007	U
Delta-BHC	0.0003	0.0060	0.0003	U
Gamma-BHC (Lindane)	0.0003	0.0030	0.0003	U
Heptachlor	0.0004	0.0020	0.0004	U
Aldrin	0.0005	0.0030	0.0005	U
Heptachlor epoxide	0.0004	0.0600	0.0004	U
Endosulfan I	0.0003	0.0090	0.0003	U
Dieldrin	0.0004	0.0100	0.0004	U
4,4'-DDE	0.0004	0.0030	0.0004	U
Endrin	0.0005	0.0040	0.0005	U
Endosulfan II	0.0003	0.0030	0.0003	U
4,4'-DDD	0.0003	0.0070	0.0003	U
Endosulfan sulfate	0.0011	0.0400	0.0011	U
4,4'-DDT	0.0003	0.0080	0.0003	U
Methoxychlor	0.0003	0.1000	0.0003	U
Endrin aldehyde	0.0003	0.0200	0.0003	U
Toxaphene	0.0181	0.2000	0.0181	U
Chlordane	0.0021	0.0090	0.0021	U

AFCEE O-2

1224-007

430 343

SB19-02#

Lab Name: INCHCAPE TESTING SERVICES Contract: 3103

Lab Code: ITS-DALLAS

AAB No.: AB925-12

Matrix: (soil/water) SOIL

Lab Sample ID: 12170-8

Lab File ID: PEST110496A-I451

Date Received: 10/25/96

% Solids: 93.9

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 11/05/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
Alpha-BHC	0.0003	0.0020	0.0003	U
Beta-BHC	0.0007	0.0040	0.0007	U
Delta-BHC	0.0003	0.0060	0.0003	U
Gamma-BHC (Lindane)	0.0003	0.0030	0.0003	U
Heptachlor	0.0004	0.0020	0.0004	U
Aldrin	0.0005	0.0030	0.0005	U
Heptachlor epoxide	0.0004	0.0600	0.0004	U
Endosulfan I	0.0003	0.0090	0.0003	U
Dieldrin	0.0004	0.0100	0.0004	U
4,4'-DDE	0.0004	0.0030	0.0004	U
Endrin	0.0005	0.0040	0.0005	U
Endosulfan II	0.0003	0.0030	0.0003	U
4,4'-DDD	0.0003	0.0070	0.0003	U
Endosulfan sulfate	0.0011	0.0400	0.0011	U
4,4'-DDT	0.0003	0.0080	0.0003	U
Methoxychlor	0.0003	0.1000	0.0003	U
Endrin aldehyde	0.0003	0.0200	0.0003	U
Toxaphene	0.0181	0.2000	0.0181	U
Chlordane	0.0021	0.0090	0.0021	U

SB20-01#

Lab Name: INCHCAPE TESTING SERVICES Contract: 3103

Lab Code: ITS-DALLAS

AAB No.: AB925-12

Matrix: (soil/water) SOIL

Lab Sample ID: 12170-9

Lab File ID: PEST110496A-I461

Date Received: 10/25/96

% Solids: 95.7

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 11/05/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
Alpha-BHC	0.0003	0.0020	0.0003	U
Beta-BHC	0.0007	0.0040	0.0007	U
Delta-BHC	0.0003	0.0060	0.0003	U
Gamma-BHC (Lindane)	0.0003	0.0030	0.0003	U
Heptachlor	0.0004	0.0020	0.0004	U
Aldrin	0.0005	0.0030	0.0005	U
Heptachlor epoxide	0.0004	0.0600	0.0004	U
Endosulfan I	0.0003	0.0090	0.0003	U
Dieldrin	0.0004	0.0100	0.0004	U
4,4'-DDE	0.0004	0.0030	0.0004	U
Endrin	0.0005	0.0040	0.0005	U
Endosulfan II	0.0003	0.0070	0.0003	U
Endosulfan sulfate	0.0010	0.0400	0.0010	U
4,4'-DDT	0.0003	0.0080	0.0003	U
Methoxychlor	0.0003	0.1000	0.0003	U
Endrin aldehyde	0.0003	0.0200	0.0010	F
Toxaphene	0.0178	0.2000	0.0178	U
Chlordane	0.0021	0.0090	0.0021	U

AFCEE O-2

1224-009

430 345

SB20-02#

Lab Name: INCHCAPE TESTING SERVICES Contract: 3103

Lab Code: ITS-DALLAS

AAB No.: AB925-12

Matrix: (soil/water) SOIL

Lab Sample ID: 12170-10

Lab File ID: PEST110496A-I471

Date Received: 10/25/96

% Solids: 87.6

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 11/05/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
Alpha-BHC	0.0003	0.0020	0.0012	F
Beta-BHC	0.0008	0.0040	0.0008	U
Delta-BHC	0.0003	0.0060	0.0003	U
Gamma-BHC (Lindane)	0.0003	0.0030	0.0005	F
Heptachlor	0.0005	0.0020	0.0005	U
Aldrin	0.0006	0.0030	0.0006	U
Heptachlor epoxide	0.0005	0.0600	0.0005	U
Endosulfan I	0.0003	0.0090	0.0003	U
Dieldrin	0.0005	0.0100	0.0005	U
4,4'-DDE	0.0005	0.0030	0.0005	U
Endrin	0.0006	0.0040	0.0006	U
Endosulfan II	0.0003	0.0030	0.0003	U
4,4'-DDD	0.0003	0.0070	0.0003	U
Endosulfan sulfate	0.0011	0.0400	0.0011	U
4,4'-DDT	0.0003	0.0080	0.0003	U
Methoxychlor	0.0003	0.1000	0.0003	U
Endrin aldehyde	0.0003	0.0200	0.0003	U
Toxaphene	0.0194	0.2000	0.0194	U
Chlordane	0.0023	0.0090	0.0023	U

BLK

Lab Name: INCHCAPE TESTING SERVICES Contract: 3103

Lab Code: ITS-DALLAS

AAB No.: AB925-12

Matrix: (soil/water) SOIL

Method Blank ID: BLK

Lab File ID: PEST110496A-I291

Date Received: 10/25/96

% Solids: 100

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 11/05/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
Alpha-BHC	0.0003	0.0020	0.0003	U
Beta-BHC	0.0007	0.0040	0.0007	U
Delta-BHC	0.0003	0.0060	0.0003	U
Gamma-BHC (Lindane)	0.0003	0.0030	0.0003	U
Heptachlor	0.0004	0.0020	0.0004	U
Aldrin	0.0005	0.0030	0.0005	U
Heptachlor epoxide	0.0004	0.0600	0.0004	U
Endosulfan I	0.0003	0.0090	0.0003	U
Dieldrin	0.0004	0.0100	0.0004	U
4,4'-DDE	0.0004	0.0030	0.0004	U
Endrin	0.0005	0.0040	0.0005	U
Endosulfan II	0.0003	0.0030	0.0003	U
4,4'-DDD	0.0003	0.0070	0.0003	U
Endosulfan sulfate	0.0010	0.0400	0.0010	U
4,4'-DDT	0.0003	0.0080	0.0003	U
Methoxychlor	0.0003	0.1000	0.0003	U
Endrin aldehyde	0.0003	0.0200	0.0003	U
Toxaphene	0.0177	0.2000	0.0177	U
Chlordane	0.0021	0.0090	0.0021	U

FCSB1601

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ\3103
 Lab Code: ITS-DALLAS AAB No.: AB925-12
 Matrix: (soil/water) SOIL Lab Sample ID: 12170-1
 Lab File ID: 31OCT2204319 Date Received: 10/25/96
 % Solids: 96.3 Date Extracted: 10/29/96
 Dilution Factor: 1.0 Date Analyzed: 10/31/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
Aroclor 1016	0.02	1.0	0.02	U
Aroclor 1221	0.03	1.0	0.03	U
Aroclor 1232	0.06	1.0	0.06	U
Aroclor 1242	0.02	1.0	0.02	U
Aroclor 1248	0.02	1.0	0.02	U
Aroclor 1254	0.02	1.0	0.02	U
Aroclor 1260	0.01	1.0	0.01	U

FCSB1602

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ\3103

Lab Code: ITS-DALLAS

AAB No.: AB925-12

Matrix: (soil/water) SOIL

Lab Sample ID: 12170-2

Lab File ID: 31OCT2226319

Date Received: 10/25/96

% Solids: 95.1

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 10/31/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
Aroclor 1016	0.02	1.0	0.02	U
Aroclor 1221	0.03	1.0	0.03	U
Aroclor 1232	0.06	1.0	0.06	U
Aroclor 1242	0.02	1.0	0.02	U
Aroclor 1248	0.02	1.0	0.02	U
Aroclor 1254	0.02	1.0	0.02	U
Aroclor 1260	0.01	1.0	0.01	U

FCSB1701

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ\3103

Lab Code: ITS-DALLAS

AAB No.: AB925-12

Matrix: (soil/water) SOIL

Lab Sample ID: 12170-3

Lab File ID: 31OCT2248319

Date Received: 10/25/96

% Solids: 94.9

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 10/31/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
Aroclor 1016	0.02	1.0	0.02	U
Aroclor 1221	0.03	1.0	0.03	U
Aroclor 1232	0.06	1.0	0.06	U
Aroclor 1242	0.02	1.0	0.02	U
Aroclor 1248	0.02	1.0	0.02	U
Aroclor 1254	0.02	1.0	0.02	U
Aroclor 1260	0.01	1.0	0.01	U

FCSE1801

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ\3103

Lab Code: ITS-DALLAS

AAB No.: AB925-12

Matrix: (soil/water) SOIL

Lab Sample ID: 12170-4

Lab File ID: 31OCT2310319

Date Received: 10/25/96

% Solids: 94.3

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 10/31/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
Aroclor 1016	0.02	1.0	0.02	U
Aroclor 1221	0.03	1.0	0.03	U
Aroclor 1232	0.06	1.0	0.06	U
Aroclor 1242	0.02	1.0	0.02	U
Aroclor 1248	0.02	1.0	0.02	U
Aroclor 1254	0.02	1.0	0.02	U
Aroclor 1260	0.01	1.0	0.01	U

FCSB1802

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ\3103

Lab Code: ITS-DALLAS

AAB No.: AB925-12

Matrix: (soil/water) SOIL

Lab Sample ID: 12170-5

Lab File ID: 01NOV0122319

Date Received: 10/25/96

% Solids: 91.9

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 11/01/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
Aroclor 1016	0.02	1.0	0.02	U
Aroclor 1221	0.03	1.0	0.03	U
Aroclor 1232	0.07	1.0	0.07	U
Aroclor 1242	0.02	1.0	0.02	U
Aroclor 1248	0.02	1.0	0.02	U
Aroclor 1254	0.02	1.0	0.02	U
Aroclor 1260	0.01	1.0	0.01	U

FCSB1901

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ\3103

Lab Code: ITS-DALLAS

AAB No.: AB925-12

Matrix: (soil/water) SOIL

Lab Sample ID: 12170-7

Lab File ID: 01NOV0144319

Date Received: 10/25/96

% Solids: 93.7

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 11/01/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
Aroclor 1016	0.02	1.0	0.02	U
Aroclor 1221	0.03	1.0	0.03	U
Aroclor 1232	0.06	1.0	0.06	U
Aroclor 1242	0.02	1.0	0.02	U
Aroclor 1248	0.02	1.0	0.02	U
Aroclor 1254	0.02	1.0	0.02	U
Aroclor 1260	0.01	1.0	0.01	U

FCSB1902

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ\3103

Lab Code: ITS-DALLAS

AAB No.: AB925-12

Matrix: (soil/water) SOIL

Lab Sample ID: 12170-8

Lab File ID: 01NOV0207319

Date Received: 10/25/96

% Solids: 93.9

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 11/01/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
Aroclor 1016	0.02	1.0	0.02	U
Aroclor 1221	0.03	1.0	0.03	U
Aroclor 1232	0.06	1.0	0.06	U
Aroclor 1242	0.02	1.0	0.02	U
Aroclor 1248	0.02	1.0	0.02	U
Aroclor 1254	0.02	1.0	0.02	U
Aroclor 1260	0.01	1.0	0.01	U

FCSB2001

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ\3103

Lab Code: ITS-DALLAS

AAB No.: AB925-12

Matrix: (soil/water) SOIL

Lab Sample ID: 12170-9

Lab File ID: 01NOV0229319

Date Received: 10/25/96

% Solids: 95.7

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 11/01/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
Aroclor 1016	0.02	1.0	0.02	U
Aroclor 1221	0.03	1.0	0.03	U
Aroclor 1232	0.06	1.0	0.06	U
Aroclor 1242	0.02	1.0	0.02	U
Aroclor 1248	0.02	1.0	0.02	U
Aroclor 1254	0.02	1.0	0.02	U
Aroclor 1260	0.01	1.0	0.01	U

FCSB2002

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ\3103

Lab Code: ITS-DALLAS

AAB No.: AB925-12

Matrix: (soil/water) SOIL

Lab Sample ID: 12170-10

Lab File ID: 31OCT2142319

Date Received: 10/25/96

% Solids: 87.6

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 10/31/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
Aroclor 1016	0.02	1.0	0.02	U
Aroclor 1221	0.03	1.0	0.03	U
Aroclor 1232	0.07	1.0	0.07	U
Aroclor 1242	0.02	1.0	0.02	U
Aroclor 1248	0.02	1.0	0.02	U
Aroclor 1254	0.02	1.0	0.02	U
Aroclor 1260	0.01	1.0	0.01	U

BLANK

Lab Name: INCHCAPE TESTING SERVICES Contract: 9610IDIQ\3103

Lab Code: ITS-DALLAS

AAB No.: AB925-12

Matrix: (soil/water) SOIL

Method Blank ID: 12170-21

Lab File ID: 31OCT2013319

Date Received: 10/25/96

% Solids: 100

Date Extracted: 10/29/96

Dilution Factor: 1.0

Date Analyzed: 10/31/96

CONCENTRATION UNITS: MG/KG

COMPOUND	MDL	PQL	RESULT	Q
Aroclor 1016	0.02	1.0	0.02	U
Aroclor 1221	0.03	1.0	0.03	U
Aroclor 1232	0.06	1.0	0.06	U
Aroclor 1242	0.02	1.0	0.02	U
Aroclor 1248	0.02	1.0	0.02	U
Aroclor 1254	0.02	1.0	0.02	U
Aroclor 1260	0.01	1.0	0.01	U

APPENDIX E

DATA SUMMARY FORMS

INORGANICS

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB16-01

Lab Sample ID: 12170-1

% Solids: 96.3

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/19/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium	20.25	500.0	680.85	M
Selenium				
Silver				
Sodium	26.90	30.0	96.53	B
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB16-01

Lab Sample ID: 12170-1

% Solids: 96.3

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/19/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium	0.02	0.3	0.23	J F
Cadmium	0.03	4.0	0.06	F M
Calcium				
Chromium	0.07	7.0	4.94	F
Cobalt	0.05	7.0	1.51	F
Copper	0.19	6.0	1.75	F
Iron				
Lead				
Magnesium	0.26	30.0	1842.78	M
Manganese	0.40	2.0	100.24	
Mercury				
Nickel	0.09	15.0	3.95	F M
Potassium				
Selenium				
Silver	0.04	7.0	0.04	U
Sodium				
Thallium				
Vanadium	0.04	8.0	15.09	
Zinc	0.38	2.0	8.40	M
Cyanide				

Comments:

430 360

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB16-01

Lab Sample ID: 12170-1

% Solids: 96.3

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/20/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic	0.26	60.0	3.33	F
Barium	0.04	2.0	24.31	
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium	0.63	80.0	0.63	U
Silver				
Sodium				
Thallium	0.48	40.0	0.48	F
Vanadium				
Zinc				
Cyanide				

Comments:

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB16-01

Lab Sample ID: 12170-1

% Solids: 96.3

Date Received: 10/25/96

Dilution: 1:10

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/20/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum	1.96	50.0	4081.00	M
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron	1.01	7.0	5272.79	B
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB16-01

Lab Sample ID: 12170-1

% Solids: 96.3

Date Received: 10/25/96

Dilution: 1:100

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/20/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium	9.07	10.0	628764.28	JMB
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

430 363

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB16-02

Lab Sample ID: 12170-2

% Solids: 95.1

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/19/96

Concentration Units (ug/L or mg/Kg dry weight): MG/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium	20.50	500.0	867.71	M
Selenium				
Silver				
Sodium	27.23	30.0	126.16	B
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

430 364

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB16-02

Lab Sample ID: 12170-2

% Solids: 95.1

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/19/96

Concentration Units (ug/L or mg/Kg dry weight): MG/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium	0.02	0.3	0.25	F
Cadmium	0.03	4.0	0.13	FM
Calcium				
Chromium	0.07	7.0	6.13	F
Cobalt	0.05	7.0	1.15	F
Copper	0.19	6.0	1.44	F
Iron				
Lead				
Magnesium	0.26	30.0	2178.44	M
Manganese	0.41	2.0	85.45	
Mercury				
Nickel	0.09	15.0	3.45	FM
Potassium				
Selenium				
Silver	0.04	7.0	0.04	U
Sodium				
Thallium				
Vanadium	0.04	8.0	14.38	
Zinc	0.39	2.0	7.32	M
Cyanide				

Comments:

430 365

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB16-02

Lab Sample ID: 12170-2

% Solids: 95.1

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/20/96

Concentration Units (ug/L or mg/Kg dry weight): MG/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic	0.26	60.0	2.77	F
Barium	0.04	2.0	18.09	
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium	0.64	80.0	0.64	U
Silver				
Sodium				
Thallium	0.48	40.0	0.48	U
Vanadium				
Zinc				
Cyanide				

Comments:

430 366

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB16-02

Lab Sample ID: 12170-2

% Solids: 95.1

Date Received: 10/25/96

Dilution: 1:10

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/20/96

Concentration Units (ug/L or mg/Kg dry weight): MG/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum	1.99	50.0	4275.39	M
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron	1.02	7.0	4571.92	B
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

430 367

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB16-02

Lab Sample ID: 12170-2

% Solids: 95.1

Date Received: 10/25/96

Dilution: 1:100

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/20/96

Concentration Units (ug/L or mg/Kg dry weight): MG/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium	9.18	10.0	579064.14	JMB
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB17-01

Lab Sample ID: 12170-3

% Solids: 94.9

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/19/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium	20.55	500.0	531.88	M
Selenium				
Silver				
Sodium	27.29	30.0	122.44	B
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

430 369

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 96101DIQ/3103

Field Sample ID: FC-SB17-01

Lab Sample ID: 12170-3

% Solids: 94.9

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/19/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium	0.02	0.3	0.28	F
Cadmium	0.03	4.0	0.07	F FM
Calcium				
Chromium	0.07	7.0	6.09	F
Cobalt	0.05	7.0	1.33	F
Copper	0.19	6.0	1.06	F
Iron				
Lead				
Magnesium	0.26	30.0	1624.87	M
Manganese	0.41	2.0	60.54	
Mercury				
Nickel	0.09	15.0	4.29	F FM
Potassium				
Selenium				
Silver	0.04	7.0	0.04	U
Sodium				
Thallium				
Vanadium	0.04	8.0	12.76	
Zinc	0.39	2.0	4.45	M
Cyanide				

Comments:

430 370

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB17-01

Lab Sample ID: 12170-3

% Solids: 94.9

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/20/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic	0.26	60.0	2.79	F
Barium	0.04	2.0	23.32	
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium	0.64	80.0	0.64	U
Silver				
Sodium				
Thallium	0.48	40.0	0.48	U
Vanadium				
Zinc				
Cyanide				

Comments:

430 371

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB17-01

Lab Sample ID: 12170-3

% Solids: 94.9

Date Received: 10/25/96

Dilution: 1:10

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/20/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum	1.99	50.0	4089.04	M
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron	1.02	7.0	4720.23	B
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

430 372

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB17-01

Lab Sample ID: 12170-3

% Solids: 94.9

Date Received: 10/25/96

Dilution: 1:100

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/20/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium	9.20	10.0	595258.17	JØ
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

430 573

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB18-01

Lab Sample ID: 12170-4

% Solids: 94.3

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/19/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium	20.68	500.0	324.62	FM
Selenium				
Silver				
Sodium	27.47	30.0	119.94	B
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

430.374

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB18-01

Lab Sample ID: 12170-4

% Solids: 94.3

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/19/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium	0.02	0.3	0.16	F
Cadmium	0.03	4.0	0.03	UM
Calcium				
Chromium	0.07	7.0	3.91	F
Cobalt	0.05	7.0	1.08	F
Copper	0.19	6.0	0.89	F
Iron				
Lead				
Magnesium	0.27	30.0	1877.20	M
Manganese	0.41	2.0	100.57	
Mercury				
Nickel	0.10	15.0	2.69	F M
Potassium				
Selenium				
Silver	0.04	7.0	0.04	U
Sodium				
Thallium				
Vanadium	0.04	8.0	9.72	
Zinc	0.39	2.0	3.58	M
Cyanide				

Comments:

430 375

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB18-01

Lab Sample ID: 12170-4

% Solids: 94.3

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/20/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum	2.00	50.0	1848.89	M
Antimony				
Arsenic	0.27	60.0	1.73	F
Barium	0.04	2.0	12.16	
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium	0.65	80.0	0.65	U
Silver				
Sodium				
Thallium	0.49	40.0	0.49	U
Vanadium				
Zinc				
Cyanide				

Comments:

430 376

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB18-01

Lab Sample ID: 12170-4

% Solids: 94.3

Date Received: 10/25/96

Dilution: 1:10

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/20/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron	1.03	7.0	3498.73	B
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

430 377

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB18-01

Lab Sample ID: 12170-4

% Solids: 94.3

Date Received: 10/25/96

Dilution: 1:100

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/20/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium	9.26	10.0	703817.60	JMB
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

430 378

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610ID(Q/3103

Field Sample ID: FC-SB18-02

Lab Sample ID: 12170-5

% Solids: 91.9

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/19/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium	21.22	500.0	540.81	M
Selenium				
Silver				
Sodium	28.18	30.0	107.62	B
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

430 379

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB18-02

Lab Sample ID: 12170-5

% Solids: 91.9

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/19/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium	0.02	0.3	0.23	F
Cadmium	0.03	4.0	0.16	FM
Calcium				
Chromium	0.08	7.0	4.74	F
Cobalt	0.05	7.0	0.93	F
Copper	0.20	6.0	0.91	F
Iron				
Lead				
Magnesium	0.27	30.0	1765.18	M
Manganese	0.42	2.0	78.42	
Mercury				
Nickel	0.10	15.0	3.79	FM
Potassium				
Selenium				
Silver	0.04	7.0	0.04	U
Sodium				
Thallium				
Vanadium	0.04	8.0	12.30	
Zinc	0.40	2.0	4.54	M
Cyanide				

Comments:

430 380

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB18-02

Lab Sample ID: 12170-5

% Solids: 91.9

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/20/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic	0.27	60.0	2.49	F
Barium	0.04	2.0	14.71	
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium	0.66	80.0	0.66	U
Silver				
Sodium				
Thallium	0.50	40.0	0.50	U
Vanadium				
Zinc				
Cyanide				

Comments:

430 381

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB18-02

Lab Sample ID: 12170-5

% Solids: 91.9

Date Received: 10/25/96

Dilution: 1:10

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/20/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum	2.06	50.0	3527.64	M
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron	1.06	7.0	4823.61	B
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

430 382

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB18-02

Lab Sample ID: 12170-5

% Solids: 91.9

Date Received: 10/25/96

Dilution: 1:100

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/20/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium	9.50	10.0	633623.50	FMB
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

430 380

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610/DIQ/3103

Field Sample ID: FC-SB19-01

Lab Sample ID: 12170-7

% Solids: 93.7

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/19/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium	20.81	500.0	1005.09	M
Selenium				
Silver				
Sodium	27.64	30.0	110.13	B
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

430 384

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB19-01

Lab Sample ID: 12170-7

% Solids: 93.7

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/19/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium	0.02	0.3	0.33	J
Cadmium	0.03	4.0	0.09	/FM
Calcium				
Chromium	0.07	7.0	7.65	
Cobalt	0.05	7.0	1.65	F
Copper	0.19	6.0	1.70	F
Iron				
Lead				
Magnesium	0.27	30.0	1813.02	M
Manganese	0.42	2.0	65.96	
Mercury				
Nickel	0.10	15.0	5.05	/FM
Potassium				
Selenium				
Silver	0.04	7.0	0.04	U
Sodium				
Thallium				
Vanadium	0.04	8.0	18.06	
Zinc	0.39	2.0	8.42	M
Cyanide				

Comments:

430 385

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB19-01

Lab Sample ID: 12170-7

% Solids: 93.7

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/20/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic	0.27	60.0	3.42	F
Barium	0.04	2.0	28.29	
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium	0.65	80.0	0.65	U
Silver				
Sodium				
Thallium	0.49	40.0	0.49	U
Vanadium				
Zinc				
Cyanide				

Comments:

430 386

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB19-01

Lab Sample ID: 12170-7

% Solids: 93.7

Date Received: 10/25/96

Dilution: 1:10

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/20/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum	2.02	50.0	6160.51	M
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron	1.04	7.0	5857.10	B
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

430 387

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB19-01

Lab Sample ID: 12170-7

% Solids: 93.7

Date Received: 10/25/96

Dilution: 1:100

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/20/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium	9.32	10.0	584845.25	JMB
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

430 380

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB19-02

Lab Sample ID: 12170-8

% Solids: 93.9

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/19/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium	20.77	500.0	941.43	M
Selenium				
Silver				
Sodium	27.58	30.0	99.72	B
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

430 389

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB19-02

Lab Sample ID: 12170-8

% Solids: 93.9

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/19/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium	0.02	0.3	0.30	J
Cadmium	0.03	4.0	0.06	F/M
Calcium				
Chromium	0.07	7.0	6.86	F
Cobalt	0.05	7.0	1.76	F
Copper	0.19	6.0	1.70	F
Iron				
Lead				
Magnesium	0.27	30.0	1776.25	M
Manganese	0.42	2.0	76.04	
Mercury				
Nickel	0.10	15.0	4.82	F/M
Potassium				
Selenium				
Silver	0.04	7.0	0.04	U
Sodium				
Thallium				
Vanadium	0.04	8.0	17.91	
Zinc	0.39	2.0	6.97	M
Cyanide				

Comments:

430 300

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB19-02

Lab Sample ID: 12170-8

% Solids: 93.9

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/20/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic	0.27	60.0	3.26	F
Barium	0.04	2.0	27.50	
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium	0.65	80.0	0.65	U
Silver				
Sodium				
Thallium	0.49	40.0	0.49	U
Vanadium				
Zinc				
Cyanide				

Comments:

**AFCEE
INORGANIC ANALYSES DATA SHEET 2**

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB19-02

Lab Sample ID: 12170-8

% Solids: 93.9

Date Received: 10/25/96

Dilution: 1:10

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/20/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum	2.01	50.0	5777.53	M
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron	1.03	7.0	5794.25	B
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

430 392

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB19-02

Lab Sample ID: 12170-8

% Solids: 93.9

Date Received: 10/25/96

Dilution: 1:100

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/20/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium	9.30	10.0	573162.94	JMB
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

430 393

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB20-01

Lab Sample ID: 12170-9

% Solids: 95.7

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/19/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium	20.38	500.0	1069.80	M
Selenium				
Silver				
Sodium	27.06	30.0	142.59	B
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB20-01

Lab Sample ID: 12170-9

% Solids: 95.7

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/19/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium	0.02	0.3	0.40	J
Cadmium	0.03	4.0	0.03	UM
Calcium				
Chromium	0.07	7.0	7.83	
Cobalt	0.05	7.0	2.52	F
Copper	0.19	6.0	3.51	F
Iron				
Lead				
Magnesium	0.26	30.0	1746.08	M
Manganese	0.41	2.0	138.99	
Mercury				
Nickel	0.09	15.0	5.74	/M
Potassium				
Selenium				
Silver	0.04	7.0	0.04	U
Sodium				
Thallium				
Vanadium	0.04	8.0	16.84	
Zinc	0.39	2.0	12.96	M
Cyanide				

Comments:

430 395

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB20-01

Lab Sample ID: 12170-9

% Solids: 95.7

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/20/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic	0.26	60.0	3.75	F
Barium	0.04	2.0	36.92	
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium	0.64	80.0	0.64	U
Silver				
Sodium				
Thallium	0.48	40.0	0.48	U
Vanadium				
Zinc				
Cyanide				

Comments:

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB20-01

Lab Sample ID: 12170-9

% Solids: 95.7

Date Received: 10/25/96

Dilution: 1:10

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/20/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum	1.97	50.0	8169.17	M
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron	1.01	7.0	8499.59	B
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

430 397

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB20-01

Lab Sample ID: 12170-9

% Solids: 95.7

Date Received: 10/25/96

Dilution: 1:100

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/20/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium	9.12	10.0	401358.41	JM
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

430 398

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB20-02

Lab Sample ID: 12170-10

% Solids: 87.6

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/19/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium	22.26	500.0	1877.63	M
Selenium				
Silver				
Sodium	29.57	30.0	115.32	B
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

430 399

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB20-02

Lab Sample ID: 12170-10

% Solids: 87.6

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/19/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium	0.02	0.3	0.54	J
Cadmium	0.03	4.0	0.03	UM
Calcium				
Chromium	0.08	7.0	9.56	
Cobalt	0.06	7.0	4.42	F
Copper	0.21	6.0	7.06	
Iron				
Lead				
Magnesium	0.29	30.0	2263.36	M
Manganese	0.45	2.0	109.40	
Mercury				
Nickel	0.10	15.0	9.64	FM
Potassium				
Selenium				
Silver	0.05	7.0	0.05	U
Sodium				
Thallium				
Vanadium	0.05	8.0	14.82	
Zinc	0.42	2.0	15.90	M
Cyanide				

Comments:

430 400

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB20-02

Lab Sample ID: 12170-10

% Solids: 87.6

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/20/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic	0.29	60.0	6.68	F
Barium	0.05	2.0	33.85	
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium	0.70	80.0	0.70	U
Silver				
Sodium				
Thallium	0.53	40.0	0.53	U
Vanadium				
Zinc				
Cyanide				

Comments:

430 401

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB20-02

Lab Sample ID: 12170-10

% Solids: 87.6

Date Received: 10/25/96

Dilution: 1:10

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/20/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum	2.16	50.0	8246.92	M
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

430 402

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1030601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB20-02

Lab Sample ID: 12170-10

% Solids: 87.6

Date Received: 10/25/96

Dilution: 1:100

Date Extracted: 10/30/96

Matrix: SOIL

Date Analyzed: 11/20/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium	9.97	10.0	153767.12	JMB
Chromium				
Cobalt				
Copper				
Iron	1.11	70.0	12173.52	B
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

430 403

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: SW6010A

AAB#: 1210601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB16-01

Lab Sample ID: 12170-1

% Solids: 96.3

Date Received: 10/25/96

Dilution: NA

Date Extracted: 12/10/96

Matrix: SOLID

Date Analyzed: 12/12/96

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				//
Antimony	0.49	40.0	1.99	JFM
Arsenic				//
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

430 404

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: SW6010A

AAB#: 1210601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB16-02

Lab Sample ID: 12170-2

% Solids: 95.1

Date Received: 10/25/96

Dilution: NA

Date Extracted: 12/10/96

Matrix: SOLID

Date Analyzed: 12/12/96

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony	0.49	40.0	1.72	JFM
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: SW6010A

AAB#: 1210601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB17-01

Lab Sample ID: 12170-3

% Solids: 94.9

Date Received: 10/25/96

Dilution: NA

Date Extracted: 12/10/96

Matrix: SOLID

Date Analyzed: 12/12/96

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				/ /
Antimony	0.50	40.0	1.35	JFM
Arsenic				/
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

430 406

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: SW6010A

AAB#: 1210601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB18-01

Lab Sample ID: 12170-4

% Solids: 94.3

Date Received: 10/25/96

Dilution: NA

Date Extracted: 12/10/96

Matrix: SOLID

Date Analyzed: 12/12/96

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				//
Antimony	0.50	40.0	2.71	JFM
Arsenic				//
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

430 407

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: SW6010A

AAB#: 1210601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB18-02

Lab Sample ID: 12170-5

% Solids: 91.9

Date Received: 10/25/96

Dilution: NA

Date Extracted: 12/10/96

Matrix: SOLID

Date Analyzed: 12/12/96

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony	0.51	40.0	1.49	JFM
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

430 408

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: SW6010A

AAB#: 1210601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB19-01

Lab Sample ID: 12170-7

% Solids: 93.7

Date Received: 10/25/96

Dilution: NA

Date Extracted: 12/10/96

Matrix: SOLID

Date Analyzed: 12/12/96

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony	0.50	40.0	1.17	#FM
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

430 409

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: SW6010A

AAB#: 1210601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB19-02

Lab Sample ID: 12170-8

% Solids: 93.9

Date Received: 10/25/96

Dilution: NA

Date Extracted: 12/10/96

Matrix: SOLID

Date Analyzed: 12/12/96

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony	0.50	40.0	1.05	JFM
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: SW6010A

AAB#: 1210601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB20-01

Lab Sample ID: 12170-9

% Solids: 95.7

Date Received: 10/25/96

Dilution: NA

Date Extracted: 12/10/96

Matrix: SOLID

Date Analyzed: 12/12/96

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				1
Antimony	0.49	40.0	0.99	JFM
Arsenic				1
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

430 411

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: SW6010A

AAB#: 1210601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-SB20-02

Lab Sample ID: 12170-10

% Solids: 87.6

Date Received: 10/25/96

Dilution: NA

Date Extracted: 12/10/96

Matrix: SOLID

Date Analyzed: 12/12/96

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony	0.54	40.0	2.05	JFM
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1031601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-WQ-EB-04

Lab Sample ID: 12170-12

% Solids: NA

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/31/96

Matrix: LIQUID

Date Analyzed: 12/3/96

Concentration Units (ug/L or mg/Kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium	963.00	5000.00	963.00	U
Selenium				
Silver				
Sodium	226.00	300.00	226.00	U
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: 6010A

AAB#: 1031601001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ/3103

Field Sample ID: FC-WQ-EB-04

Lab Sample ID: 12170-12

% Solids: NA

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/31/96

Matrix: LIQUID

Date Analyzed: 12/4/96

Concentration Units (ug/L or mg/Kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum	49.30	500.00	49.30	U
Antimony	2.30	400.00	2.30	U
Arsenic	2.10	600.00	2.10	U
Barium	0.50	20.00	2.37	F
Beryllium	0.10	3.00	0.10	U
Cadmium	0.50	40.00	0.50	U
Calcium	29.60	100.00	302.55	
Chromium	0.86	70.00	2.59	JF
Cobalt	0.49	70.00	0.49	U
Copper	0.47	60.00	3.22	JF
Iron	20.10	70.00	84.90	J
Lead				
Magnesium	12.10	300.00	70.08	F
Manganese	1.70	20.00	1.70	U
Mercury				
Nickel	0.93	150.00	1.27	F
Potassium				
Selenium	3.90	800.00	3.90	U
Silver	0.71	70.00	0.71	U
Sodium				
Thallium	3.60	400.00	3.60	U
Vanadium	0.78	80.00	0.78	U
Zinc	12.50	20.00	15.57	F
Cyanide				

Comments:

430 414

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: SW7421

AAB#: 1106742101

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ3103

Field Sample ID: FC-SB16-01

Lab Sample ID: 12170-1

% Solids: 96.3

Date Received: 10/25/96

Dilution: 1:5

Date Extracted: 11/6/96

Matrix: SOIL

Date Analyzed: 11/7/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	0.06	0.5	4.64	M
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

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AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: SW7421

AAB#: 1106742101

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ\3103

Field Sample ID: FC-SB16-02

Lab Sample ID: 12170-2

% Solids: 95.1

Date Received: 10/25/96

Dilution: 1:10

Date Extracted: 11/6/96

Matrix: SOIL

Date Analyzed: 11/7/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	0.06	0.5	3.61	M
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

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AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: SW7421

AAB#: 1106742101

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ3103

Field Sample ID: FC-SB17-01

Lab Sample ID: 12170-3

% Solids: 94.9

Date Received: 10/25/96

Dilution: 1:5

Date Extracted: 11/6/96

Matrix: SOIL

Date Analyzed: 11/7/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	0.06	0.5	4.27	M
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

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AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: SW7421

AAB#: 1106742101

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ\3103

Field Sample ID: FC-SB18-01

Lab Sample ID: 12170-4

% Solids: 94.3

Date Received: 10/25/96

Dilution: 1:5

Date Extracted: 11/6/96

Matrix: SOIL

Date Analyzed: 11/7/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	0.06	0.5	5.10	M
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

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430 418

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: SW7421

AAB#: 1106742101

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ\3103

Field Sample ID: FC-SB18-02

Lab Sample ID: 12170-5

% Solids: 91.9

-Date Received: 10/25/96

Dilution: 1:5

Date Extracted: 11/6/96

Matrix: SOIL

Date Analyzed: 11/7/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	0.07	0.5	4.02	M
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

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430 419

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: SW7421

AAB#: 1106742101

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ\3103

Field Sample ID: FC-SB19-01

Lab Sample ID: 12170-7

% Solids: 93.7

Date Received: 10/25/96

Dilution: 1:5

Date Extracted: 11/6/96

Matrix: SOIL

Date Analyzed: 11/7/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	0.06	0.5	4.21	M
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

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AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: SW7421

AAB#: 1106742101

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ\3103

Field Sample ID: FC-SB19-02

Lab Sample ID: 12170-8

% Solids: 93.9

Date Received: 10/25/96

Dilution: 1:5

Date Extracted: 11/6/96

Matrix: SOIL

Date Analyzed: 11/7/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	0.06	0.5	5.50	M
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

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430 421

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: SW7421

AAB#: 1106742101

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ3103

Field Sample ID: FC-SB20-01

Lab Sample ID: 12170-9

% Solids: 95.7

Date Received: 10/25/96

Dilution: 1:5

Date Extracted: 11/6/96

Matrix: SOIL

Date Analyzed: 11/7/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	0.06	0.5	6.12	M
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

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AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: SW7421

AAB#: 1106742101

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ\3103

Field Sample ID: FC-SB20-02

Lab Sample ID: 12170-10

% Solids: 87.6

Date Received: 10/25/96

Dilution: 1:5

Date Extracted: 11/6/96

Matrix: SOIL

Date Analyzed: 11/7/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	0.07	0.5	7.19	M
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

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AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: SW7421

AAB#: 1105742101

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ\3103

Field Sample ID: FC-WQ-EB-04

Lab Sample ID: 12170-12

% Solids: NA

Date Received: 10/25/96

Dilution: NA

Date Extracted: 11/5/96

Matrix: LIQUID

Date Analyzed: 11/6/96

Concentration Units (ug/L or mg/Kg dry weight): ug/L

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	1.50	5.0	1.50	U
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

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430 421

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: SW7471A

AAB#: 1031747101

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ\3103

Field Sample ID: FC-SB16-01

Lab Sample ID: 12170-1

% Solids: 96.3

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/31/96

Matrix: SOIL

Date Analyzed: 11/1/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury	0.03	0.1	0.03	U
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

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430 425

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: SW7471A

AAB#: 1031747101

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ\3103

Field Sample ID: FC-SB16-02

Lab Sample ID: 12170-2

% Solids: 95.1

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/31/96

Matrix: SOIL

Date Analyzed: 11/1/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury	0.03	0.1	0.04	F
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

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430 426

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: SW7471A

AAB#: 1031747101

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ3103

Field Sample ID: FC-SB17-01

Lab Sample ID: 12170-3

% Solids: 94.9

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/31/96

Matrix: SOIL

Date Analyzed: 11/1/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury	0.03	0.1	0.04	F
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

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430 427

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: SW7471A

AAB#: 1031747101

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ3103

Field Sample ID: FC-SB18-01

Lab Sample ID: 12170-4

% Solids: 94.3

-Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/31/96

Matrix: SOIL

Date Analyzed: 11/1/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury	0.03	0.1	0.04	F
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

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AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: SW7471A

AAB#: 1031747101

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ13103

Field Sample ID: FC-SB18-02

Lab Sample ID: 12170-5

% Solids: 91.9

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/31/96

Matrix: SOIL

Date Analyzed: 11/1/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury	0.03	0.1	0.04	F
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

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430 429

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: SW7471A

AAB#: 1031747101

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ\3103

Field Sample ID: FC-SB19-01

Lab Sample ID: 12170-7

% Solids: 93.7

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/31/96

Matrix: SOIL

Date Analyzed: 11/1/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury	0.03	0.1	0.04	F
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

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430 430

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: SW7471A

AAB#: 1031747101

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ\3103

Field Sample ID: FC-SB19-02

Lab Sample ID: 12170-8

% Solids: 93.9

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/31/96

Matrix: SOIL

Date Analyzed: 11/1/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury	0.03	0.1	0.03	U
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

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430 431

AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: SW7471A

AAB#: 1031747101

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ3103

Field Sample ID: FC-SB20-01

Lab Sample ID: 12170-9

% Solids: 95.7

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/31/96

Matrix: SOIL

Date Analyzed: 11/1/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury	0.03	0.1	0.03	U
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

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AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: SW7471A

AAB#: 1031747101

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ\3103

Field Sample ID: FC-SB20-02

Lab Sample ID: 12170-10

% Solids: 87.6

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/31/96

Matrix: SOIL

Date Analyzed: 11/1/96

Concentration Units (ug/L or mg/Kg dry weight): mg/Kg

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury	0.03	0.1	0.04	F
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

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AFCEE
INORGANIC ANALYSES DATA SHEET 2

Analytical Method: SW7470A

AAB#: 1030747001

Lab Name: Inchcape Testing Services, Inc.

Contract#: 9610IDIQ\3103

Field Sample ID: FC-WQ-EB-04

Lab Sample ID: 12170-12

% Solids: NA

Date Received: 10/25/96

Dilution: NA

Date Extracted: 10/30/96

Matrix: LIQUID

Date Analyzed: 10/31/96

Concentration Units (ug/L or mg/Kg dry weight): $\mu\text{g/L}$

Analyte	MDL	PQL	Concentration	Qualifier
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury	0.06	1.0	0.06	U
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Comments:

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APPENDIX K

GRAIN SIZE ANALYSES



Inchcape Testing Services

Environmental Laboratories

430 436

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 972-238-5591
Fax 972-238-5592

DATE RECEIVED : 25-OCT-1996

REPORT NUMBER : D96-12170-2

REPORT DATE :

SAMPLE SUBMITTED BY : The Environmental Co.
ADDRESS : P.O. Box 5127
: Charlottesville, Virginia 22905
ATTENTION : Mr. Bob Duffner

SAMPLE MATRIX : Soil for IRPIMS
ID MARKS : FC-SB16-02#
: N1#(0-0')
PROJECT : 3101 Fam Camp
DATE SAMPLED : 25-OCT-1996
ANALYSIS METHOD : ASTM D421/D422 /1
ANALYZED BY : KRH
ANALYZED ON : 3-NOV-1996
QC BATCH NO : 11196

GRADATION REPORT		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Gravel & Coarse Sand (> 2.00 mm)	0.1 %	< 0.1 %
Medium & Fine Sand (0.075 to 2.00 mm)	0.1 %	17.9 %
Silt (0.005 to 0.075 mm)	0.1 %	58.1 %
Clay/Colloids (< 0.005 mm)	0.1 %	24.0 %

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Inchcape Testing Services

Environmental Laboratories

430 437 1089 E. Collins Blvd.
 Richardson, TX 75081
 Tel. 972-238-5591
 Fax 972-238-5592

DATE RECEIVED : 26-OCT-1996

REPORT NUMBER : D96-12170-25
 REPORT DATE :

SAMPLE SUBMITTED BY : The Environmental Co.
 ADDRESS : P.O. Box 5127
 : Charlottesville, Virginia 22905
 ATTENTION : Mr. Bob Duffner

SAMPLE MATRIX : Soil/Solid Quality Control for IRPIMS
 ID MARKS : FC-SB20-02#
 : LR1#(0-0')
 PROJECT : 3101 Fam Camp
 DATE SAMPLED : 26-OCT-1996
 ANALYSIS METHOD : ASTM D421/D422 /1
 ANALYZED BY : HMA
 ANALYZED ON : 1-NOV-1996
 QC BATCH NO : 12170

GRADATION REPORT		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Gravel & Coarse Sand (> 2.00 mm)	0.1 %	< 0.1 %
Medium & Fine Sand (0.075 to 2.00 mm)	0.1 %	9.4 %
Silt (0.005 to 0.075 mm)	0.1 %	53.6 %
Clay/Colloids (< 0.005 mm)	0.1 %	37.0 %

TAB

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APPENDIX L

QUALITY ASSURANCE/QUALITY CONTROL SAMPLE SUMMARY

Quality Assurance/Quality Control Sample Summary

Field Sample ^a	Location	Equipment Blank ^a	Trip Blank ^a	Method Blank ^b	Ambient Blank ^a
FC-SB-16-01					
FC-SB-16-02					
FC-SB-17-01			FC-WQ-TB-05	12170-21 (soil)	FC-WQ-AB-01
FC-SB-18-01	Family Camping				
FC-SB-18-02	Area	FC-WQ-EB-04			
FC-SB-19-01					
FC-SB-19-02			FC-WQ-TB-06	12170-26 (liquid)	
FC-SB-20-01					
FC-SB-20-02					

a: Field Sample ID number

b: Lab Sample ID number

Note: Matrix Spike/Matrix Duplicate analyses completed on sample FC-SB-20-02

TAB

M

430 442

APPENDIX M

LABORATORY QUALITY CONTROL REPORT

QUALITY CONTROL REPORT
LAB SAMPLE GROUP ID: 12170
INORGANICS

Analytical Method: SW6010A
 Analytical Batch ID: 1030601001
 Date of Analysis: 11/19/96-11/20/96
 Units: mg/kg

Field Sample ID: FC-SB18-02
 FC-SB16-01
 FC-SB16-02
 FC-SB17-01
 FC-SB18-01

Matrix: Soil
 FC-SB20-02MS
 FC-SB20-02MSD
 FC-SB11-03
 FC-SB12-03
 FC-SB20-01
 FC-SB20-02

Method Blank Contamination Summary:

PBS:1030601001

Analytes	Detection Limits	Quantitation Limits	Lab Blank Result	Acceptance Criteria	Corrective Action	Recovery(%)		RPD(%)	
						Spike Duplicate	Control Limits	Results	Control Limits
Quality Control Samples									
Lab Control Sample(1)	Target Concentrations	Spike	Spike Duplicate	Control Limits	Results	Control Limits	Corrective Action	Results	Control Limits
Aluminum	100	106.8		80-120					
Arsenic	5000	105.5		80-120					
Barium	1000	106.9		80-120					
Beryllium	100	103		80-120					
Cadmium	100	100.4		80-120					
Calcium	1000	96.5		80-120					
Chromium	100	99.9		80-120					
Cobalt	100	101.1		80-120					
Copper	100	100.6		80-120					
Iron	100	103		80-120					
Magnesium	100	102		80-120					
Manganese	100	98		80-120					
Nickel	100	98.4		80-120					
Potassium	1000	104.4		80-120					
Selenium	5000	102.2		80-120					
Silver	10	100.9		80-120					
Sodium	1000	97.8		80-120					
Thallium	100	99.2		80-120					
Vanadium	100	99.1		80-120					
Zinc	100	95.8		80-120					

(1)LCSS:1030601001

QUALITY CONTROL REPORT
LAB SAMPLE GROUP ID: 12170
INORGANICS

Analytical Method: SW6010A
Analytical Batch ID: 1030601001
Date of Analysis: 11/19/96-11/20/96
Units: mg/kg

Field Sample ID: FC-SB18-02
FC-SB16-01
FC-SB16-02
FC-SB17-01
FC-SB18-01
FC-SB19-01
FC-SB19-02
FC-SB20-01
FC-SB20-02

Matrix: Soil

MS/MSD(2)	Quality Control Samples	Target Concentrations	Spike	Recovery(%)		Control Limits	Results	RPD(%)		Corrective Action
				Spike Duplicate	Control Limits			Control Limits	Control Limits	
Aluminum	100	5100	7120	80-120	33	<25	see(3)			
Arsenic	500	103	93.4	80-120	9.7	<25				
Barium	1000	82.5	82.3	80-120	0.2	<25				
Beryllium	100	88.9	88.7	80-120	0.2	<25	see(3)			
Cadmium	100	79	78.7	80-120	0.3	<25	see(3)			
Calcium	1000	2060	1190	80-120	53.5	<25	see(3)			
Chromium	100	83.5	85.5	80-120	2.5	<25				
Cobalt	100	80	80	80-120	0	<25				
Copper	100	84.8	85.3	80-120	0.6	<25				
Iron	100	1100	1210	80-120	9.5	<25	see(3)			
Magnesium	100	420	677	80-120	46.7	<25	see(3)			
Manganese	100	80.7	85.3	80-120	5.6	<25				
Nickel	100	75.9	76.2	80-120	0.5	<25	see(3)			
Potassium	1000	149	177	80-120	17.2	<25	see(3)			
Selenium	500	101.1	91.7	80-120	9.8	<25				
Silver	10	92.9	93	80-120	0.1	<25				
Sodium	1000	94.5	88.9	80-120	6.2	<25				
Thallium	100	82.2	82	80-120	0.2	<25				
Vanadium	100	82.8	86.7	80-120	4.6	<25				
Zinc	100	74.5	76	80-120	1.9	<25	see(3)			

(2)FC-SB20-02MS/MSD
(3)"M" applied to associated data on Form 2's

QUALITY CONTROL REPORT
LAB SAMPLE GROUP ID: 12170
INORGANICS

Analytical Method: SW7421
 Analytical Batch ID: 1106742101
 Date of Analysis: 11/7/96
 Units: mg/kg

Field Sample ID: FC-SB18-02
 FC-SB16-01
 FC-SB16-02
 FC-SB17-01
 FC-SB18-01

FC-SB18-02
 FC-SB19-01
 FC-SB19-02
 FC-SB20-01
 FC-SB20-02

FC-SB20-02MSD
 FC-SB20-02MS
 FC-SB11-03
 FC-SB12-03

Matrix: Soil

Method Blank Contamination Summary: MB1106742101

Analytes	Detection Limits	Quantitation Limits	Lab Blank Result	Acceptance Criteria	Corrective Action	Recovery(%)		RPD(%)			
						Target Concentrations	Spike	Spike Duplicate	Control Limits	Results	Control Limits
Lead		2	107	74-124							

(1)LCS1106742101

QUALITY CONTROL REPORT
LAB SAMPLE GROUP ID: 12170-2
INORGANICS

Analytical Method: SW7471A
 Analytical Batch ID: 1031747101
 Date of Analysis: 11/1/96
 Units: mg/kg

Matrix: Soil

Method Blank Contamination Summary: MB1031747101

Analytes	Detection Limits	Quantitation Limits	Lab Blank Result	Acceptance Criteria	Corrective Action	Recovery(%)			RPD(%)		
						Target Concentrations	Spike	Spike Duplicate	Control Limits	Results	Control Limits
Lab Control Sample(1) Mercury		1	89.7	77-120							

(1)LCS1031747101

QUALITY CONTROL REPORT
LAB SAMPLE GROUP ID: 12170-1
TOTAL PETROLEUM HYDROCARBONS

Analytical Method: SW8015M-DRO
 Analytical Batch ID: AB925-13
 Date of Analysis: 10/30/96
 Units: mg/kg

Matrix: Soil

Field Sample IDs:
 FC-SB16-01 FC-SB19-01 FC-SB11-02 FC-SB20-02MS
 FC-SB16-02 FC-SB19-02 FC-SB11-03 FC-SB20-02MSD
 FC-SB17-01 FC-SB20-01 FC-SB12-01
 FC-SB18-01 FC-SB20-02 FC-SB12-02
 FC-SB18-02 FC-SB11-01 FC-SB12-03

Method Blank Contamination Summary: **BLK** Corrective Action

Analytes	Detection Limits	Quantitation Limits	Lab Blank Result	Acceptance Criteria	Recovery(%)		RPD(%)		Corrective Action
					Spike	Duplicate	Results	Control Limits	
Quality Control Samples									
Lab Control Sample(1)									
TPH as Diesel	83.3	106		50-153					
MS/MSD(2)									
TPH as Diesel	83.3	100	118	50-153	34		50		

(1) BLKCS
 (2)12170-23MS/24MSD

QUALITY CONTROL REPORT
LAB SAMPLE GROUP ID: 12170-1
TOTAL PETROLEUM HYDROCARBONS

Analytical Method: SW8015M-GRO
 Analytical Batch ID: 1031801501
 Date of Analysis: 10/31/96-11/1/96
 Units: mg/kg

Matrix: Soil

Field Sample IDs:
 FC-SB11-01 FC-SB20-02 FC-SB18-01 FC-SB20-02MS
 FC-SB11-02 FC-SB12-03 FC-SB18-02 FC-SB20-02MSD
 FC-SB11-03 FC-SB16-02 FC-SB19-01
 FC-SB12-01 FC-SB16-01 FC-SB19-02
 FC-SB12-02 FC-SB17-01 FC-SB20-01

Method Blank Contamination Summary: BLANK

Analytes	Detection Limits	Quantitation Limits	Lab Blank Result	Acceptance Criteria	Corrective Action	Recovery(%)		RPD(%)	
						Target Concentrations	Spike	Spike Duplicate	Control Limits
Quality Control Samples									
Lab Control Sample(1) TPH as Gasoline	0.5	81.4		57-146					
MS/MSD(2) TPH as Gasoline	0.5	93	93	57-146		0		50	

(1) BLANKLCS
 (2)12170-10MS/MSD

QUALITY CONTROL REPORT
 LAB SAMPLE GROUP ID: 12170-02
 VOLATILE ORGANIC COMPOUNDS

Matrix: Soil/Water

Analytical Method: SW8240
 Analytical Batch ID: V12170-SOIL/LI0
 Date of Analysis: 10/30/96-10/31/96
 Units: ug/kg
 (ug/L see last sheet)

Field Sample ID:
 FC-SB16-01
 FC-SB16-02
 FC-SB17-01
 FC-SB18-01
 FC-SB18-02
 FC-SB11-03
 FC-SB19-01
 FC-SB19-02
 FC-SB20-01
 FC-SB20-02
 FC-SB11-03
 FC-WO-TB05
 FC-WO-TB06
 FC-WO-TB07
 FC-WO-EB04
 FC-WO-EB05
 FC-SB12-03
 FC-SB20-02MS
 FC-SB20-02MSD
 FC-SB11-03RE
 FC-SB12-03RE

Method Blank Contamination Summary: D96-12170-2/1/26

Analytes	Detection Limits	Quantitation Limits	Lab Blank Result	Acceptance Criteria	Recovery(%)		RPD(%)	
					Spike Duplicate	Results	Control Limits	Control Action
Quality Control Samples	Concentrations	Spike	Spike Duplicate	Control Limits	Results	Control Limits	Control Action	
Lab Control Sample(LCS) (1)								
1,1,1-TCA	50	110		58-145				
1,1,2,2-Tetrachloroethane	50	108		45-148				
1,1,2-TCA	50	118		60-151				
1,1-DCA	50	114		52-151				
1,1-DCE	50	115		44-138				
1,2-DCA	50	115		58-145				
1,2-Dichloropropane	50	116		66-142				
2-Butanone	50	123		40-173				
2-Chloroethyl Vinyl Ether	50	116		25-175				
2-Hexanone	50	116		37-175				
4-Methyl-2-Pentanone	50	116		67-135				
Acetone	50	107		33-175				
Benzene	50	113		41-149				
Bromodichloromethane	50	116		56-145				
Bromoform	50	114		57-139				
Bromomethane	50	100		39-135				
Carbon Disulfide	50	108		69-135				
Carbon Tetrachloride	50	110		57-135				
Chlorobenzene	50	113		49-150				
Dibromochloromethane	50	118		54-135				
Chloroethane	50	119		52-135				
Chloroform	50	111		55-139				
Chloromethane	50	113		28-135				
Cis-1,2-DCE	50	111		51-148				
Cis-1,3-Dichloropropene	50	118		60-135				
Ethylbenzene	50	113		49-150				
Methylene Chloride	50	112		45-136				
Styrene	50	116		61-143				
TCE	50	117		57-147				
Tetrachloroethylene	50	112		57-141				
Toluene	50	115		51-147				
Trans-1,2-DCE	50	111		51-148				
Trans-1,3-Dichloropropene	50	117		25-164				
Vinyl Acetate	50	97		65-135				
Vinyl Chloride	50	116		25-135				
m,p-xylene	100	107		58-143				
o-Xylene	50	109		58-143				

QUALITY CONTROL REPORT
LAB SAMPLE GROUP NO: 12170-02
VOLATILE ORGANIC COMPOUNDS

Matrix: Soil/Water

Analytical Method: SW8240
Analytical Batch ID: V12170-SOIL/LI/O
Date of Analysis: 10/30/96-10/31/96
Units: ug/kg
(ug/L see last sheet)

Field Sample ID:
FC-SB16-01
FC-SB16-02
FC-SB17-01
FC-SB18-01
FC-SB18-02
FC-SB19-01
FC-SB19-02
FC-SB20-01
FC-SB20-02
FC-SB11-03
FC-WQ-TB05
FC-WQ-TB06
FC-WQ-TB07
FC-WQ-EB04
FC-WQ-EB05
FC-SB12-03
FC-SB20-02MS
FC-SB20-02MSD
FC-SB11-03RE
FC-SB12-03RE

Quality Control Samples	Target Concentrations	Spike	Recovery (%)		Control Limits	Results	RPD (%)		Corrective Action
			Spike Duplicate	Duplicate			Control Limits	Control Limits	
MS/MSD(2)									
1,1,1-TCA	57.1	86	88	85	58-145	2	30		
1,1,2,2-Tetrachloroethane	57.1	84	85	85	45-148	1	30		
1,1,2-TCA	57.1	87	89	89	60-151	2	30		
1,1-DCA	57.1	84	86	86	52-151	2	30		
1,1-DCE	57.1	86	86	86	44-138	0	30		
1,2-DCA	57.1	81	82	82	58-145	1	30		
1,2-Dichloropropane	57.1	87	88	88	66-142	1	30		
2-Butanone	57.1	65	72	72	40-173	10	30		
2-Chloroethyl Vinyl Ether	57.1	87	88	88	25-175	1	30		
2-Hexanone	57.1	47	54	54	37-175	14	30		
4-Methyl-2-Pentanone	57.1	98	94	94	67-135	4	30		
Acetone	57.1	63	57	57	39-175	10	30		
Benzene	57.1	88	88	88	41-149	0	30		
Bromodichloromethane	57.1	89	90	90	58-145	1	30		
Bromoflorm	57.1	83	82	82	57-139	1	30		
Bromomethane	57.1	73	79	79	39-135	8	30		
Carbon Disulfide	57.1	79	81	81	65-135	2	30		
Carbon Tetrachloride	57.1	90	89	89	57-135	1	30		
Chlorobenzene	57.1	89	88	88	49-150	1	30		
Dibromochloromethane	57.1	91	92	92	54-135	1	30		
Chloroethane	57.1	88	92	92	52-135	4	30		
Chloroform	57.1	84	85	85	55-139	1	30		
Chloromethane	57.1	66	76	76	28-135	14	30		
Cis-1,2-DCE	57.1	87	88	88	51-148	1	30		
Ethylbenzene	57.1	91	92	92	60-135	1	30		
Elhylbenzene	57.1	93	89	89	49-150	4	30		
Methylene Chloride	57.1	87	87	87	45-136	0	30		
Styrene	57.1	89	90	90	61-143	1	30		
TDE	57.1	90	93	93	57-147	3	30		
Tetrachloroethylene	57.1	93	89	89	57-141	4	30		
Toluene	57.1	98	90	90	51-147	8	30		
Trans-1,2-DCE	57.1	87	88	88	51-148	1	30		
Trans-1,3-Dichloropropane	57.1	88	89	89	25-164	1	30		
Vinyl Acetate	57.1	86	83	83	65-135	4	30		
Vinyl Chloride	57.1	77	81	81	25-135	5	30		
m,p-xylene	114.0	90	86	86	58-143	4	30		
o-Xylene	57.1	91	88	88	58-143	3	30		

(2)D96-12170-27

QUALITY CONTROL REPORT
 LAB SAMPLE GROUP ID: 12170-02
 VOLATILE ORGANIC COMPOUNDS

Matrix: Soil/Water

Analytical Method: SW8240
 Analytical Batch ID: V12170-SOIL/LI0
 Date of Analysis: 10/30/96-10/31/96
 Units: ug/kg
 (ug/L see last sheet)

Field Sample ID:
 FC-SB16-01
 FC-SB16-02
 FC-SB17-01
 FC-SB18-01
 FC-SB18-02

FC-SB19-01
 FC-SB19-02
 FC-SB20-01
 FC-SB20-02
 FC-SB11-03

FC-WQ-TB05
 FC-WQ-TB06
 FC-WQ-TB07
 FC-WQ-EB04
 FC-WQ-EB05

FC-SB12-03
 FC-SB20-02MS
 FC-SB20-02MSD
 FC-SB11-03RE
 FC-SB12-03RE

Quality Control Samples	Target Concentrations	Spike	Recovery (%)	Spike Duplicate	Control Limits	Results	RPDI (%)	Control Limits	Corrective Action
1,1,1-TCA	50	102			68-135				
1,1,2,2-Tetrachloroethane	50	104			55-138				
1,1,2-TCA	50	98			70-141				
1,1-DCA	50	94			62-141				
1,1-DCE	50	84			54-128				
1,2-DCA	50	100			68-135				
1,2-Dichloropropane	50	105			75-132				
2-Bulane	50	57			50-163				
2-Chloroethyl Vinyl Ether	50	116			25-175				
2-Hexanone	50	92			47-165				
4-Methyl-2-Pentanone	50	93			75-125				
Acetone	50	74			43-165				
Benzene	50	112			51-139				
Bromodichloromethane	50	104			68-135				
Bromoform	50	110			67-129				
Bromomethane	50	97			49-125				
Carbon Disulfide	50	94			75-125				
Carbon Tetrachloride	50	114			67-125				
Chlorobenzene	50	92			59-140				
Dibromochloromethane	50	108			64-125				
Chloroethane	50	114			62-125				
Chloroform	50	95			65-129				
Chloromethane	50	97			38-125				
Cis-1,2-DCE	50	77			61-138				
Cis-1,3-Dichloropropene	50	101			70-125				
Ethylbenzene	50	97			59-140				
Methylene Chloride	50	92			55-126				
Styrene	50	108			71-133				
TCE	50	104			67-137				
Tetrachloroethylene	50	96			67-131				
Toluene	50	91			61-137				
Trans-1,2-DCE	50	90			61-138				
Trans-1,3-Dichloropropene	50	103			42-154				
Vinyl Acetate	50	109			75-125				
Vinyl Chloride	50	95			31-125				
m,p-xylene	100	92			68-133				
o-Xylene	50	95			68-133				

(3)D96-12170-27

QUALITY CONTROL REPORT
 LAB SAMPLE GROUP ID: 12170-2
 SEMI-VOLATILE ORGANIC COMPOUNDS

Matrix: Soil

Analytical Method: SW8270B
 Analytical Batch ID: AB925-10
 Date of Analysis: 1/1/96-11/7/96
 Units: mg/kg

Field Sample ID:
 FC-SB16-01 FC-SB19-01 FC-SB11-02 FC-SB12-03
 FC-SB16-02 FC-SB19-02 FC-SB11-01 FC-SB20-02MS
 FC-SB17-01 FC-SB20-01 FC-SB12-01 FC-SB20-02MSD
 FC-SB18-01 FC-SB20-02 FC-SB12-02
 FC-SB18-02 FC-SB11-03 FC-SB12-02RE

Method Blank Contamination Summary: D96-12170-21

Analytes	Detection Limits	Quantitation Limits	Lab Blank Result	Acceptance Criteria	RPD(%)		
					Recovery(%)	Control Limits	Control Limits
Quality Control Samples	Target Concentrations	Spike	Spike Duplicate	Control Limits	Results	Control Limits	Corrective Action
Lab Control Sample(1)							
1,2,4-Trichlorobenzene	3.33	84		34-152			
1,2-DCB	3.33	82		32-135			
1,3-DCB	3.33	83		26-135			
1,4-DCB	3.33	83		25-135			
2,4-DNT	3.33	91		29-149			
2,6-DNT	3.33	91		41-135			
2-Chloronaphthalene	3.33	90		50-135			
2-Methylnaphthalene	3.33	87		31-135			
2-Nitroaniline	3.33	84		40-135			
3-Nitroaniline	3.33	64		25-175			
3,3'-Dichlorobenzidine	3.33	58		41-135			
4-Bromophenyl phenyl ether	3.33	85		43-137			
4-Chlorophenyl phenyl ether	3.33	48		35-146			
4-Nitroaniline	3.33	89		41-142			
Acenaphthylene	3.33	86		30-153			
Acenaphthene	3.33	97		37-135			
Anthracene	3.33	88		39-135			
Benz (a) anthracene	3.33	90		35-175			
Benzo (a) pyrene	3.33	86		41-143			
Benzo (b) fluoranthene	3.33	91		31-135			
Benzo (k) fluoranthene	3.33	79		27-135			
Benzo (g,h,i) perylene	3.33	88		27-135			
Benzyl alcohol	3.33	104		25-159			
Bis (2-chloroethoxy) methane	3.33	97		25-135			
Bis (2-chloroethyl) ether	3.33	88		39-135			
Bis (2-chloroisopropyl) ether	3.33	73		34-135			
Bis(2-ethylhexyl)phthalate	3.33	76		26-175			
Butyl benzyl phthalate	3.33	78		25-139			
Chrysene	3.33	78		25-135			
		84		45-143			

QUALITY CONTROL REPORT
 LAB SAMPLE GROUP ID: 12170-2
 SEMI-VOLATILE ORGANIC COMPOUNDS

Analytical Method: SW8270B
 Analytical Batch ID: AB925-10
 Date of Analysis: 11/19/96-11/7/96
 Units: mg/kg

Field Sample ID:
 FC-SB16-01
 FC-SB16-02
 FC-SB17-01
 FC-SB18-01
 FC-SB18-02

Matrix: Soil

FC-SB19-01
 FC-SB19-02
 FC-SB20-01
 FC-SB20-02
 FC-SB11-03
 FC-SB12-02
 FC-SB12-02RE

FC-SB12-03
 FC-SB20-02MS
 FC-SB20-02MSD

Quality Control Samples Lab Control Sample(1)	Target Concentrations	Spike	Recovery(%)		Control Limits	Results	RPD(%)	
			Spike Duplicate	Control Limits			Control Limits	Corrective Action
Di-n-butylphthalate	3.33	92			25-136			
Di-n-octylphthalate	3.33	76			28-137			
Dibenz (a,h) anthracene	3.33	103			40-135			
Dibenzofuran	3.33	92			42-135			
Diethyl phthalate	3.33	87			27-135			
Dimethyl phthalate	3.33	86			25-175			
Fluoranthene	3.33	91			37-135			
Fluorene	3.33	88			38-149			
Hexachlorobenzene	3.33	84			36-143			
Hexachlorobutadiene	3.33	87			25-135			
Hexachlorocyclopentadiene	3.33	100			31-135			
Hexachloroethane	3.33	91			25-163			
Indeno (1,2,3-cd) pyrene	3.33	101			25-170			
Isophorone	3.33	89			25-175			
n-Nitrosodiphenylamine	3.33	98			27-135			
n-Nitrosodipropylamine	3.33	85			25-135			
Naphthalene	3.33	88			40-135			
Nitrobenzene	3.33	82			36-143			
Phenanthrene	3.33	89			44-135			
Pyrene	3.33	78			37-146			
2,4,5-Trichlorophenol	3.33	89			25-175			
2,4,6-Trichlorophenol	3.33	90			29-130			
2,4-Dichlorophenol	3.33	82			36-135			
2,4-Dimethylphenol	3.33	74			35-149			
2,4-Dinitrophenol	3.33	99			25-161			
2-Chlorophenol	3.33	82			31-135			
2-Methylphenol	3.33	83			25-135			
2-Nitrophenol	3.33	87			34-135			
4,6-Dinitro-2-methylphenol	3.33	106			25-144			
4-Chloro-3-methylphenol	3.33	85			34-135			
4-Methylphenol	3.33	85			25-135			
4-Nitrophenol	3.33	105			25-141			
Benzoic acid	3.33	104			25-172			
Pentachlorophenol	3.33	91			38-146			
Phenol	3.33	82			25-135			

(1)D96-12170-22

QUALITY CONTROL REPORT
 LAB SAMPLE GROUP ID: 12170-2
 SEMI-VOLATILE ORGANIC COMPOUNDS

Analytical Method: SW8270B
 Analytical Batch ID: AB925-10
 Date of Analysis: 11/1/96-11/7/96
 Units: mg/kg

Field Sample ID:
 FC-SB16-01
 FC-SB16-02
 FC-SB17-01
 FC-SB18-01
 FC-SB18-02
 FC-SB19-01
 FC-SB19-02
 FC-SB20-01
 FC-SB20-02
 FC-SB11-03
 FC-SB12-02
 FC-SB12-03
 FC-SB12-01
 FC-SB12-02
 FC-SB12-02RE

Matrix: Soil

Quality Control Samples	Target Concentrations	Spike	Spike Duplicate	Control Limits	Results	RPD(%)	Control Limits	Corrective Action
M/MSD(2)								
1,2,4-Trichlorobenzene	3.33	99	90	34-152	10	30		
1,2-DCB	3.33	96	88	32-135	9	30		
1,3-DCB	3.33	96	88	26-135	9	30		
1,4-DCB	3.33	95	87	25-135	9	30		
2,4-DNT	3.33	104	102	29-149	2	30		
2,6-DNT	3.33	104	101	41-135	3	30		
2-Chloronaphthalene	3.33	101	92	50-135	9	30		
2-Methylnaphthalene	3.33	99	91	31-135	8	30		
2-Nitroaniline	3.33	97	96	40-135	1	30		
3-Nitroaniline	3.33	78	76	25-175	2	30		
3,3'-Dichlorobenzidine	3.33	66	67	41-135	1	30		
4-Bromophenyl phenyl ether	3.33	95	91	43-137	4	30		
4-Chlorophenyl phenyl ether	3.33	56	56	35-146	0	30		
4-Nitroaniline	3.33	100	94	41-142	6	30		
Acenaphthylene	3.33	108	107	30-153	1	30		
Acenaphthene	3.33	109	100	37-135	9	30		
Anthracene	3.33	99	93	39-135	6	30		
Benzo (a) anthracene	3.33	101	98	35-175	3	30		
Benzo (a) pyrene	3.33	93	92	41-143	1	30		
Benzo (b) fluoranthene	3.33	105	102	31-135	3	30		
Benzo (k) fluoranthene	3.33	86	88	27-135	2	30		
Benzo (g,h,i) perylene	3.33	106	104	27-135	2	30		
Benzyl alcohol	3.33	117	112	25-159	5	30		
Bis (2-chloroethoxy) methane	3.33	111	107	25-135	4	30		
Bis (2-chloroethyl) ether	3.33	96	92	39-135	4	30		
Bis(2-chloroisopropyl) ether	3.33	86	82	34-135	4	30		
Bis(2-ethylhexyl)phthalate	3.33	89	82	25-175	8	30		
Butyl benzyl phthalate	3.33	82	84	25-139	2	30		
Chrysene	3.33	86	85	25-135	1	30		
Di-n-butylphthalate	3.33	96	92	45-143	4	30		
Di-n-octylphthalate	3.33	94	86	25-136	9	30		
Dibenz (a,h) anthracene	3.33	86	88	28-137	2	30		
Dibenzofuran	3.33	116	111	40-135	4	30		
Dibenzyl phthalate	3.33	103	97	42-135	6	30		
		99	94	27-135	5	30		

QUALITY CONTROL REPORT
 LAB SAMPLE GROUP ID: 12170-2
 SEMI-VOLATILE ORGANIC COMPOUNDS

Analytical Method: SW82708
 Analytical Batch ID: AB925-10
 Date of Analysis: 11/1/96-1/17/96
 Units: mg/kg

Field Sample ID:
 FC-SB16-01
 FC-SB16-02
 FC-SB17-01
 FC-SB18-01
 FC-SB18-02
 FC-SB19-01
 FC-SB19-02
 FC-SB20-01
 FC-SB20-02
 FC-SB11-03
 FC-SB11-02
 FC-SB11-01
 FC-SB12-01
 FC-SB12-02
 FC-SB12-02RE

Main: Soil

MS/MSD(2)	Target Concentrations	Spike	Spike Duplicate	Control Limits	Results	RPD(%)		Corrective Action
						Control Limits	Control Limits	
Dimethyl phthalate	3.33	98	94	25-175	4	30		
Fluoranthene	3.33	96	93	37-135	3	30		
Fluorene	3.33	101	94	38-149	7	30		
Hexachlorobenzene	3.33	90	90	36-143	0	30		
Hexachlorobutadiene	3.33	103	90	25-135	13	30		
Hexachlorocyclopentadiene	3.33	108	95	31-135	13	30		
Hexachloroethane	3.33	103	92	25-163	11	30		
Indeno (1,2,3-cd) pyrene	3.33	115	109	25-170	5	30		
Isophorone	3.33	102	98	25-175	4	30		
n-Nitrosodiphenylamine	3.33	108	106	27-135	2	30		
n-Nitrosodi-n-propylamine	3.33	95	94	25-135	1	30		
Naphthalene	3.33	99	93	40-135	6	30		
Nitrobenzene	3.33	92	90	36-143	2	30		
Phenanthrene	3.33	97	94	44-135	3	30		
Pyrene	3.33	92	86	37-146	7	30		
2,4,5-Trichlorophenol	3.33	98	94	25-175	4	30		
2,4,6-Trichlorophenol	3.33	99	100	29-138	1	30		
2,4-Dichlorophenol	3.33	86	90	36-135	6	30		
2,4-Dinitrophenol	3.33	87	85	35-149	2	30		
2,4-Dimethylphenol	3.33	101	97	25-161	4	30		
2-Chlorophenol	3.33	94	90	31-135	4	30		
2-Methylphenol	3.33	94	95	25-135	1	30		
2-Nitrophenol	3.33	99	96	34-135	3	30		
4,6-Dinitro-2-methylphenol	3.33	115	118	25-144	2	30		
4-Chloro-3-methylphenol	3.33	96	92	34-135	4	30		
4-Methylphenol	3.33	95	94	25-135	1	30		
4-Nitrophenol	3.33	118	120	25-141	2	30		
Benzoic acid	3.33	46	32	25-172	36*	30		
Pentachlorophenol	3.33	91	92	38-146	1	30	see (3)	
Phenol	3.33	108	91	25-135	17	30		

(2) D96-12170-23/24
 (3) Associated data flagged "N" on Form 2's

QUALITY CONTROL REPORT
LAB SAMPLE GROUP ID: 12170-1
PCBS

Analytical Method: SW8080
 Analytical Batch ID: AB925-12
 Date of Analysis: 10/31-11/1/96
 Units: mg/kg

Field Sample IDs:
 FC-SB16-01 FC-SB18-02 FC-SB20-02
 FC-SB16-02 FC-SB19-01 FC-SB20-02MS
 FC-SB17-01 FC-SB19-02 FC-SB20-02MSD
 FC-SB18-01 FC-SB20-01

Matrix: Soil

Method Blank Contamination Summary: 12170-21

Analytes	Detection Limits	Quantitation Limits	Lab Blank Result	Acceptance Criteria	Corrective Action	Recovery(%)		RPD(%)	
						Target Concentrations	Spike	Spike Duplicate	Control Limits
Lab Control Sample(1)									
Aroclor 1016		0.333	77		44-135				
Aroclor 1260		0.333	73		31-136				
Matrix Spike/MSD(2)									
Aroclor 1016		0.333	73	73	44-135	0		50	
Aroclor 1260		0.333	71	71	31-136	0		50	

(1) 12170-22
 (2)12170-23/24

QUALITY CONTROL REPORT
LAB SAMPLE GROUP ID: 12170-1
PESTICIDES

Analytical Method: SW8080
 Analytical Batch ID: AB925-12
 Date of Analysis: 11/5/96
 Units: mg/kg

Field Sample IDs: FC-SB16-01 FC-SB18-02 FC-SB20-02
 FC-SB16-02 FC-SB19-01 FC-SB20-02MS
 FC-SB17-01 FC-SB19-02 FC-SB20-02MSD
 FC-SB18-01 FC-SB20-01

Matrix: Soil

Method Blank Contamination Summary:		BLK		Recovery(%)		RPD(%)	
Analytes	Detection Limits	Quantitation Limits	Lab Blank Result	Acceptance Criteria	Corrective Action	Target Concentrations	Spike
Quality Control Samples							
Lab Control Sample(1)							
Aldrin	83.3	88		37-135		83.3	88
a-BHC	83.3	88		65-135		83.3	88
b-BHC	83.3	78		41-133		83.3	78
d-BHC	83.3	85		65-136		83.3	85
g-BHC (Lindane)	83.3	87		63-135		83.3	87
Chlordane (technical)	100	93		35-135		100	93
4,4'-DDD	83.3	88		38-146		83.3	88
4,4'-DDE	83.3	88		35-149		83.3	88
4,4'-DDT	83.3	89		25-153		83.3	89
Dieldrin	83.3	90		32-142		83.3	90
Endosulfan I	83.3	76		39-153		83.3	76
Endosulfan II	83.3	79		65-169		83.3	79
Endosulfan Sulfate	83.3	88		36-151		83.3	88
Endrin	83.3	90		33-144		83.3	90
Endrin Aldehyde	83.3	90		65-160		83.3	90
Heptachlor	83.3	86		35-138		83.3	86
Heptachlor Epoxide	83.3	89		43-144		83.3	89
Methoxychlor	83.3	92		63-152		83.3	92

(1)BLKCS

QUALITY CONTROL REPORT
LAB SAMPLE GROUP ID: 12170-1
PESTICIDES

Analytical Method: SW8080
Analytical Batch ID: AB925-12
Date of Analysis: 11/5/96
Units: mg/kg

Field Sample IDs:
FC-SB16-01 FC-SB18-02 FC-SB20-02
FC-SB16-02 FC-SB19-01 FC-SB20-02MS
FC-SB17-01 FC-SB19-02 FC-SB20-02MSD
FC-SB18-01 FC-SB20-01

Matrix: Soil

Quality Control Samples	Target Concentrations	Spike	Recovery(%)		Control Limits	RPD(%)		Corrective Action
			Spike Duplicate			Control Limits	Results	
MS/MSD(2)								
Aldrin	83.3	91	89		37-135	2	50	
a-BHC	83.3	87	88		65-135	1	50	
b-BHC	83.3	86	91		41-133	6	50	
d-BHC	83.3	87	90		65-136	3	50	
g-BHC (Lindane)	83.3	87	90		63-135	3	50	
Chlordane (technical)	100	91	92		35-135	1	50	
4,4'-DDD	83.3	89	92		38-146	3	50	
4,4'-DDE	83.3	91	92		35-149	1	50	
4,4'-DDT	83.3	88	93		25-153	6	50	
Dieldrin	83.3	90	93		32-142	3	50	
Endosulfan I	83.3	76	78		39-153	2	50	
Endosulfan II	83.3	73	82		65-169	12	50	
Endosulfan Sulfate	83.3	79	91		36-151	14	50	
Endrin	83.3	91	92		33-144	1	50	
Endrin Aldehyde	83.3	81	93		65-160	14	50	
Hepachlor	83.3	90	91		35-138	1	50	
Hepachlor Epoxide	83.3	89	91		43-144	2	50	
Methoxychlor	83.3	93	95		63-152	2	50	

(2)12170-10MS/MSD

APPENDIX N

INVESTIGATION DERIVED WASTE MANAGEMENT
DOCUMENTATION

WASTE INVENTORY TRACKING FORM

LOCATION: NAS Fort Worth VRB Canswell Field, TXPROJECT NAME: RU Fam Camp AREAACTIVITIES: Soil Borings 10/22/96 - 10/26/96

Date Waste Generated	Activity Generating Waste (borehole #/ well #)	Description of Waste	Field Evidence of Contamination	Estimated Volume ⁹⁴⁶	All 55 ²⁹¹ Type of Container (storage ID#) Drums	Location of Container	Waste Characterization	Comments
10/22/96	SB01 SB02	Soil	NONE	20	FC-D-1	On-site		SB01 75% SB02 25%
10/22/96	SB01 SB02	"	odor	50	FC-D-2	"		25% SB01 SB02 50%
10/23/96	SB03	"	odor	50	FC-D-3	"		SB03 100%
10/23/96	SB04 SB05	"	odor	50	FC-D-4	"		SB04 20% SB05 30%
10/23/96	SB06	"	NONE	50	FC-D-5	"		SB06 100%
10/24/96	SB07 SB08	"	NONE	30	FC-D-6	"		SB07 40% SB08 60%
10/24/96	SB09 SB10	"	NONE	50	FC-D-7	"		SB09 50% SB10 50%
10/25/96	SB16A- SB20	"	NONE	40	FC-D-8 55641	"		SB16-19 50% SB20 50%
10/26/96	SB-11 SB-12	"	PET Odor	55	FC-D-9	"		SB-11 - 75% SB-12 - 25%
10/26/96	SB12	"	Odor	20	FC-D-10	"		SB12 100%
10/25/96	SB-01- SB10	WATER	NONE	30	FC-D-11	"		SB1 thru SB10
10/26/96	DCCN SB11+12	WATER	NONE	10	FC-D-12	"		SB 11 + SB 12

Note: Describe whether soil or water samples have been collected for waste characterization, include date, if known.

KW Troensegaard Site Geologist

Signature: KW Troensegaard 10/24/96SOILS COLLECTED AS 3 COMPOSITES 10/28/96
ONE WATER COMPOSITE COLLECTED 10/28/96

NAS Forth Worth, Carswell Field, TX
 RV Fam Camp and Pipeline Investigation Derived Waste Sample Results

Analyses	Detection Limit	Drilling Soil Cuttings			Regulatory Limits	
		SO-DC01	SO-DC02	SO-DC03	Haz Waste TCLP Max Concentration	Non Haz Waste Class I Max Concentration Limits
TCLP Volatile Organics						
Benzene	0.10 mg/L	ND	ND	ND	0.5 mg/L	0.5 mg/L
Carbon tetrachloride	0.10 mg/L	ND	ND	ND	0.5 mg/L	0.5 mg/L
Chlorobenzene	0.10 mg/L	ND	ND	ND	100.0 mg/L	70.0 mg/L
Chloroform	0.10 mg/L	ND	ND	ND	6.0 mg/L	6.0 mg/L
1,2-Dichloroethane	0.10 mg/L	ND	ND	ND	0.5 mg/L	0.5 mg/L
1,1-Dichloroethene	0.10 mg/L	ND	ND	ND	0.7 mg/L	0.6 mg/L
Methyl ethyl ketone	1.00 mg/L	ND	ND	ND	200.0 mg/L	200.0 mg/L
Tetrachloroethene	0.10 mg/L	ND	ND	ND	0.7 mg/L	0.005 mg/L
Trichloroethene	0.10 mg/L	ND	ND	ND	0.5 mg/L	0.005 mg/L
Vinyl chloride	0.10 mg/L	ND	ND	ND	0.2 mg/L	0.2 mg/L
Total Extractable Hydrocarbons	2.00 mg/Kg	3.53 mg/Kg	153 mg/Kg	313 mg/Kg		1500 mg/Kg
Total Volatile Hydrocarbons	0.04-10.0 mg/Kg	ND	117 mg/Kg	70 mg/Kg		1500 mg/Kg
TCLP Metals						
Silver	0.0200 mg/L	ND	ND	ND	5.0 mg/L	5.0 mg/L
Arsenic	1.00 mg/L	ND	ND	ND	5.0 mg/L	1.8 mg/L
Barium	1.00 mg/L	ND	1.04 mg/L	1.11 mg/L	100.0 mg/L	100.0 mg/L
Cadmium	0.020 mg/L	0.038 mg/L	0.039 mg/L	0.039 mg/L	1.0 mg/L	0.5 mg/L
Chromium	0.0200 mg/L	ND	ND	ND	5.0 mg/L	5.0 mg/L
Mercury	0.0010 mg/L	ND	ND	ND	0.2 mg/L	0.2 mg/L
Lead	0.100 mg/L	ND	ND	ND	5.0 mg/L	1.5 mg/L
Selenium	0.800 mg/L	ND	ND	ND	1.0 mg/L	1.0 mg/L
Miscellaneous Analyses						
Total Solids	0.01%	89.10%	89.10%	88.80%		

NAS Forth Worth, Carswell Field, TX
 RV Fam Camp and Pipeline Investigation Derived Waste Sample Results

Analyses	Decontamination Water		Regulatory Limits	
	Haz Waste TCLP Max Concentration	Non Haz Waste Class I Max	Haz Waste TCLP Max Concentration	Hydrocarbons
Tentatively Identified Compounds, cont.				
1,1,1,5,7,7,7-Heptamethyl-3,3-bis	17.86	50 ug/L		
Trisiloxane, 1,1,1,5,5,5-hexamethy	18.83	55 ug/L		
1,1,1,5,7,7,7-Heptamethyl-3,3-bis	19.75	68 ug/L		
Ethanedioic acid, bis(trimethylsil	20.61	68 ug/L		
Trisiloxane, 1,1,1,5,5,5-hexamethy	21.40	66 ug/L		
Merceptoacetic acid, bis(trimethyl)	22.18	28 ug/L		
3,6-Dioxa-2,4,5,7-tetrasilaoctane,	23.68	22 ug/L		
1,2-Benzenedicarboxylic acid, bis	24.45	20 ug/L		
1-Monolinoleoylglycerol trimethyls	25.29	52 ug/L		
Total Extractable Hydrocarbons	30.0 ug/L	2870 ug/L		1500 mg/Kg
Total Volatile Hydrocarbons	300 ug/L	729 ug/L		1500 mg/Kg
Total Metals				
Aluminum	0.02 mg/L	58.51 mg/L		
Arsenic	0.02 mg/L	ND	5.0 mg/L	1.8 mg/L
Barium	0.001 mg/L	0.181 mg/L	100.0 mg/L	100.0 mg/L
Beryllium	0.0003 mg/L	0.0030 mg/L		
Cadmium	0.001 mg/L	0.005 mg/L	1.0 mg/L	0.5 mg/L
Calcium	1.00 mg/L	55.2 mg/L		
Chromium	0.002 mg/L	0.074 mg/L	5.0 mg/L	5.0 mg/L
Colbalt	0.001 mg/L	0.004 mg/L		
Copper	0.004 mg/L	0.052 mg/L		
Iron	0.018 mg/L	54.711 mg/L		
Lead	0.0015 mg/L	0.0250 mg/L	5.0 mg/L	1.5 mg/L
Magnesium	0.07 mg/L	18.40 mg/L		
Manganese	0.004 mg/L	1.186 mg/L		
Mercury	0.0001 mg/L	0.0003 mg/L	0.2 mg/L	0.2 mg/L
Potassium	0.05 mg/L	15.98 mg/L		
Selenium	0.02 mg/L	ND	1.0 mg/L	1.0 mg/L
Silver	0.003 mg/L	ND	5.0 mg/L	5.0 mg/L
Sodium	3.0 mg/L	1050.0 mg/L		
Vanadium	0.002 mg/L	0.075 mg/L		
Zinc	0.016 mg/L	0.790 mg/L		

NAS Forth Worth, Carswell Field, TX
 RV Farm Camp and Pipeline Investigation Derived Waste Sample Results

Analyses	Decontamination Water		Regulatory Limits	
	Detection Limit	WW-DC04	Hez Waste TCLP Max Concentration Limits	Non Haz Waste Class I Max Concentration Limits
Volatile Organics				
Acetone	6.50 ug/L	32.1 ug/L		
Benzene	1.10 ug/L	ND	0.5 mg/L	0.5 mg/L
Carbon tetrachloride	0.80 ug/L	ND	0.5 mg/L	0.5 mg/L
Chlorobenzene	0.80 ug/L	ND	100.0 mg/L	70.0 mg/L
Chloroform	1.40 ug/L	ND	6.0 mg/L	6.0 mg/L
1,2-Dichloroethane	1.20 ug/L	ND	0.5 mg/L	0.5 mg/L
1,1-Dichloroethene	1.30 ug/L	ND	0.7 mg/L	0.6 mg/L
Methyl ethyl ketone	7.70 ug/L	ND	200.0 mg/L	200.0 mg/L
Tetrachloroethene	0.90 ug/L	ND	0.7 mg/L	0.005 mg/L
Trichloroethene	1.70 ug/L	ND	0.5 mg/L	0.005 mg/L
Vinyl chloride	2.30 ug/L	ND	0.2 mg/L	0.2 mg/L
Tentatively Identified Compounds				
Chloroacetamide	Retention Time			
	1.77	12 ug/L		
Methoxytrimethylsilane	3.18	21 ug/L		
Trimethylsilanol	4.21	11 ug/L		
Octanal	9.76	10 ug/L		
Bis(2-chloroisopropyl)ether	2.30 ug/L	ND		
Chrysene	1.60 ug/L	ND		
Di-n-butylphthalate	1.60 ug/L	6.51 ug/L		
Pyrene	2.20 ug/L	ND		
Tentatively Identified Compounds				
	Retention Time			
Octene	3.10	26 ug/L		
Hexanoic acid	5.44	20 ug/L		
Octanol	6.51	21 ug/L		
Octanoic Acid	7.96	14 ug/L		
Methyldecane	9.09	18 ug/L		
Cyclododecane	13.52	71 ug/L		
Methyldecylbenzene	13.78	14 ug/L		
Dodecanoic acid	14.31	37 ug/L		
1,1,1,5,7,7-Heptamethyl-3,3-bis	14.37	21 ug/L		
1,3-Dioxolane, 2-(4-methoxyphenyl)	15.26	15 ug/L		
1-Monolinoleoylglycerol trimethyls	15.64	19 ug/L		
Trisiloxane, 1,1,1,5,5-hexamethy	16.81	17 ug/L		



CACTUS VACUUM TRUCK SERVICE, INC.
COMPLETE WASTE TRANSPORTATION

199 W. Rock Island • Grand Prairie, Texas 75050
972/446-0200 • FAX 972/313-0949

430 466

MANIFEST # 500636
MAP CODE _____ DATE 9-2-97
CUSTOMER P.O. NUMBER 2380
ORDERED BY Steve Clay

WORK AUTHORIZATION ORDER

CUSTOMER

The Environmental Co.
710 NW Juniper, Suite 208
Issaquah, WA 98027

Phone No. (804) 295-4446

Contact: Bob Duffner
SITE OF SERVICE (IF DIFFERENT) Karen Cain

NAS Fort Worth, JRB
Fort Worth, TX

Phone No.

	✓	GAL./HRS.	AMOUNT
SERVICE FEE		425-559 789 F	
DISPOSAL			
DISPOSAL			
GREASE TRAP			
SAND TRAP			
HYDROJET			
TRANSPORTATION	✓		
DEMURRAGE			
BOX RENT			
DRUM RENT			
LINER			
TRUCK NUMBER		T-5	

RECEIVED
SEP 18 1997
BY: _____

Load drums @ site & transport
to BFI Itasca for disposal.
12 drums

SUB TOTAL	
SALES TAX %	
TOTAL	

OUT: 8:45 AM
IN PLANT: 9:40 AM
OUT PLANT: _____
IN PLANT: _____
OUT PLANT: _____
IN PLANT: _____
OUT PLANT: _____

SERVICE WORK INSPECTED BY

[Signature]
AUTHORIZED SIGNATURE FOR CUSTOMER

[Signature]
CACTUS OPERATOR

[Signature]
ORDER WRITER

TAB

0

APPENDIX O

RESPONSE TO COMMENTS

**RESPONSE TO AFCEE REVIEW COMMENTS ON THE
DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV)
FAMILY CAMPING (FAM CAMP) AND PIPELINE AREAS AT NAVAL AIR STATION (NAS) FORT WORTH, TEXAS**

General Comments

Item	Comment	Response and/or Action Taken
1	<p>The contractor presented a partial risk evaluation of the Unnamed Stream area and the West Fork of the Trinity River area. Action levels were not determined for these areas since the contamination identified at these sites was attributed to sources other than the pipeline being investigated by this project. Risk assessments are being performed for sites encompassing the Unnamed Stream and the West Fork of the Trinity River areas as part of site investigations conducted under separate contracts. The contractor's evaluation of the exposure scenarios for these areas was unnecessary for the reasons indicated above. The partial evaluation of the risk assessment process was somewhat confusing, presenting pathways and not evaluating them. All of these requirements for the risk assessment process at these areas will be addressed by the other contracts.</p>	<p>Concur, risk evaluation modified.</p>
2	<p>The contractor should reevaluate the screening action levels (SALS) presented in Table 2-5. Practical quantitation limits (PQLS) should only be used in place of lower background levels if it is demonstrated that lower levels of quantitation of a contaminant are not possible. Additionally, background levels used for arsenic, lead, and cadmium are higher than those determined in the most recent draft Basewide Background Study (Jacobs 1997). The contractor should reevaluate contaminants as necessary if the SALS are changed.</p>	<p>PQLs were not used as SALS in the final report.</p> <p>The SALS were revised in the final report to reflect the results of the draft Basewide Background Study (Jacobs 1997) and contaminants were reevaluated with respect to the SALS.</p>
3	<p>The contractor did not present a conceptual site model (CSM) as stated in the Work Plan (WP) and statement of work (SOW). A CSM in tabular format as specified in the Air Force Center for Environmental Excellence (AFC-EE) "Handbook" (September 1993) would greatly clarify the exposure pathway analysis presented in the risk evaluation.</p>	<p>A tabular CSM based on AFCEE guidelines is included in the final report.</p>

**RESPONSE TO AFCEE REVIEW COMMENTS ON THE
DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV)
FAMILY CAMPING (FAM CAMP) AND PIPELINE AREAS AT NAVAL AIR STATION (NAS) FORT WORTH, TEXAS**

Specific Comments

Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
1	xiii	Executive Summary	The last sentence of this page is not complete. This sentence would describe the recommended management category for the RV Fam Camp if completed. The value box area and Farmers Branch Creek area should also be categorized.	Text added to recommend that the RV Fam Camp and Valve Box areas be managed under Category 1. No site-related contaminants were identified at the Farmers Branch Creek area.
2	1 - 7	1.4.1.2	The contractor should clarify the reference to lead exceeding action levels. Is the contractor referring to action levels developed in this report or action levels developed in the RFI (Law 1995) being discussed?	The text refers to action levels developed in the RFI. Text was modified.
3	1 - 10	1.5.1	The contractor should clarify that the galvanized water trough to be installed at the former oil/water separator location at the Unnamed Stream will only be in place until the removal project is completed.	Point clarified.
4	1 - 10	1.5.3	The contractor should clarify the tank removal date at the Base Service Station (BSS). This section conflicts with section 1.4.1.3.	The date was revised to 1993.
5	Figure 1 - 3	Figure 1-3	The road identified as River Oaks Boulevard should be identified as White Settlement Road.	Figure modified.
6	Figure 1 - 4	Figure 1-4	Soil borings shown on the map should be included in the legend. The site symbol consisting of horizontal lines should also be identified in the legend.	Figure modified.
7	Figure 1 - 4	Figure 1-4	The term "abandoned USTs" is used in the figure to represent the former location of underground storage tanks (USTs). The contractor should label the location "former UST location".	Figure modified.

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RESPONSE TO AFCEE REVIEW COMMENTS ON THE
**DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV)
 FAMILY CAMPING (FAM CAMP) AND PIPELINE AREAS AT NAVAL AIR STATION (NAS) FORT WORTH, TEXAS**

Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
8	2 - 7	2.2.2.2	The text indicates that a split-spoon sampler was driven in accordance with ASTM D-1586. The contractor should correct the text to indicate the manner in which samples were actually collected. The sampler was not driven. The borehole logs in Appendix G indicate that a 5-foot sampler was utilized and no blow counts are presented.	Text modified.
9	2 - 8	2.2.2.2	The contractor indicates that decontamination fluids were contained and disposed of in accordance with Texas Natural Resource Conservation Commission (TNRCC) regulations. Decontamination fluids were contained but not disposed. No analytical results or disposal receipts are presented for investigation-derived waste (IDW). The SOW and WP indicate that the contractor will dispose of IDW. The contractor should explain the disposition of the IDW including soil and fluids.	Text modified.
10	2 - 12	2.2.6.1	The contractor should indicate the location of the ambient blank sample.	Text modified.
11	2 - 13	2.3.1	The contractor indicates that the hydrocarbon fingerprinting identified the exact type of product present in the sample. Suggest the contractor delete the word "exact" from the text,	Text modified.
12	2 - 17	2.4.3	The contractor should indicate that the reason for evaluating the RV Fam Camp under Texas Administrative Code (TAC) 335, Subchapter S, instead of Petroleum Storage Tank (PST) guidelines is that it is not a PST area.	Concur. Text modified.

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**RESPONSE TO AFCEE REVIEW COMMENTS ON THE
DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV)
FAMILY CAMPING (FAM CAMP) AND PIPELINE AREAS AT NAVAL AIR STATION (NAS) FORT WORTH, TEXAS**

Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
13	2-19	2.4.3.1	The contractor indicates that the SALs for PST areas are based on the PQLs if the PQLs are higher than background levels. The contractor should only consider using the PQL as the SAL if it is demonstrated that lower levels of quantitation of a contaminant are not possible.	PQLs were not used as SALs in the final report.
14	2-19	2.4.3.1	The contractor indicates that the SALs for the Unnamed Stream and RV Fam Camp areas are based on the PQLs if the PQLs are higher than background levels. The contractor should address the statement in TAC 335.554 (d) that the PQL can only be used as the SAL if it is demonstrated that lower levels of quantitation of a contaminant are not possible.	PQLs were not used as SALs in the final report.
15	2-24	Table 2-5	Suggest the contractor utilize background concentrations for arsenic instead of the PQLs. The contractor should verify the background concentrations utilized for arsenic, cadmium, and lead. The levels are considerably higher than the levels determined in the January 1997 Jacobs Engineering Basewide Background Study at NAS Fort Worth. NOTE: The January 1997 Jacobs Basewide Background Study is a draft version.	SALs were revised to reflect the upper tolerance limit (UTL) concentrations presented in Jacobs' draft Basewide Background Study (Jacobs 1997) and subsequent revisions to some of the UTLs (Jacobs 1998).

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**RESPONSE TO AFCEE REVIEW COMMENTS ON THE
DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV)
FAMILY CAMPING (FAM CAMP) AND PIPELINE AREAS AT NAVAL AIR STATION (NAS) FORT WORTH, TEXAS**

Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
16	3 - 11	3.3.4.3	The text indicates that an analysis of the potential risks posed by compounds exceeding SALs at the Unnamed Stream is presented in section 5.0 of the report. The contractor should correct this statement since action levels were not developed for these compounds at the Unnamed Stream in this report. The risks posed are to be evaluated under another contract.	Concur, text modified.
17	3 - 13	3.3.5.3	See above comment. The above comment also applies to the West Fork of the Trinity River area.	Concur, text modified.
18	3 - 24	Table 3-8	The summary of detected results does not list benzene under the heading of BTEX (benzene, toluene, ethylbenzene, xylenes). Similar situations exist for other samples listed on other tables following this table. The same omission occurs for figure 3-1. The contractor should correct or clarify.	Footnotes were added to Table 3-8 and figures indicating that only detected compounds were included. Benzene was not detected in Valve Box soil samples.
19	4 - 1	4.3	The reference to section 3.4 should be corrected to section 3.3.4.	Text modified.
20	5 - 1	5.0	The contractor should present a CSM in this section of the report as required by the WP and SOW. The AFCEE Handbook specifies a CSM in tabular format.	A tabular CSM based on AFCEE guidelines is included in the final report.
21	5 - 2	5.0	The contractor should not present an evaluation of the exposure scenarios for sites which were determined not to be sources.	Concur, text modified.

**RESPONSE TO AFCEE REVIEW COMMENTS ON THE
DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV)
FAMILY CAMPING (FAM CAMP) AND PIPELINE AREAS AT NAVAL AIR STATION (NAS) FORT WORTH, TEXAS**

Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
22	5 - 2	5.1.2	The contractor indicates that the selection of potential human receptors was based in part on the migration potential evaluation in section 4.0; however, the migration potentials of the Unnamed Stream and the West Fork of the Trinity River were not discussed in section 4.0 since the pipelines did not contribute to the contamination.	Concur, text modified.
23	5 - 3	5.1.2	The contractor infers that the Unnamed Stream is located next to the golf course; however, the Unnamed Stream is separated from the golf course by a significant distance and buildings, roads and undeveloped land not associated with the golf course. The contractor should delete or clarify the manner in which the Unnamed Stream could be associated with the golf course.	Concur, text deleted.
24	5 - 3	5.1.2	If potential beneficial use of the groundwater at the Unnamed Stream and RV Fam Camp is designated Category I due to the potential to impact groundwater, this reasoning and designation would also apply to the West Fork of the Trinity River area. Seepage to the river in this area has already been noted (section 1.4.1.3).	Eliminated discussion of the Unnamed Stream and West Fork of the Trinity River areas.
25	5 - 4	5.1.3	The contractor should eliminate use of the term "expanded golf club" or include reference to the Unnamed Stream and RV Fam Camp.	Concur, reference eliminated.

**RESPONSE TO AFCEE REVIEW COMMENTS ON THE
DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV)
FAMILY CAMPING (FAM CAMP) AND PIPELINE AREAS AT NAVAL AIR STATION (NAS) FORT WORTH, TEXAS**

Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
26	5 - 4	5.1.3	The contractor begins the fourth paragraph indicating that the only environmental media of concern for this risk evaluation is subsurface soil. This is an inaccurate statement which seems to indicate an incomplete risk evaluation. This section on exposure pathway evaluation must evaluate all practical potential for exposure. Only after the evaluation of each potential pathway can the complete pathways be identified. The pathways must also consider future transport to other media of concern. The contractor indicates that no exposure exists for surface soils; however, no surface soil samples were obtained.	Text was modified to reflect results of Section 4.0, which concludes that chemicals of concern were only detected in subsurface soil and future contaminant migration to other media is not expected. Surface soil was screened using PID. Because PID results indicated no surface soil contamination and the pipelines are located below the ground surface, no surface soil samples were collected for laboratory analysis.
27	5 - 4	5.1.3	The contractor indicates that groundwater is not likely to be impacted by sources identified in this study, as indicated in section 4.0. Section 4.0 clearly indicates the groundwater contamination exists in the area of the Unnamed Stream and the West Fork of the Trinity River. If the contractor is attempting to indicate the groundwater is not impacted by the sources investigated for this report, the pipeline areas, why are they being evaluated in this section?	Based on AFCEE's general comments, discussion of these areas was eliminated from the exposure pathway analysis.

**RESPONSE TO AFCEE REVIEW COMMENTS ON THE
DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV)
FAMILY CAMPING (FAM CAMP) AND PIPELINE AREAS AT NAVAL AIR STATION (NAS) FORT WORTH, TEXAS**

Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
28	5 - 5	5.1.3	The future exposure scenarios have failed to consider dermal exposure to the construction worker. The recreational visitor should not contact or ingest subsurface soils	<p>Dermal exposure was considered in the final report.</p> <p>Future recreational visitors in the vicinity of the RV Fam Camp area could contact subsurface soil via inhalation if it is excavated and brought to the ground surface during construction and development activities. However, because of the lower exposure frequency and fewer exposure routes associated with the recreational scenario compared to the residential and construction scenarios, action levels were not calculated for the recreational scenario in the final report.</p>
29	5 - 17	Table 5-5	The contractor should clarify the status of arsenic. Was arsenic detected or evaluated?	<p>Arsenic was not detected at the RV Fam Camp area. A footnote was added to Table 5-5 indicating that only detected compounds are listed in this table.</p>

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**RESPONSE TO EPA REVIEW COMMENTS ON THE
DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV)
FAMILY CAMPING (FAM CAMP) AND PIPELINE AREAS AT NAVAL AIR STATION (NAS) FORT WORTH, TEXAS**

General Comments

Item	Comment	Response and/or Action Taken
A.	USAF's Draft SC Report should include a document intended to be used in fulfilling deed recordation requirements if appropriate.	Not appropriate because no deed restrictions are required.

Specific Comments

Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
B.	xiii	Executive Summary	USAF recommends that the RV Fam Camp be managed under Category 1 (no further action). USAF should include a statement that specifies which of the TNRCC's Risk Reduction Standards are applicable to the RV Fam Camp.	Text added.
C.	1 - 3	1.2.4	USAF provided a brief description of the regional geology. USAF should include a stratigraphic map in the Draft SC Report that represents the subsurface at the RV Fam Camp. This detailed cross-section of the study area should utilize the information obtained from the field investigations.	A stratigraphic map is included in the final report.

**RESPONSE TO EPA REVIEW COMMENTS ON THE
DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV)
FAMILY CAMPING (FAM CAMP) AND PIPELINE AREAS AT NAVAL AIR STATION (NAS) FORT WORTH, TEXAS**

Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
D.	2-19	2.4.3.1	<p>USAF states that the screening action levels (SALS) for the RV Fam Camp area were based on the maximum background concentrations measured during the Oil/Water Separator Assessment and RCRA Facility Investigation conducted by Law Environmental, Inc. in 1994. USAF adds that the background soil samples were obtained from five boreholes drilled within the vicinity of the investigation area to depths ranging from 4 to 14 feet below the ground's surface. Table 2-5 (Basis for TNRCC Screening Action Levels (SALS) for the RV Fam Camp Site Investigation) lists the SALS chosen by USAF for the RV Fam Camp.</p> <p>USAF should provide additional information in the Draft SC Report that justifies the selection of background concentrations. EPA does not believe that the use of maximum concentrations of inorganics is appropriate for use as background concentrations and comparison to soil analytical data or TNRCC's media-specific concentrations (MSCs). The technical issues that should be addressed by USAF include selection of background sampling locations, considerations in selection of sampling procedures, and statistical analyses.</p>	<p>Background upper tolerance limit (UTL) concentrations from Jacobs Engineering draft Basewide Background Study (Jacobs Engineering 1997) were used as SALS in the final report. Some of the UTLs were revised subsequent to release of the study report (Jacobs personal communication 1998). These revised values were used as SALS.</p> <p>PQLs were not used as SALS in the final report.</p>

**RESPONSE TO EPA REVIEW COMMENTS ON THE
DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV)
FAMILY CAMPING (FAM CAMP) AND PIPELINE AREAS AT NAVAL AIR STATION (NAS) FORT WORTH, TEXAS**

Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
D. (cont)	2-19	2.4.3.1	<p>USAF should consider the protocols described in the following EPA guidance documents in the establishment of background for all environmental media of concern. These documents, not all inclusive, are titled Statistical Analysis of Ground Water Monitoring Data at RCRA Facilities" (Addendum to Interim Final Guidance, June 1992), "Statistical Analysis of Ground Water Monitoring Data at RCRA Facilities" (Interim Final Guidance, April 1989, EPA/530-SW-89-026), and "Determination of Background Concentrations of Inorganics in Soils and Sediments at Hazardous Waste Sites" (December 1995, EPA/540/5-96/500).</p> <p>Although the document has not been approved by TNRCC, USAF should also consider USAF's "Draft Base-Wide Background Study" (January 1997) in the development background for the RV Fam Camp. The Draft SC Report may require amendment based on TNRCC's comments concerning this background study.</p> <p>For clarification purposes, the objective of the RCRA Facility investigation is to delineate the full vertical and horizontal extent of contamination to background conditions. Therefore, it is imperative that true background conditions are established for the RV Fam Camp.</p>	

**RESPONSE TO EPA REVIEW COMMENTS ON THE
DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV)
FAMILY CAMPING (FAM CAMP) AND PIPELINE AREAS AT NAVAL AIR STATION (NAS) FORT WORTH, TEXAS**

Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
D. (cont)	2 - 1,9	2.4.3.1	<p>Once background conditions are established, USAF should determine whether the analytical data collected to date are representative of the full vertical and horizontal extent of contamination, if present, at the RV Fam Camp. EPA realizes that in some cases delineating the extent of contamination to unaffected background may not be possible or practical, USAF should discuss this issue with EPA and TNRCC if this is the case at NAS FW.</p> <p>Additionally, USAF must demonstrate in the Draft SC Report that lower levels of quantitation are not possible if Practical Quantitation Limits are used as the basis for the selection of action levels (e.g., the PQLs are greater than their respective background and/or MSCS).</p>	
E.	3 - 3,3	Table 3-12	<p>Table 3-12 provides a comparison of the soil sampling results with the TNRCC screening levels.</p> <p>USAF should also consider EPA's Region 6 Human Health Media-Specific Screening Levels in the comparison to the soil analytical results and background concentrations.</p>	<p>Screening of site concentrations at the RV Fam Camp area (Table 3-12) is based on Risk Reduction Standard Number 1, which relies on background concentrations for determining compliance. Because the focus is on background, risk-based concentrations are not considered in the screening step for this study area.</p> <p>Methodologies provided in EPA guidances, which are consistent with those used to develop Region 6 Human Health Media-Specific Screening Levels, were considered during development of action levels in the final report.</p>

**RESPONSE TO EPA REVIEW COMMENTS ON THE
DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV)
FAMILY CAMPING (FAM CAMP) AND PIPELINE AREAS AT NAVAL AIR STATION (NAS) FORT WORTH, TEXAS**

6/18/98

Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
F.	5 - 6	5.1.5	<p>USAF provided Table 5-3 (Action Levels for COPC at the RV Fam Camp Area) which lists the MSCs applicable to the RV Fam Camp.</p> <p>USAF modified the residential MSCs to generate recreational and industrial soil scenarios by multiplying the values by a factor to account for the lower exposure frequency. This modification may be reasonable for noncarcinogens but is not recommended for carcinogens since the non-threshold assumption for estimating carcinogenic risk does not allow for the modification based on exposure frequency.</p>	<p>Per TEC/EPA personal communication regarding this comment (Martinez 1997), adjusting the exposure frequency is appropriate for both carcinogens and noncarcinogens. This approach, however, was not followed in the final report.</p>

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**RESPONSE TO TNRCC REVIEW COMMENTS ON THE
DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV)
FAMILY CAMPING (FAM CAMP) AND PIPELINE AREAS AT NAVAL AIR STATION (NAS) FORT WORTH, TEXAS**

General Comments

Item	Comment	Response and/or Action Taken
A.	Efforts should be made to identify any Leaking Petroleum Storage Tank (LPST) sites that are referenced in the report (BSG, BSS, etc.) which provide evidence to the final findings of the investigation.	Added LPST ID numbers next to LPST sites (eg. BSS, BSG) throughout report, per Antonio Pena (TNRCC, February 23, 1998).

Specific Comments

Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
A.	xiii	Executive Summary	USAF states that no further action status is recommended because no significant impact to human health and environment exists. USAF should also state that no potential for significant impact exists under future exposure scenarios for the sub-population chosen in Section 5.0 (Risk Evaluation).	Concur. Text added.
B.	1 - 3	1.2.4	USAF should include a geologic stratigraphic map that represents the subsurface along the pipeline areas. Information from field investigations in combination with regional geologic knowledge should be utilized to prepare such a map.	A stratigraphic map is included in the final report.

6/18/98

**RESPONSE TO TNRCC REVIEW COMMENTS ON THE
DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV)
FAMILY CAMPING (FAM CAMP) AND PIPELINE AREAS AT NAVAL AIR STATION (NAS) FORT WORTH, TEXAS**

Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
C.	1 - 9	1.4.1.3	USAF should make efforts to include the most up-to-date information obtained through the latest field investigations at the BSS. Also, SC report should mention that the sources at this location have been removed/eliminated.	Concur. Text added.
D.	2 - 17	2.4.3	Please identify the references TNRCC PST Division documents utilized for risk evaluation/methodology as RG-175 and RG-36 respectively.	Text added.
E.	2 - 19	2.4.3.2	Different methodologies were used to set SALs for organics and inorganics due to some chemicals not being in Table A-1 of Beneficial Groundwater Use Category 1 Levels. For SALs set to background levels, additional justification should be provided for the selection of background concentrations as maximum concentrations obtained during 1994 field investigations of other areas. Characterization of background conditions should be determined by placement of borings outside the area of potential contamination. Because direct sampling data from the area of concern prior to waste management activities is seldom available, the use of nearby, non-impacted sampling data in conjunction with statistical/geostatistical estimation techniques and/or statistical models is recommended.	Background upper tolerance limit (UTL) concentrations from Jacobs Engineering draft Basewide Background Study (Jacobs 1997) were used as SALs in the final report. Some of the UTLs were revised subsequent to release of the study report (Jacobs personal communication 1998). These revised values were used as SALs.

**RESPONSE TO TNRCC REVIEW COMMENTS ON THE
DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV)
FAMILY CAMPING (FAM CAMP) AND PIPELINE AREAS AT NAVAL AIR STATION (NAS) FORT WORTH, TEXAS**

Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
F.	2-19	2.4.3.2	USAF should provide the basis (ex: TDS, receptors, groundwater depth, etc..) for selecting the more stringent Beneficial Groundwater Use Category I target levels over Category II, which is the denomination currently applied to other PSTD areas at the Base. Information about the probable well yield, based on nearby and/or regional experience, at the depths of concern is critical to a risk-based approach.	Assumption of Category I was a conservative measure for screening purposes (i.e. in development of screening action levels), before an exposure analysis was performed. In addition, beneficial use of the groundwater in the vicinity of the Unnamed Stream and RV Family Camp areas is designated as Category I by TNRCC because of potential contaminant migration into local surface water (Parsons Engineering 1996). Therefore, Category I was assumed in the screening step of the Risk Evaluation.
G		Section 5.0	An attempt should be made to identify all complete exposure pathways. The ingestion of COPCs in subsurface soil pathway for the industrial worker population appears to be incomplete due to unlikely excavation activities. TNRCC PSTD recommends the inclusion of the future construction worker scenario because the possibility for repairs/maintenance of the active Pride Petroleum pipeline appears to be likely. Also, target risk for the future pipeline construction/repair/maintenance worker scenario would be protective of the industrial worker. USAF should specify the target risk in the SC report, for PSTD areas, the permissible risk for future exposure scenario is 1×10^{-4} .	Concur. Because no action levels were developed for PSTD areas due to the lack of COPCs, specifying the target risk level was unnecessary in the Risk Evaluation.

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TAB

P

APPENDIX P

VOLATILE ORGANIC ANALYTICAL RESULTS QUALITY
ASSESSMENT



Intertek Testing Services 430 488
Environmental Laboratories

December 23, 1997

Ms. Rosemary Condit
 OHM Remediation
 5731 W. Las Positas Blvd
 Pleasanton, CA 95588

Post-It® Fax Note	7671	Date	12-30	# of pages	2
To	Joe Strz.	From	Grunna P.		
Co./Dept.		Co.			
Phone #		Phone #			
Fax #		Fax #			

RE: Laboratory Performance

Dear Ms. Rosemary Condit:

Intertek Testing Services, Environmental Laboratories, Inc. (ITS) is providing analytical services to numerous engineering firms in support of AFCEE programs. In an effort to continually improve the quality of our results and overall service, we recently completed another routine, internal audit of our performance.

Unfortunately, the results of this audit demonstrated that some inappropriate manual integrations had been used in reference to performance of AFCEE Version 2 low level volatile analyses of water samples by GC/MS. Our investigation was initiated on Thursday, December 11, 1997 and is still on-going. We felt however that it was imperative to advise you of status of this investigation.

At the present time, we know that manual integration of a few select GC/MS VOA constituents in standards used for calibration purposes in low level aqueous analysis consistent with AFCEE Version 2, were manipulated by addition and/or subtraction of peak areas to indicate compliance. We are confident that this problem is limited to samples submitted for aqueous analysis by AFCEE Version 2, as the audit and our subsequent investigations did not identify any other irregularities. We also believe that none of the constituents impacted were ever detected or reported for any AFCEE contractors but we have yet to confirm this belief. It would appear therefore that the actual reported data is usable even though compliance with AFCEE requirements for these select constituents were not met.

Since the degree and extent of the problem is not yet fully known, we are currently notifying the engineering firms that might be impacted by this problem. Upon completion of the investigation, which is scheduled for the end of December, we will advise you in detail of all sites impacted by these irregularities. We will also develop and distribute a schedule of any report to be re-issued.

Intertek Testing Services NA Inc.
 1089 East Collins Boulevard Richardson, TX 75081
 Telephone (972) 238-5591 Fax (972) 238-5592



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Ms. Rosemary Condit
December 23, 1997

RE: Laboratory Performance

Upon discovery of this problem, the GC/MS Department Manager was discharged, an additional employee was suspended, the staff was retrained in appropriate QA/QC procedures, and our ethics policy was reinforced through a meeting of all employees. The Laboratory Director, under whose tutelage these practices occurred, is no longer employed by ITS.

We value our relationship with OHM Remediation and we are working with absolute urgency to rectify the situation. I will contact you in a few days to update you on our finding and answer any questions you might have.

Respectfully submitted,

Martin Jeffus
Regional Director/Vice President
Intertek Testing Services, Environmental Laboratories, Inc.

Post-it Fax Note	7671	Date	2/4/98	# of pages	3
To	Pete Chapman	From	Lynnea Peterson		
Co./Dept.	TEC	Co.	Personnel - Denver		
Phone #	(804) 295-4446	Phone #	(303) 831-8100		
Fax #	(804) 295-5535	Fax #	(303) 831-8208		

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**DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE CENTER FOR ENVIRONMENTAL
EXCELLENCE
BROOKS AIR FORCE BASE, TEXAS**

January 15, 1998

MEMORANDUM FOR HQ AFCEE/ER
ATTENTION: ERB, ERD, ERT

FROM: ERC

**SUBJECT: LABORATORY AUDIT OF ITS LABORATORIES-DALLAS FOR
POTENTIAL FRAUDULENT DATA PRACTICES**

At the request of the ERC Division Chief, an on-site evaluation of ITS Laboratory in Dallas, Texas, was performed on 13 - 14 January 1998 to investigate improper manipulation of laboratory analytical data. Mr. Ed Brown, AFCEE/ERC (lead evaluator) and Mr. Frank Schweitzer, Booz Allen & Hamilton, Inc. were the evaluators. Prior to the audit, ITS Laboratory released a letter (Attachment 1) to AFCEE and several AFCEE prime contractors on December 23, 1997 describing problems with the Gas Chromatography/Mass Spectrometry (GC/MS) sample volatile organic data. The problems involved inappropriate manipulation of data by the supervisor and members of the GC/MS Volatile Organic Analysis (VOA) section to meet AFCEE Quality Control/Quality Assurance (QA/QC) criteria. The laboratory presented examples of peak shaving and peak enhancement involving initial and continuing calibration standards and QC samples.

During the audit Mr. Robert Wyeth, Director of ITS Operations, described the chronology of events surrounding the data quality problems (Attachment 2). In the chronology Mr. Wyeth describes how the Organic Area Director, Mr. Mike Ludwick, had pressured the GC/MS (VOA) analysts to produce only compliant data by whatever means necessary. Three analysts were involved with this situation. Mr. Ludwick trained the analysts in how to perform manual integrations. Mr. Wyeth points out that Mr. Ludwick had a policy in which analysts were told there were to be no non-compliant data reported. If the analysts didn't make the data compliant when it was reported, Mr Ludwick would make the data compliant in his secondary data review. Mr. Ludwick resigned on December 11, 1997. Other analysts received disciplinary actions ranging from suspension to demotion.

In response to the AFCEE audit conducted on October 27 - 29, 1997, the laboratory brought in an ITS data reviewer, Ms. Mina Shah, from San Jose, California to perform an independent internal audit of the laboratory data. Ms. Shah identified instances of improper QC sample data manipulations including alteration of peak areas, peak shaving and peak enhancement, for method detection limit studies, initial calibrations, continuing calibrations, QC samples, and internal standards. ITS laboratory management was

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informed of the inappropriate manual integrations in the GC/MS VOA section on December 9, 1997 and AFCEE was informed of the situation on December 23, 1997. The laboratory provided examples of improper QC sample data manipulations (Attachment 3). The examples in the attachment are taken from an 8260 initial calibration. The examples labeled "A" show the proper and acceptable manual peak integration while the corresponding examples labeled "B" show inappropriate manual integrations. The inappropriate QC data manipulations were performed to ensure compliance with AFCEE program requirements. The laboratory made the statement to the auditors that based on an initial sampling of the data by Ms. Shab, all the samples submitted to the laboratory for the Air Force might be effected. AFCEE will need to determine the actual extent or amount of effected data packages.

The laboratory provided a list (Attachment 4) of 27 AFCEE bases whose data could be effected by this fraudulent activity. The laboratory indicated that this practice had been ongoing for over two years. The laboratory indicated that no AFCEE data for method SW 8260 has been reported to their clients (the AFCEE prime contractors) since the initial discovery of the situation on December 9, 1997. However, the laboratory continues to accept and analyze AFCEE samples for all methods including method 8260. In addition all of the analysts that were implicated in the illicit data manipulations with the exception of Mr. Ludwick, who was terminated, are still analyzing AFCEE samples.

One of the significant findings from the October 1997 AFCEE on-site audit was that the laboratory's QA, analytical, and human systems were being stressed. Some analysts were working 60 to 70 hours per week. Standard Operating Procedures (SOP) were either not updated, incomplete or not available in the sections. Mistakes were being made and not caught during QA/QC reviews or the QA/QC review was not even performed. During this audit the AFCEE auditors confirmed the laboratory's data review process was not implemented as described in the laboratory's SOPs. Data packages for Bellows AFS and Camp Stanley were reviewed for completeness. The VOA data packages did not contain the laboratory mandated QA/QC checklists, which are necessary to verify that a data quality review had been accomplished. When questioned about the absence of the QA/QC checklists Mr. McQueen, a VOA analyst stated that the analysts were often too busy to document the QA/QC review. Mr. McQueen's statement was confirmed by Ms. Sheila Petty, a data reviewer, who stated that upper management had told her that it was more important to get the data packages out than to worry about documenting the fact of a QA/QC review.

The method 6010 and 8270 data were also reviewed in the Bellows AFS and Camp Stanley data packages. Documentation of a data review was present for these methods. The data packages for method 8270 contained signed signatory data stamps but not the laboratory prescribed QA/QC checklist. Method 6010 contained a signed checklist but the checklist was different than the one prescribed in the laboratory's data review SOP. In no case was the laboratory found to be following their SOP for data review.

It is the auditors' assessment that the current laboratory management lacks overall commitment to quality and is emphasizing production at the expense of quality. Examples are as follows:

- Analysts that admitted performing improper data manipulations are still actively engaged in GC/MS analysis of samples including Air Force samples. (Laboratory management informed the auditors that currently no Air Force data packages are being released to AFCEE prime contractors. This has not been confirmed by AFCEE.
- The analysts admitted that they do not have time to perform laboratory prescribed QA/QC data reviews. However management has instructed the data review section to release reports without the required documentation of data review.

RECOMMENDATIONS:

The following recommendations are made:

- ITS laboratory should be suspended from doing further analysis for AFCEE until ITS can verify that all of the proper QA/QC is in place and is being used to prevent the recurrence of inappropriate data manipulation.
- All of the SW 8260 volatile data effected by the inappropriate QA/QC manipulations generated by the laboratory for Air Force should be rejected.
- The laboratory must implement electronic and manual QA/QC data review practices to eliminate any future data quality problems. Such practices should be implemented prior to release of any AFCEE data.
- ITS shall have an independent third party audit of the laboratory performed to ensure improper QA/QC manipulations are not a common practice throughout the laboratory.
- ITS management must implement the necessary personnel and QA/QC changes in the laboratory to assure compliance with AFCEE requirements and Good Laboratory Practices.

EDWARD J. BROWN, GS-13
Chemistry Consultant
Consultant Operations Division



Intertek Testing Services 430 493
Environmental Laboratories

January 30, 1998

Mr. Glenn Metzler
The Environmental Co.
P.O. Box 5127
Charlottesville, Virginia 22905

Dear Mr. Glenn Metzler

I am writing to inform you of a recently discovered problem at our Dallas facility. In view of our long standing business relationship and our commitment to provide a high quality analytical product, I want to personally apprise you of the situation and that some of your data may have been affected.

On December 9, 1997, through an internal audit, we discovered that inappropriate manual integrations of chromatographic peak areas were being performed by one of our Organic Analyses Departments in the Dallas facility. The specific department involved was GC/MS volatiles and the affected analyses appear to be AFCEE and SW-846 Method 8260 testing of soils and waters. The inappropriate manual integrations were being performed for the purpose of meeting method/protocol criteria.

Since the discovery of this problem, ITS has been working diligently to correct the problem and notify all potentially affected government agencies including USEPA, AFCEE and USACE. Additionally, we are continuing our investigation and have hired an independent consultant to audit our Dallas facility. Other actions include the termination of the Organic Area Director, sanctioning of other employees and instituting appropriate corrective actions which include immediate retraining in both ethics and proper manual integrations. Our remedial measures include a top to bottom review of our Quality Assurance and Data Review departments. ITS is fully committed to cooperate with all federal agencies to quickly resolve any questions or issues surrounding our disclosure.

We believe that upon discovery of the inappropriate manual integrations we have acted responsibly by initially notifying the USEPA through its voluntary disclosure policy and all other agencies and businesses involved. It is our understanding that due to our voluntary disclosure and the responsible nature with which we have handled this matter, ITS will be allowed to continue to perform work for the federal government. We intend to keep you informed of all developments and plan to follow up this letter within two weeks to appraise you of the additional remedial measures taken to better insure that this incident will not reoccur.

We are absolutely aware of the severity of this problem and fully realize the difficulties it places on you and all our clients. You can be assured, that we are prepared to take all possible action to swiftly resolve any questions in this matter and to minimize the potential impact on your business. We stand unconditionally prepared to resolve this situation to your satisfaction and welcome the opportunity to further discuss the situation with you at your convenience.

Intertek Testing Services NA Inc.
1089 East Collins Boulevard Richardson, TX 75081
Telephone (972) 238-5591 Fax (972) 238-5592



I encourage you to call your ITS sales representative or project manager if you have any questions regarding this matter. A list of sales and project manager phone numbers is included here for your convenience. Alternatively, you may call Mr. Bob Wyeth, Laboratory Operations Director, or myself.

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Very truly yours,

Martin Jeffus
Environmental Division Vice President

Sales

- Keith Kirkpatrick / ITS Dallas: (972)238-5591
- Tracy Kreitz / ITS San Antonio: (210)863-0265
- Todd Haller / ITS Kansas City: (913)438-7109
- Debi Rotenberg / ITS Boston: (617)454-1170
- Kevin Calcagno / ITS Danville CA: (510)831-9140
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- Carla Holmes
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 - Chris Duncan
 - Ken Ortez

FINAL PAGE

ADMINISTRATIVE RECORD

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